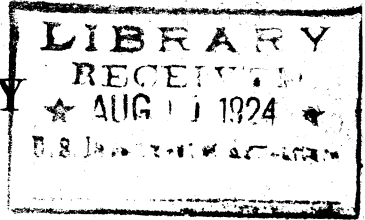


Issued July, 1924.

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 JULY 1  
TO SEPTEMBER 30, 1922.

(No. 72; Nos. 55569 to 55813.)



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# INVENTORY OF SEEDS AND PLANTS IMPORTED BY THE OFFICE OF FOREIGN SEED AND PLANT IN- TRODUCTION DURING THE PERIOD FROM JULY 1 TO SEPTEMBER 30, 1922 (NO. 72; NOS. 55569 TO 55813).

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## INTRODUCTORY STATEMENT.

The Chinese Province of Yunnan has in the past yielded many interesting ornamental plants to European collectors, but this inventory records the first time that an agricultural explorer from the Department of Agriculture has penetrated its mountain slopes and vast plains, where a climate similar to that of our Atlantic seaboard prevails.

While no such severe weather as that of the Dakotas ever visits this back country of China, it is a land of heavy frosts, and plants from its plains may be expected to do well in many parts of our Eastern States, while those from its wetter mountain slopes will doubtless find a congenial home in the Puget Sound region.

The plants which appear in this inventory represent a small fraction only of the great collections which the department's explorer, J. F. Rock, has gathered under conditions of living and travel which would daunt any but the real enthusiast. His travels have taken him over hundreds of miles of almost impassable mountain trails and roads through regions where Chinese bandits abound and have necessitated a constant association month after month with people who neither understand what he is doing nor care regarding his fate.

From the Likiang Snow Range, at an altitude of 11,000 feet, Mr. Rock sent six rare lilies, one of them *Lilium sutchuenense* (No. 55609), and five others as yet undetermined (Nos. 55610, 55730, and 55778 to 55780). From Likiang he forwarded seeds of a white-flowered ornamental bush (*Prinsepia utilis*; No. 55719), a fine climbing rose (No. 55721), and a wild species of cherry (No. 55720) that grows to 50 feet in height which he suggests may be used as a stock for the cultivated cherries. At Nguluke, in the Likiang Valley, 8,000 feet above sea level, Mr. Rock found a small, sour, red-fruited apricot (*Prunus armeniaca*; No. 55729) of deliciously fragrant aroma, which is used there for stewing and jam making, and in the foothills of Talifu he obtained seeds of the rare cherry (*P. majesticca*; No. 55732) which grows into large trees and has a vigor suggesting its use as a stock or as an ornamental flowering tree. Seeds from large freestone peaches (*Amygdalus persica*; Nos. 55775 and 55776) borne by trees growing wild near Puerhfu and seeds of a large-fruited plum (*Prunus* sp.; No. 55783) from the same region are part of his shipments which have recently arrived.

H. R. Wright, of Auckland, New Zealand, to whom the department is indebted for many valuable collections of new fruit varieties, has sent his "Sunrise" (No. 55740), a very early variety of peach, and "Watts Early" (No. 55741), a peach worth testing in Florida because of the unusually short resting period which it requires. He also sent the Groverly Navel orange (*Citrus sinensis*; No. 55743), which is reported to be a large-sized variety with a habit for cropping which should make it worth a trial both in California and Florida.

G. Weidman Groff, of the Canton Christian College, has sent from South China a collection of trees, including the mu-oil tree (*Aleurites montana*; Nos. 55647 to 55650), some varieties of persimmon (*Diospyros kaki*; Nos. 55659 and 55660), an undetermined species of *Diospyros* (No. 55662), an interesting rare ornamental (*Millettia dielsiana*; No. 55663), two varieties of the carambola (*Averrhoa carambola*; Nos. 55651 and 55652), a fruit tree recently attracting attention in southern Florida, and a large promising ornamental tree from the Five Finger Mountains (*Nageia cupressina*; No. 55664).

F. A. McClure, also of the Canton Christian College, secured for the department during his recent exploration of the island of Hainan, off the coast of South China, several interesting plants (Nos. 55626 to 55632) and from Lokong in Kwantung seeds of 13 named varieties of *Prunus mume* (Nos. 55633 to 55645), from which some valuable strains of this lovely flowering tree may originate in this country.

Prof. C. S. Sargent, of the Arnold Arboretum, has favored the department with material from a new hardy Chinese shrub (*Prinsepia sinensis*; No. 55711) whose yellow flowers appear very early in the spring and entitle it to a place in every North Atlantic garden, even should its fruits not meet with an enthusiastic reception in America. The genus with its several species is worthy of the attention of American horticulturists.

The success which attended the introduction through this office many years ago of the hairy Peruvian alfalfa is a matter of history. Crops of it worth several million dollars are grown every year in southern California. Growers will watch with interest the introduction now of the so-called San Pedrana variety (*Medicago sativa*; No. 55724) from Peru which, according to Mr. Dunn, is cut every 45 days.

Although it is yet too soon to predict the ultimate fate of the lowland Guatemalan anona in southern Florida, its growth there has been so satisfactory that a large quantity of seed of this species (*Annona diversifolia*; No. 55709) has been imported from Tapachula.

The so-called subterranean clover of Australia (*Trifolium subterraneum*; No. 55707), which was introduced several years ago, has shown so much promise in the Southern States that a second importation of seeds has been necessary.

A beautiful Australian shade tree, *Vitex littoralis*, grew 30 feet tall at Del Monte, Calif., years ago, but was cut down by a temperature of 17° F. A New Zealand species of this same genus (*V. lucens*; No. 55620) may prove hardier than its relative.

It seems strange that a magnificent tree in the mountain gorges of the great African continent should be in danger of becoming extinct, but such is the case. In fact, so fast are some of the wonderful forest trees of the globe disappearing that our grandchildren, even when they circle the world through the air, will not have the supreme pleasure which the Africanders had, as, traveling at a snail's pace with ox teams across the veldt, they stood in the presence of the leafy giants of the Milanji cypress, whose crowns rose 140 feet above the earth. From Southern Rhodesia W. L. Thompson, of the American Board Mission, has sent the department seed of this wonderful tree (*Callitris whytei*; No. 55602) which survives now only in the gorges of that region not visited by forest fires, and it is hoped that these may grow and establish themselves in other regions.

G. H. Cave, the curator of the Lloyd Botanic Gardens at Darjiling, to whom in the past the department has been indebted for many courtesies, has sent a remarkable collection of seeds of Himalayan ornamental and economic trees and shrubs (Nos. 55669 to 55706). It includes one of the hill bamboos (*Cephalostachyum capitatum*; No. 55676); a yellow-flowered clematis (*C. grewiaeflora*; No. 55677); a species of that small genus to which belongs the Japanese loquat (*Eriobotrya hookeriana*; No. 55679) with egg-shaped yellow fruits three-fourths of an inch long, possibly useful for breeders or as a stock; *Ilex insignis* (No. 55682), which has proved hardy in Ireland; a bright-flowered Indigofera (No. 55683); the famous pink-flowered Himalayan magnolia (*Magnolia compbellii*; No. 55688); three species of *Michelia* (Nos. 55689 to 55691), trees with magnolialike flowers and foliage, one of them the principal timber tree of the Darjiling Hills; the Himalayan spruce (*Picea smithiana*; No. 55694); and a Himalayan cherry (*Prunus napaulensis*; No. 55696) from an altitude of 10,000 feet.

Guarana is a paste that is much used by the natives of the Amazon Valley to make a beverage which contains caffein and, like cacao and coffee, is a stimulant. It is prepared from the grapelike fruits of a climbing shrub (*Paullinia cupana*; No. 55738), the culture of which in Brazil has been a lucrative industry. Seeds of this shrub have been presented by Doctor da Costa, of Rio de Janeiro.

The so-called kiffy of Sierra Leone is the roasted seed of a cucumberlike plant (*Cucumeropsis manni*; No. 55792) which is used as a condiment by the natives in the preparation of their remarkable dish known as dumboy.

Doctor Shirai, of Komaba, Japan, has presented plants of two distinct varieties of *Elaeagnus multiflora* (Nos. 55771 and 55772), the "Ogumi" and the "Togumi." As this species grows well on the Atlantic seaboard, these two large-fruited varieties will be wanted by those who have the ordinary small-fruited form.

Doctor Shantz has imported, in order to test again, the narras (*Acanthosicyos horrida*; No. 55763), a melonlike fruit which the Hottentots grow on the sand dunes of the Kalahari Desert and upon which they live for months.

The wild black cherry (*Prunus serotina*) has been determined to be botanically identical with the capulin of Central America and northwestern South America; but, whereas Americans have done nothing to improve this native cherry, our southern neighbors have

by selection evolved from their wild capulin or native cherry a large delicious fruit which is borne in clusters and is sold on their markets (Nos. 55764 and 55765).

Norman M. Ross, who has for many years tested the dwarf pea tree in his Forestry Station at Indian Head, Canada, recommends for wide distribution throughout the Northwest this handsome shrub (*Caragana pygmaea*; No. 55769) of Siberia and furnishes seeds for that purpose.

The "Toeban" (*Arachis hypogaea*; No. 55810), an early-maturing bunch strain of peanut which is resistant to the bacterial disease prevalent in Java caused by *Bacterium solanacearum*, will interest peanut growers in America; and Mr. Morrow's new peach (No. 55813) that originated as a sucker at the Chico garden from a stock which was used for the Tangutian almond (*Amygdalus tangutica*) proves to be a week later than the Elberta and of finer texture than that standard variety.

The botanical determinations of seeds introduced have been made and the nomenclature revised by H. C. Skeels; and the descriptive and botanical notes have been arranged by Paul Russell, who has had general supervision of this inventory.

DAVID FAIRCHILD,  
*Agricultural Explorer in Charge.*

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION,  
*Washington, D. C., September 17, 1923.*



## INVENTORY.<sup>1</sup>

### 55569 to 55572.

From Cuenca, Ecuador. Seeds presented by Dr. Federico Malo. Received July 24, 1922. Quoted notes by Doctor Malo.

**55569 to 55571.** *MEDICAGO SATIVA* L. Fabaceæ. **Alfalfa.**

"These are from the principal localities where alfalfa is produced; that which comes from the town of Guanando is considered especially good."

**55569.** "From Dr. José A. Avilez, town of Guano."

**55570.** "Purchased from Paula Iza, who brought it from Cuchibamba, near Ambato."

**55571.** "Obtained from Antonio Moyano and said to have been grown at Guanando."

**55572.** *TRIFOLIUM REPENS* L. Fabaceæ. **White clover.**

"This white-flowered clover from the vicinity of Burgay, near Biblian, is produced spontaneously; the stock are very fond of it."

### 55573 and 55574. *PHASEOLUS AUREUS* Roxb. Fabaceæ.

**Mung bean.**

From Manila, Philippine Islands. Seeds presented by George S. Logan, through the Bureau of Foreign and Domestic Commerce, United States Department of Commerce. Received July 6, 1922.

These two varieties of the mung bean were originated at the Lauro Experiment Station. The mung bean is cultivated throughout southern Asia and the adjacent islands, where its seeds constitute a very important human food and its straw a valuable fodder.

**55573.** *Yellow mungo.*

**55574.** *Green mungo.*

### 55575 to 55578. *LYCOPERSICON ESCULENTUM* Mill. Solanaceæ.

**Tomato.**

From Bogota, Colombia. Seeds presented by Q. U. Thompson. Received July 25, 1922.

These tomatoes are introduced from various places in Colombia in the hope of finding a strain which will prove immune to leaf-spot, a serious pest in this country.

**55575.** From Bogota.

**55577.** From Fusagasuga.

**55576.** From Girardot.

**55578.** From San Antonio de Tena.

<sup>1</sup>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 be subject to change with a view to bringing the forms of the names into harmony with recognized American codes of nomenclature.

**55579. CYRTOSTACHYS LAKKA** Beccari. Phœnicaceæ. **Palm.**

From Singapore, Straits Settlements. Seeds presented by I. Henry Burkill, superintendent, Botanic Gardens. Received July 24, 1922.

A stately and elegant palm, native to the East Indies, with a slender spineless stem crowned by a cluster of boldly arched pinnate leaves 3 to 4 feet in length. It is distinguished by its red leaf sheaths. The fruits are elongate egg-shaped and about half an inch long. (Adapted from *Beccari, Annales du Jardin Botanique de Buitenzorg, vol. 2, p. 141*, and *Bailey, Standard Cyclopædia of Horticulture, vol. 2, p. 947*.)

J. F. Rock recommends this as a handsome ornamental plant, probably suitable for cultivation in southern Florida. It is doubtful whether it will withstand heavy frosts.

For previous introductions, see S. P. I. Nos. 49530 and 51870.

**55580 to 55584.**

From Canton, China. Plants presented by the Canton Christian College, through F. A. McClure. Received July 29, 1922. Quoted notes by Mr. McClure.

**55580 and 55581. FORTUNELLA** spp. Rutaceæ. **Kumquat.**

Introduced for department specialists engaged in citrus-breeding experiments.

**55580. FORTUNELLA** sp.

"(C. C. C. introduction No. 793.) Obtained from near a Chinese village (Sants'u'en) in the island of Hainan, where it is found in a semicultivated state. The natives gather the fruits, which ripen in November, and eat them fresh or candy them. Some few of the fruits find their way to the markets, although they are not generally much in favor with the Chinese, owing to their acid taste. They have almost no seed, and in this respect are excellent for candying. The fruits are small, seldom attaining a size of more than an inch in diameter; the segments adhere to each other very firmly. The plants are never grafted, but are allowed to spring up from scattered seed."

**55581. FORTUNELLA** sp.

"(C. C. C. introduction No. 794.) Obtained from the wild in the Five Finger Mountains of the island of Hainan. I found the plant in flower in May. A few fruits at that time were brought to me by the natives. The flavor is rather sweeter than one would expect to find in wild fruits; these are not of commercial importance, as they are known only by the primitive tribes that inhabit the interior of the island. They gather the wild fruits and evidently consider them quite a delicacy, although they never take the trouble to plant the seeds near their houses. There is a slight prominence on the fruit at the stem end, which is characteristic."

**55582 and 55583. PHYLLOSTACHYS** spp. Poaceæ. **Bamboo.**

"These are grown for timber and also for food, the young shoots being eaten."

**55582. PHYLLOSTACHYS** sp.

"(C. C. C. observation No. 901.2.) *Tai tau tim chuk.*"

**55583. PHYLLOSTACHYS** sp.

"(C. C. C. observation No. 901.2.) *Ma chuk.*"

**55584. ZIZANIA** sp. Poaceæ. **Wild rice.**

"(C. C. C. introduction No. 860.) *Kau sun.* This is grown by the Chinese in wet culture. The stock at the crown becomes infected with a smut, and the enlarged growth at that point is used as food. This product is very similar in appearance, texture, and flavor to the bamboo shoots and is prepared in the same manner."

**55585. OXALIS TUBEROSA** Molina. Oxalidaceæ. **Oca.**

From Tucuman, Argentina. Tubers presented by E. F. Schultz, horticulturist, Agricultural Experiment Station. Received July 31, 1922.

"A plant related to our common sheep sorrel, widely cultivated in Peru and Bolivia for the sake of its fleshy rootstocks, which are an important article of food. In some districts ocas are second only to potatoes, while in others ullucus (*Ullucus tuberosus* Caldas) are more important, or at least are sold more generally in the native markets. Ocas are eaten raw, as well as cooked, and are also frozen and dried. Ocas prepared in this last-mentioned way are called caya, a term corresponding to chuño, the name of the dried potatoes. Raw ocas, when first dug, have a distinctly acid taste, like sheep sorrel, but this is lost after the tubers have been exposed to the sun.

"The plant attains a height of 1 foot or more and has the general appearance of a large plant of sheep sorrel. The flowers are yellow, and the leaflets are folded at night or in wet weather, the same as the sheep sorrel.

"The varieties are numerous, though much fewer than in the case of the potato. Some are preferred for eating raw and others for the making of caya. The texture of the tubers is very tender and juicy. In form some are nearly cylindrical, while others are slender at the base and strongly thickened at the end. The colors vary from white or light pink through darker pinks or yellows to deep purplish red. The range of colors is much the same as in the ullucu, but no deep-yellow varieties were seen, nor any with spots, except that some have bands of deeper color across the eyes.

"In addition to the pleasing coloration, the surface of the tubers is smooth and clear, so that the general appearance is very attractive. The texture of the flesh is also very tender and crisp. If the taste should prove acceptable, ocas might become very popular for salads and pickles, if not for other purposes. The nature and habits of the plant indicate that it may be adapted to acid soils, which would be a distinct advantage in some parts of the United States." (*O. F. Cook.*)

For previous introductions, see S. P. I. Nos. 41168 to 41176.

**55586. MEDICAGO SATIVA** L. Fabaceæ. **Alfalfa.**

From Buenos Aires, Argentina. Seeds presented by D. S. Bullock, agricultural commissioner, Bureau of Agricultural Economics, United States Department of Agriculture. Received July 28, 1922.

Introduced for comparison and cultural experiments.

**55587. PRUNUS SERRULATA** Lindl. Amygdalaceæ. **Japanese flowering cherry.**

From Yokohama, Japan. Seeds purchased from the Yokohama Nursery Co. Received July 24, 1922.

Forma *lannesiana*. A variety of Japanese cherry known as *Mazakura* (synonym, *Dai Sakura*), used in Japan as a stock. Prof. Yugo Hoshino, of the Tohoku Imperial University at Sapporo, is quoted as follows in Hedrick's "Cherries of New York," p. 75: "In the northern part of Japan proper (main island) it is a common practice to graft European cherries on a special kind of Japanese cherry. This cherry has a peculiar character which fits it for propagation, namely, it roots very easily either from cuttings or by mound layering. It is grown by nurserymen only and is called *Dai Sakura*. It has a somewhat dwarfing influence on scions and hastens their fruiting age."

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

**55588. MICROCITRUS AUSTRALASICA** (F. Muell.) Swingle. Rutaceæ. **Finger lime.**

From Dundas, New South Wales. Seeds presented by Herbert J. Rumsey. Received July 13, 1922.

"The finger lime is one of the most curious and interesting of the citrus fruits. The young plants have more or less horizontally arranged branchlets, with very short internodes and small oval young leaves, these much shorter than the stiff, erect spines. The flowers are small, and the fruits are long

and slender, 2½ to 4 inches long, with a loose pulp filled with a sour, rather strongly pungent juice. The shrub is native to the mountain scrubs of the coastal region of northern New South Wales and Queensland." (*W. T. Swingle.*)

"This relative of the citrus fruits has been used in creating several hybrids, chiefly with the Calomondin (*Citrus mitis*), a Philippine species (see S. P. I. Nos. 27724 to 27736); also with the Mexican lime and the common lemon. The fruits produced, as a rule, have resembled the finger lime more closely than the other parents, not being sufficiently juicy as compared with lemons or limes for economic use, and possessing a peculiar aromatic odor. Their use as citrus stocks and as hedge plants, particularly in the semiarid regions of the Southwest, seems worth a trial, and experiments along this line are under way." (*T. Ralph Robinson.*)

**55589. FRAGARIA sp. Rosaceæ. Strawberry.**

From Paris, France. Seeds presented by Vilmorin-Andrieux & Co. Received July 26, 1922.

‡ Introduced for experiments in strawberry breeding.

"This form is close to *Fragaria nilgerrensis*; it has the same foliage and the same small white fruits with darker seeds, but it is more vigorous, and the fruits might be considered as edible, whereas in the type their taste is unpleasant." (*Vilmorin-Andrieux & Co.*)

**55590 and 55591. LYCOPERSICON ESCULENTUM Mill. Solanaceæ. Tomato.**

From Buenos Aires, Argentina. Presented by D. S. Bullock, agricultural commissioner, Bureau of Agricultural Economics, United States Department of Agriculture. Received July 26, 1922. Quoted notes by E. F. Schultz, Tucuman Experiment Station.

These tomatoes are introduced for the use of specialists in breeding blight-resistant varieties.

"The variety most extensively planted here in Tucuman, especially in the Lules region, is known under the name of *Parana*. It is generally regarded as the most blight-resistant variety, but my own experience has led me to the conclusion that it is not completely resistant, although there are always a number of plants which do not suffer at all when the rest of the plants have died from the disease."

55590. "Seeds of *Parana* from Lules, Tucuman."

55591. "Seeds from blight-resistant plants of *Parana*, grown at the Tucuman Experiment Station in 1921."

**55592 and 55593. MUSA spp. Musaceæ. Banana.**

From Kisantu, Belgian Congo. Seeds presented by Père J. Gillet, S. J., Jardin d'Essais de Kisantu. Received July 27, 1922. Quoted notes by Père Gillet.

"These bananas are handsomer and probably more hardy than *Musa ensete*; they grow in the mountains of Ruanda at altitudes of 6,500 feet or more."

55592. *MUSA* sp.

"An undetermined variety with white nerves."

55593. *MUSA* sp.

"An undetermined variety with red nerves."

**55594 to 55597. DIOSCOREA ALATA L. Dioscoreaceæ. Greater yam.**

From Holguin, Cuba. Tubers presented by Thomas R. Towns. Received July 24, 1922. Quoted notes by R. A. Young.

55594. *Pelua*. "A white-fleshed yam, comparatively small; tubers said to weigh 3 pounds each. Vine four angled, with narrow pale-maroon wings. Leaves broadly ovate, cordate, plain green."

**55594 to 55597—Continued.**

**55595.** *Frances.* "A white-fleshed yam; said to weigh up to 25 pounds or more in each hill. Vine four angled, with pale-maroon wings. Leaves alternate, broadly ovate, cordate, acuminate; sinus fairly deep and narrow."

**55596.** *Kohl-E-Patta.* "A white-fleshed yam whose tubers are said to weigh as much as 25 pounds to the hill."

**55597.** *Morado.* "This yam has purple inner skin and white flesh; it is said to weigh up to 25 pounds or more in each hill. The vine is four angled, with narrow maroon wings. Leaves broadly ovate, cordate, acuminate; sinus deep and narrow; petioles maroon at base and apex."

**55598. CLAUCEA LANSIUM (LOUR.) Skeels. Rutaceæ. Wampi.**  
(*C. wampi* Oliver.)

From Honolulu, Hawaii. Seeds presented by Dr. H. L. Lyon, in charge, Department of Botany and Forestry, Experiment Station of the Hawaiian Sugar-Planters' Association. Received August 3, 1922.

The wampi is a very ornamental small tree, 18 to 20 feet in height; in the spring it bears small dense panicles of whitish sweet-scented flowers, and in midsummer appear the grapelike clusters of edible berries. The individual fruits are about the size of a large marble, with a rough, pale straw-yellow, orangelike rind covered with glands filled with green balsamic oil; the rather large seeds, one to three in number, are inclosed in colorless juicy pulp which has an agreeable aromatic acid flavor. The wampi is a native of South China, where the berries are highly esteemed, both as a dessert fruit and for preserves. Propagation is by seeds and layering. (Adapted from *Report of Hawaii Agricultural Experiment Station, 1914, p. 33.*)

For previous introduction and illustration, see S. P. I. No. 45328.

**55599 to 55601.**

From Richmond, Victoria. Seeds presented by F. H. Baker. Received July 29, 1922.

**55599. CASSIA LAEVIGATA Willd. Cæsalpiniaceæ.**

An erect shrubby ornamental cassia several feet in height, with axillary and terminal racemes of large yellow flowers and cylindrical leathery pods, 2 to 3 inches long, inflated when ripe. Native to Queensland and New South Wales. (Adapted from *Bentham, Flora Australiensis, vol. 2, p. 282.*)

For previous introduction, see S. P. I. No. 53851.

**55600. INDIGOFERA AUSTRALIS Willd. Fabaceæ.**

An attractive shrub 2 to 4 feet high, with erect branches, finely divided compound leaves, and dense racemes of very showy violet-red flowers. (Adapted from *Bentham, Flora Australiensis, vol. 2, p. 199.*)

For previous introduction, see S. P. I. No. 47152.

**55601. KENNEDIA MONOPHYLLA Vent. Fabaceæ.**  
(*Hardenbergia monophylla* Benth.)

An ornamental Australian vine, with alternate smooth leaves and a profusion of blue flowers borne in stalked racemes. The long carrot-shaped somewhat woody root is called "sarsaparilla" by the natives and is used in infusion as a substitute for that root. (Adapted from *Lindley, Treasury of Botany, vol. 1, p. 569.*)

For previous introduction, see S. P. I. No. 51757.

**55602. CALLITRIS WHYTEI (Rendle) Engl. Pinaceæ.**  
(*Widdringtonia whytei* Rendle.)

From Mount Silinda, Southern Rhodesia. Presented by W. L. Thompson, American Board Mission. Received July 24, 1922.

"Native cedar of this region. These seeds are from trees in our own grounds." (*Thompson.*)

The *Milanji cypress* was originally found at an altitude of 10,000 feet on Mount Milanji, in Nyasaland, by Alexander Whyte. It is a magnificent tree reaching a height of 140 feet, sometimes with a clear straight trunk for 90 feet and a diameter of  $5\frac{1}{2}$  feet at 6 feet from the base. The pale reddish timber is of excellent quality and easily worked. The bark on old trees is of great thickness. These fine trees are rapidly disappearing before the forest fires, only those in damp gorges surviving. (Adapted from *Transactions of the Linnean Society, 2d ser., vol. 4, p. 60*, and *Gardener's Chronicle, 3d ser., vol. 37, p. 18.*)

For previous introduction, see S. P. I. No. 52807.

**55603. PHELEUM PRATENSE L. Poaceæ. Timothy.**

From Roskilde, Denmark. Presented by Danske Landboforeningers Frøforsyning. Received August 2, 1922.

Timothy seed produced locally for several seed generations; introduced for breeding experiments.

**55604. PHELEUM PRATENSE L. Poaceæ. Timothy.**

From Prague, Czechoslovakia. Presented by Basil Benzin. Received July 31, 1922.

Locally grown seed introduced for timothy breeding experiments.

**55605 and 55606. RUMEX spp. Polygonaceæ.**

From Okitsu, Japan. Seeds presented by T. Onda, director, Government Horticultural Experiment Station. Received August 2, 1922.

These sorrels, which are used as salad vegetables in Japan, are introduced for trial as food for diabetics.

**55605. RUMEX ACETOSA L. Sorrel.**

*Suiba.*

**55606. RUMEX CRISPUS L. Curly dock.**

Variety *japonicus*. *Gishi-gishi.*

**55607. BOWENIA SPECTABILIS Hook. Cycadaceæ.**

From Brisbane, Queensland. Seeds presented by C. T. White, Government botanist. Received August 1, 1922.

An Australian cycad with a short, thick, cylindrical stem which bears at the summit one or two large, very graceful, compound fernlike leaves. It makes a charming little ornamental and should thrive well in lath houses in Florida when given proper shade, a good supply of moisture, and soil rich in humus. (Adapted from *Curtis's Botanical Magazine, pl. 5398*, and *Bailey, Standard Cyclopedia of Horticulture, vol. 1, p. 537.*)

**55608. PRUNUS TOMENTOSA ENDOTRICHA Koehne. Amygdalaceæ.  
Bush cherry.**

From Jamaica Plain, Mass. Cuttings presented by Dr. C. S. Sargent, Arnold Arboretum. Received August 9, 1922.

A large spreading shrub or small tree with densely hairy branches, dark-green, toothed, sharp-pointed leaves about 3 inches long, solitary white flowers three-fourths of an inch across, and dark-red fruits about half an inch in diameter. The plant is found native in western Hupeh and northern Shensi, China. (Adapted from *Sargent, Plantae Wilsonianae, vol. 1, p. 225.*)

**55609 and 55610. LILIUM spp. Liliaceæ. Lily.**

From Likiang, Yunnan, China. Bulbs collected by J. F. Rock, Agricultural Explorer of the United States Department of Agriculture. Received August 9, 1922. Quoted notes by Mr. Rock.

## 55609 to 55610—Continued.

55609. *LILIUM SUTCHUENENSE* Franch.

Lily.

"(No. 4402. Likiang, Yunnan. June 13, 1922.) A lily 3 to 4 feet in height, growing among limestone rocks and along brooks in scrub vegetation at an altitude of 10,000 to 11,000 feet on the Likiang Snow Range, near the Moso village of Nguluke. The flowers are borne at the apex of the stem in twos and threes and are very variable in color, ranging from orange-yellow to red and reddish brown, the inner part of the corolla being spotted purple."

55610. *LILIUM* sp.

Lily.

"(No. 4532. Likiang, Yunnan. June 17, 1922.) A plant 2 to 2½ feet high, growing among limestone crags in pine and fir forests at altitudes of 12,000 feet and higher. These bulbs were collected on the slopes of the Likiang Snow Range. The flowers, which are smaller than those of *Lilium sutchuense*, are green and marked on the outside and inside with deep purplish spots. The lobes are much reflexed, making the perianth pitcher shaped. This species is not common, while *L. sutchuense* is found more frequently."

55611 to 55615. *PHOENIX* spp. Phœnicaceæ.

Palm.

From Nice, France. Seeds presented by Dr. A. Robertson Proschowsky. Received July 25, 1922.

"These Phoenix hybrids are all small plants, developing shoots from the base, and are highly ornamental. They have proved quite hardy here, withstanding the severe frost of 1920 (20° or 21° F.), the lowest temperature since 1829." (*Proschowsky*.)

55611. *PHOENIX* sp.55614. *PHOENIX* sp.

(No. 1.)

(No. 4.)

55612. *PHOENIX* sp.55615. *PHOENIX* sp.

(No. 2.)

(No. 5.)

55613. *PHOENIX* sp.

(No. 3.)

55616. *PHLEUM PRATENSE* L. Poaceæ.

Timothy.

From Prague, Czechoslovakia. Presented by Basil Benzin. Received August 12, 1922.

Locally grown timothy seed introduced for the use of forage-crop specialists.

## 55617 and 55618.

From Aitutaki, Cook Islands. Tubers presented by W. T. Hewett. Received August 11, 1922. Quoted notes by R. A. Young.

55617. *COLOCASIA ESCULENTA* (L.) Schott. Araceæ.

Taro.

"*Taro-repo*. A taro with slightly pink buds."

55618. *XANTHOSOMA* sp. Araceæ.

Yautia.

"A white-fleshed yautia of good quality, received under the name 'taro-tarua.' The buds are very slightly tinged with pink."

## 55619 and 55620.

From Auckland, New Zealand. Seeds presented by Stanley G. Chambers, secretary, Auckland Acclimatisation Society. Received August 11, 1922.

55619. *RHOPALOSTYLIS SAPIDA* (Soland.) Wendl. and Drude. Phœnicaceæ.

Nikau.

An elegant palm from New Zealand; it is of peculiar interest because of its distribution, as it occurs farther south than any species of palm in either Australia or South America, being found at 38° 22' south lati-

**55619 to 55620—Continued.**

tude. The pinnate leaves, 4 to 6 feet in length, are borne on a trunk 6 to 12 feet high, and the very numerous flowers, occurring on a densely flowered, much-branched spadix, are pale pink. The young inflorescence is eaten by the natives of New Zealand. (Adapted from *Curtis's Botanical Magazine*, pl. 5139.)

For previous introduction, see S. P. I. No. 54298.

**55620. VITEX LUCENS Kirk. Verbenaceæ.****Puriri.**

A fine tree, from 50 to 60 feet in height, native to New Zealand, but restricted to the northern part of North Island. It is often called the New Zealand oak on account of the strength and durability of its wood, which is not injured by damp or exposure and is therefore extremely valuable for shipbuilding purposes. The logs are often perforated with holes, the work of a soft-bodied grub which develops into the puriri moth. These holes do not affect the timber except that it sometimes has to be cut to disadvantage.

The handsome, bright glossy green leaves are three to five foliolate with leaflets 3 to 4 inches long. The pink or red 2-lipped flowers, produced more or less all the year round, are in axillary clusters of four to eight. The roots of the puriri never penetrate deeply into the ground, but lie near the surface, so the tree is easily blown over in a gale. (Adapted from *Laing and Blackwell, Plants of New Zealand*, p. 350.)

For previous introduction, see S. P. I. No. 47881.

**55621. ILEX PARAGUARIENSIS St. Hil. Aquifoliaceæ. Yerba maté.**

From Buenos Aires, Argentina. Plants presented by D. S. Bullock, agricultural commissioner, Bureau of Agricultural Economics, United States Department of Agriculture. Received August 9, 1922.

A small, bushy evergreen tree with alternate serrate leaves, native to Brazil and Paraguay and the neighboring countries. The leaves are roasted and ground to make the Paraguay tea of commerce, which is said to possess the desirable properties of tea and coffee without their injurious aftereffects.

For previous introduction, see S. P. I. No. 55489.

**55622. DATURA LEICHHARDTII F. Muell. Solanaceæ.**

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

Introduced for the use of geneticists working on the chromosome behavior of this genus.

A tall coarse herb with irregularly toothed oval leaves 3 to 4 inches long, pale yellowish white flowers about 3 inches in length, and very prickly globular capsules about an inch in diameter. The plant is native in northern Australia. (Adapted from *Bentham, Flora Australiensis*, vol. 4, p. 468.)

**55623. PHLEUM PRATENSE L. Poaceæ.****Timothy.**

From Christiania, Norway. Presented by Dr. N. Wille, director, Botanic Garden. Received August 8, 1922.

"This strain of timothy is from Lierfoss, Norway, where seed culture has been carried on for 20 years." (*Wille*.)

Locally grown seed introduced for timothy breeding experiments.

**55624. CITRUS sp. Rutaceæ.**

From Johannesburg, Transvaal. Seeds presented by Col. A. J. Bester. Received August 15, 1922.

"When I visited the great Symbabian ruins in central Africa in 1911 I discovered a new citrus fruit; I collected seeds and brought them back, and now the variety is distributed all over the Transvaal. The smooth-skinned fruits are much like a big lime in shape and the abundant fine-flavored juice is very sweet." (*Bester*.)



**55625. PERSEA AMERICANA Mill. Lauraceae. Avocado.**  
(*P. gratiissima* Gaertn. f.)

From Honolulu, Hawaii. Budwood presented by Gerrit P. Wilder. Received August 16, 1922.

*Wilder.* Grown by Gerrit P. Wilder at his residence in Honolulu, a seedling from the Guatemalan variety *McDonald* growing at 1402 Punahou Street, Honolulu. An account of the introduction of the *McDonald* from Guatemala is given in Bulletin 25, p. 43, Hawaii Agricultural Experiment Station, as follows:

"About 20 years ago Admiral Beardsley, leaving Guatemala for Hawaii, carried with him a number of avocados for consumption on the way. He saved two seeds, wrapping them in cotton wool and packing them in ice. Arriving in Honolulu, he gave one seed to Judge Wiedeman and the other to Mrs. E. K. Wilder. The former was planted at 1402 Punahou Street, now occupied by 'The McDonald,' and although both seeds grew, the 'McDonald' is far superior in quality and blooms earlier."

A formal description of the fruit of the *Wilder* variety is as follows:

Form nearly round; size large, average weight about 1 pound; stem thick, tough; apex broadly rounded; surface light olive green; flesh yellow, shading into light green near the skin and easily separated from the latter, oily, rich and nutty in flavor; season October to January in Honolulu.

The tree is vigorous, inclined to grow upward rather than to branch out, but can stand pruning. The variety is valuable as a late avocado.

An analysis of the fruit (analysis 1747, University of California, 1915) is as follows: Weight (in ounces)—fruit, 25.70; seed, 6.42; skin, 2.54; edible portion, 16.88. Analysis of edible portion (per cent)—protein, 1.31; fat, 15.87; ash, 0.86; carbohydrates, 5.15.

**55626 to 55632.**

From the island of Hainan, China. Seeds presented by the Canton Christian College, through F. A. McClure. Received August 14, 1922. Quoted notes by Mr. McClure.

Collected by Mr. McClure in April and May, 1922. The Canton Christian College introduction numbers are in parentheses.

**55626. COMBRETUM sp. Combretaceae.**

"(No. 853.) An ornamental shrub about 6 feet high, growing on open hillsides at an altitude of about 1,600 feet."

**55627. DIOSPYROS sp. Diospyraceae. Persimmon.**

"(No. 856.) A tree 40 to 50 feet high and 2 feet in diameter, growing near the Five Finger Mountains, at an altitude of 3,300 to 5,000 feet. The fruits are eaten by the natives."

**55628. FICUS sp. Moraceae. Fig.**

"(No. 847.) A small ornamental shrub up to 5 feet in height, collected in sandy soil at an altitude of 100 to 165 feet. The bright-red figs are edible."

**55629. PANDANUS TECTORIUS Parkins. Pandanaceae.**

"(No. 858.) This plant, which sometimes reaches a height of 10 or 12 feet if unmolested, is used extensively as a hedge plant in Hainan, chiefly below an altitude of 1,000 feet. The spherical fruits, about 8 inches in diameter, are bright orange-yellow when ripe."

**55630. RUBUS sp. Rosaceae.**

"(No. 848.) An edible wild berry found in sandy soil at an altitude of 100 to 165 feet."

**55631. RUBUS sp. Rosaceae.**

"(No. 849.) An edible wild berry found in clay loam on hillsides at an altitude of about 3,300 feet."

**55626 to 55632—Continued.**

55632. *CURCUMA ZEDOARIA* (Bergius) Roscoe. Zinziberaceæ.

"(No. 857.) Rhizomes of 'hak sam keung' (black-hearted ginger); the flowers are rich pink, and a dark purple in the center of the leaves, as well as in the rhizome, gives the plant its name. It is found most abundantly in sandy soil in thickets and along streams and is a very promising ornamental for semitropical regions"

**55633 to 55645. PRUNUS MUME** Sieb. and Zucc. Amygdalaceæ.  
**Japanese apricot.**

From Lokong, Kwangtung, China. Seeds presented by the Canton Christian College, through F. A. McClure. Received August 14, 1922. The Canton Christian College observation numbers are in parentheses.

55633. (No. 601.5-B2) *Cha Ip mui*.  
 55634. (No. 601.5-C) *Cha Ip mui*.  
 55635. (No. 601.18) *Hak Lok Tsai mui*.  
 55636. (No. 601.-E) *Hang mui*.  
 55637. (No. 601.11-B) *Hank mui chie*.  
 55638. (No. 601.7-C) *Hung mui*.  
 55639. (No. 601.6-C-C) *Ngo Shu mui*.  
 55640. (No. 601.19) *Sun Ngan Au mui*.  
 55641. (No. 601.10-C) *Tai mui*.  
 55642. (No. 601.20) *Tai Wang Wat mui*.  
 55643. (No. 601.4-C2) *Tai Wat Tsing mui*.  
 55644. (No. 601.4-D) *Tai Wat Tsing mui*.  
 55645. (No. 601.8-C) *Wang Wat mui*.

**55646. MEDICAGO SATIVA** L. Fabaceæ. **Alfalfa.**

From Peking, China. Purchased from Dr. R. G. Mills. Received August 19, 1922.

Native-grown seeds introduced for alfalfa breeding experiments.

**55647 to 55668.**

From Canton, China. Seeds presented by G. Weidman Groff, general director, Canton Christian College. Received May 22, 1922. Numbered September, 1922. Quoted notes by F. A. McClure, of the Canton Christian College.

The Canton Christian College introduction numbers are in parentheses. Native names romanized from the Cantonese dialect.

55647 to 55650. *ALEURITES MONTANA* (Lour.) Wilson. Euphorbiaceæ.  
**Mu-oil tree.**

"This is the *mu-yu shu* (literally, wood-oil tree) of southern China. It is less hardy than the tung-oil tree, *Aleurites fordii*, and 2-year-old specimens growing at Tallahassee, Fla., were killed by cold in February, 1917. The oil is practically identical with tung oil. The fruit differs from that of *A. fordii* in having an irregularly ridged surface when mature and the young leaves in being much more deeply lobed than those of that species." (R. A. Young.)

55647. "*Shek Lut*, or *Tung Yau Tsz*. Secured in the autumn of 1921 through Rev. F. Fritz, from Mollim, northeastern Kwangtung"

55648. "(No. 785.)"

55650. "(No. 789.)"

55649. "(No. 788.)"

For an illustration of the young tree, see Plate I.



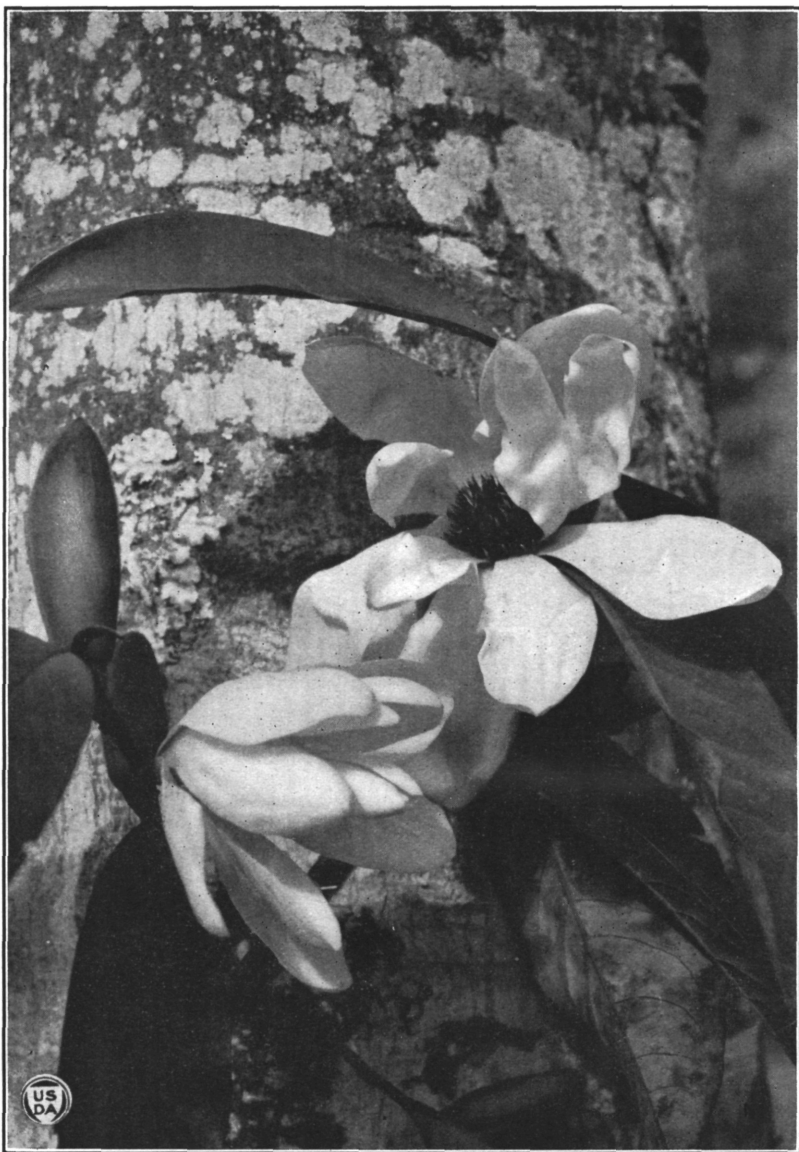
A YOUNG SPECIMEN OF THE MU-YU SHU, OR MU-OIL TREE. (ALEURITES MONTANA (LOUR.) WILSON; S. P. I. Nos. 55647 TO 55650.)

Mu oil, yielded by the seeds of *Aleurites montana*, is practically identical in character with tung oil, obtained from *A. fordii* Hemsl. It is a valuable drying oil, used in the varnish, paint, and many other industries. The mu-oil tree is less resistant to frost than the tung-oil tree, and the specimen here shown, grown at the Live Oak Plantation, Tallahassee, Fla., was killed by the freeze of February, 1917. The leaves of young trees of this species are much more deeply lobed than those of the tung-oil tree (Photographed by R. A. Young, Tallahassee, Fla., August 11, 1916; P19856FS.)



THE CARAMBOLA, A FAVORITE FRUIT OF SOUTHERN CHINA. (AVERRHOA CARAMBOLA L.; S. P. I. Nos. 55651 AND 55652.)

The peculiar winged fruits of the carambola are highly acid in character and are eaten by the Chinese with fish, meats, and other foods. When fully ripe they are deep yellow and sweet enough to be eaten out of hand, though they are not greatly relished in this form. The tree can be grown successfully in southern Florida, but it is too tender for cultivation in other parts of the United States. (Photographed by Wilson Popenoe at Rio de Janeiro, Brazil, March 18, 1914; P15001FS.)



AN ATTRACTIVE RELATIVE OF THE MAGNOLIAS. (*MICHELIA EXCELSA*  
BLUME; S. P. I. No. 55690.)

As ornamental plants for the warmer portions of the United States the various species of magnolias have acquired great and well-deserved popularity, and it may be expected that *Michelia excelsa*, which belongs to the same family and whose handsome flowers are here shown, will some day be widely cultivated in the southernmost parts of this country. This tall tree is native in the temperate Himalayas of northeastern India at altitudes of about 5,000 feet. The large narrow leaves are silky brown beneath, and the beautiful white flowers are 4 to 5 inches across. (Photographed by J. F. Rock in northeastern India, in 1920; P22780FS.)

## 55647 to 55668—Continued.

55651 and 55652. *AVERRHOA CARAMBOLA* L. Oxalidaceæ. **Carambola.**

"Seeds from fruits purchased in the market at Canton by a Chinese student experienced in fruits. Both are cultivated by the natives."

55651. "(No. 651.) *Yeung To*. A sweet variety eaten out of hand."

55652. "(No. 652.) *Saam Nim*. A sour variety."

For an illustration of the fruit and foliage, see Plate II.

55653. *CALAMUS* sp. Phœnicaceæ. **Battan.**

(No. 659.) *Wong t'ong*. Collected in December, 1921, from the Five Finger Mountains, interior of Hainan. The long vinelike stems are gathered by natives, dried, and sold to Hakka traders, who export them from Hainan as one of the rattans of commerce."

55654. *CASTANOPSIS* sp. Fagaceæ.

"(No. 664.) *Kwai lan yui* (Cantonese). Collected near Hongmatsuen, a Loi village in the interior of Hainan. The nuts are used by the natives as food."

55655. *CHAENOMELES* sp. Malaceæ.

"(No. 650.) *Sz chuen muk kwa*. Purchased in February, 1922, on the street in Canton. The fruit is used by the Chinese in making a rice wine; it makes good jelly and has been tried successfully here at the Canton Christian College."

55656. *COIX LACRYMA-JOBI* L. Poaceæ. **Job's-tears.**

"(No. 685.) *I mai*. Collected in December, 1921, on the island of Hainan. According to my Chinese assistant, a species of this genus is used by the people of Shinhing, West River, Kwangtung, as fish food, and a famous brand of soft-boned fish is the result."

55657 and 55658. *COLOCASIA ESCULENTA* (L.) Schott. Araceæ. **Taro.**

"Tubers from the Canton market in September, 1921, and grown in the Canton Christian College gardens for one season."

55657. "(No. 780.) *Hung Nga oo* (red sprouted)."

55658. "(No. 782.) *Paak oo* (white)."

55659 to 55662. *DIOSPYROS* spp. Diospyraceæ.

55659 and 55660. *DIOSPYROS KAKI* L. f. **Kaki.**

"*Sai Paat tsz*. Obtained in September, 1921, by a Chinese student of fruits from Lohkongtung, Kwangtung."

55659. "(No. 653.)"

55660. "(No. 654.)"

55661. *DIOSPYROS LOTUS* L.

"(No. 655.) *Kaau tsai*. Obtained in Lohkongtung, Kwangtung. A wild species, the pulp of which is used in Canton to make a kind of waterproofing material."

55662. *DIOSPYROS* sp. **Persimmon.**

"(No. 695.) *Tsz*. Collected from the Five Finger Mountains of the interior of Hainan, near the Loi village of Yiktsohmau."

55663. *MILLETIA DIELSIANA* Harms. Fabaceæ.

"(No. 662.) Collected by F. A. McClure, October 25, near Notia, island of Hainan. This promising ornamental is a shrub in the open, but becomes vinelike when grown in the shade of tall trees. The fruits are the shape and color of oranges and about 2 to 3 centimeters in diameter."

## 55647 to 55668—Continued.

55664. *NAGEIA CUPRESSINA* (R. Br.) F. Muell. Taxaceæ.  
(*Podocarpus javanicus* Merr.)

"(No. 666.) *Yat poon tsung* (Cantonese). Collected in the Five Finger Mountains, interior of Hainan, in December, 1921. A large tree, becoming 50 meters (164 feet) in height and 2 meters (6½ feet) in diameter. It is a promising ornamental and possibly a timber tree."

For previous introduction, see S. P. I. No. 49546.

55665. *PHOENIX* sp. Phœnicaceæ. **Palm.**

"(No. 663.) A tree resembling the date palm, with edible fruit. Seeds collected near Noda, island of Hainan, November, 1921."

55666. *RUBUS FIMBRIFERUS* Focke. Rosaceæ.

"(No. 657.) *She p'au lak*. Collected in December, 1921, on open grassy hillsides near Yiktsokmaau, interior of Hainan."

A species of *Rubus* native to southern China, especially the vicinity of Hongkong; the oval heart-shaped densely hairy leaves are about 4 inches long. The flowers and the red hemispherical fruits appear in the axils of the lower branches. (Adapted from *Focke, Bibliotheca Botanica, vol. 72, p. 80.*)

- 55667 and 55668. *SACCHARUM* spp. Poaceæ. **Grass.**

55667. *SACCHARUM ARUNDINACEUM* Retz.

"(No. 644.) A very tall, promising ornamental grass, collected near Namfung, Hainan, in December, 1921."

55668. *SACCHARUM SPONTANEUM* L.

"(No. 690.) A promising ornamental grass collected in November, 1921, near Noda, Hainan."

## 55669 to 55706.

From Darjiling, India. Seeds presented by G. H. Cave, curator, Lloyd Botanic Garden. Received August 2, 1922.

55669. *ACER CAMPBELLII* Hook. f. and Thoms. Aceraceæ. **Maple.**

One of the principal maples of the northeastern Himalayas, where it grows at an altitude of 7,000 feet or more. The beautiful green leaves with their red stalks make this tree decidedly ornamental. The grayish white moderately hard wood is used for planking and cabinet work. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 1, p. 69.*)

For previous introduction, see S. P. I. No. 47629.

55670. *ALNUS NEPALENSIS* D. Don. Betulaceæ. **Alder.**

The Nepal alder is a tall, sparsely branched, rapid-growing deciduous tree found in many places along streams in the temperate Himalayas. The leaves are oval or oblong, and the irregular winged nuts ripen in March. The bark is used for dyeing and tanning, and the rather soft, reddish white wood is used for making boxes. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 1, p. 176.*)

For previous introduction, see S. P. I. No. 50714.

- 55671 to 55673. *BERBERIS* spp. Berberidaceæ. **Barberry.**

55671. *BERBERIS INSIGNIS* Hook. f. and Thoms.

A beautiful hollylike bush of erect habit, with very few spines and large shining evergreen leaves 3 to 7 inches in length. The golden yellow flowers are borne in clusters of about 15 and are followed by ovoid black berries. Native to the eastern Himalayas. (Adapted from *Hooker, Flora of British India, vol. 1, p. 111.*)

For previous introduction, see S. P. I. No. 47645.

## 55669 to 55706—Continued.

## 55672. BERBERIS NAPAULENSIS (DC.) Spreng.

An erect shrub, 3 to 20 feet high, native to the temperate Himalayas at altitudes of 4,000 to 8,000 feet. It is leafy only near the top, the leaves being 6 to 18 inches in length, with leathery leaflets. The flowers are borne in erect dense-flowered racemes, and the bitter, violet fruits are about half an inch in diameter. (Adapted from *Hooker, Flora of British India, vol. 1, p. 109.*)

For previous introduction, see S. P. I. No. 50715.

## 55673. BERBERIS WALLICHIANA DC.

An evergreen barberry found in forests of the temperate Himalayas at altitudes of 8,000 to 10,000 feet. The leaves are narrow and the flowers, which are borne many in a cluster, are followed by oval or oblong shining black-purple berries. (Adapted from *Hooker, Flora of British India, vol. 1, p. 110.*)

## 55674. BUCKLANDIA POPULNEA R. Br. Hamamelidaceæ.

A large evergreen tree, up to 80 feet in height, native to the eastern Himalayas at altitudes of 3,000 to 8,000 feet. The wood is grayish brown, close grained, and durable and is very much used in Darjiling for planking and for doors and window frames. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 1, p. 545.*)

For previous introduction, see S. P. I. No. 47649.

## 55675. BUDDLEIA COLVILEI Hook. f. Loganiaceæ.

A shrub or small tree 15 to 20 feet high from the vicinity of Sikkim, India, where it is found at altitudes of 9,000 to 12,000 feet. The oblong toothed leaves are about 6 inches long and the crimson flowers, an inch in length, are borne in large loose terminal clusters. (Adapted from *Hooker, Flora of British India, vol. 4, p. 81.*)

## 55676. CEPHALOSTACHYUM CAPITATUM Munro. Poaceæ. Bamboo.

A bamboo from the hills of Sikkim, India, which develops strong, slender, yellow stems up to 30 feet in height. These stems are used by the natives for bows and arrows, and the leaves are considered good fodder. (Adapted from *Gamble, Manual of Indian Timbers, p. 429.*)

## 55677. CLEMATIS GREWLAEFLORA DC. Ranunculaceæ.

A large woody climber with densely hairy, deeply 5-lobed leaflets and many-flowered panicles of hairy, tawny yellow flowers, with oblong sepals  $1\frac{1}{2}$  inches long. The plant is native to the lower temperate and sub-tropical Himalayas at altitudes of 3,000 to 5,000 feet. (Adapted from *Johnson's Gardener's Dictionary, p. 230*, and *Hooker, Flora of British India, vol. 1, p. 6.*)

For previous introduction, see S. P. I. No. 33765.

55678. CRACCA CANDIDA (DC.) Kuntze. Fabaceæ.  
(*Tephrosia candida* DC.)

A low shrub with slender velvety branches, smooth green leaves 6 to 9 inches long, with gray-silky lower surfaces, and copious terminal and lateral racemes of reddish or white flowers. The shrub is native to the more tropical of the Himalayas, ascending to 5,000 feet altitude. (Adapted from *Hooker, Flora of British India, vol. 2, p. 111.*)

For previous introduction, see S. P. I. No. 50363.

## 55679. ERIBOTRYA HOOKERIANA Decaisne. Malaceæ.

A small stout-branched tree with thick leathery oblong sharply toothed leaves up to a foot in length, large panicles of small white flowers, and egg-shaped yellow fruits about three-fourths of an inch long. It is a native of the eastern Himalayas at altitudes of 6,500 to 8,000 feet. (Adapted from *Hooker, Flora of British India, vol. 2, p. 371.*)

For previous introduction, see S. P. I. No. 50717.



## 55669 to 55706—Continued.

55680. *ERYTHRINA ARBORESCENS* Roxb. Fabaceæ.

When covered with its bright-scarlet flowers this small tree is very attractive and is often planted as an ornamental, as in the streets of Darjiling. There are but few prickles on its branches, and the thin greenish leaves are often a foot in width. The strongly curved pods are about an inch wide and 6 to 9 inches long. The tree is found native in the central and eastern Himalayas at altitudes ranging up to 7,000 feet. (Adapted from *Hooker, Flora of British India, vol. 12, p. 190*, and *Gamble, Manual of Indian Timbers, p. 122.*)

For previous introduction, see S. P. I. No. 47680.

55681. *HYDRANGEA ROBUSTA* Hook. f. and Thoms. Hydrangeaceæ.

A very stout, nearly erect hydrangea from Sikkim, India. The short-stemmed oval leaves are coarsely toothed and the flowers, with white sepals, blue petals, and stamens, are borne in rather loose, spreading corymbs with red pedicels. (Adapted from *Curtis's Botanical Magazine, pl. 5038.*)

For previous introduction, see S. P. I. No. 50367.

55682. *ILEX INSIGNIS* Hook. f. Aquifoliaceæ.

Holly.

An attractive holly from the Sikkim Himalayas, where it grows at an altitude of 7,000 feet. It forms a small tree or shrub with thick-grooved branches which are purplish when young. The leathery dark-green leaves are pinnately lobed, with the lobes spine tipped and alternately raised and depressed, so that there appears to be a double row of spiny lobes on each side. This holly has proved hardy in Ireland. (Adapted from *Gardeners' Chronicle, 2d ser., vol. 14, p. 292.*)

For previous introduction, see S. P. I. No. 47698.

55683. *INDIGOFERA DOSUA TOMENTOSA* Baker. Fabaceæ.

Indigo.

A low shrubby plant with densely hairy branches and dull-green compound leaves 6 to 9 inches in length, each leaf consisting of 40 to 50 leaflets; the bright-red flowers are borne in long racemes. This attractive species is found in temperate regions of the Himalayas at altitudes of 1,000 to 5,000 feet. (Adapted from *Hooker, Flora of British India, vol. 2, p. 152.*)

For previous introduction, see S. P. I. No. 50369.

55684. *JASMINUM DISPERSUM* Wall. Oleaceæ.

Jasmine.

A climbing shrub common in temperate regions of the Himalayas at altitudes of 2,000 to 8,000 feet. It bears very numerous white flowers in axillary cymes and terminal panicles, sometimes a hundred. (Adapted from *Hooker, Flora of British India, vol. 3, p. 602.*)

55685. *LAUROCERASUS ACUMINATA* (Wall.) Roemer. Amygdalaceæ.

(*Prunus acuminata* Hook. f.)

Laurel cherry.

A slender-branched tree 30 to 40 feet in height, with flat narrow leaves up to 7 inches long and many-flowered racemes of yellowish white flowers. The fruit is a small oval drupe. The tree is found in the central and eastern Himalayas at altitudes ranging from 5,000 to 7,000 feet. (Adapted from *Hooker, Flora of British India, vol. 2, p. 317.*)

For previous introduction, see S. P. I. No. 47705.

55686. *LEYCESTERIA BELLIANA* W. W. Smith. Caprifoliaceæ.

A small graceful shrub with opposite, membranous, lance-shaped leaves, and sessile, two to four flowered spikes of rosy white flowers. It is native in the Sikkim Himalayas, near the Nepal border, at an altitude of 10,000 feet; it should prove hardy in England. (Adapted from *Transactions and Proceedings of the Botanical Society of Edinburgh, vol. 24, p. 173.*)

## 55669 to 55706—Continued.

55687. *LIGUSTRUM CONFUSUM* Decaisne. Oleaceæ.

This relative of our common privet is a small tree, sometimes 40 feet in height, and is native to the mountains of northeastern India at altitudes of 3,000 to 5,000 feet. The narrow leathery leaves are sometimes as much as 3½ inches long, and the small white flowers are borne in dense panicles. (Adapted from *Hooker, Flora of British India, vol. 3, p. 616.*)

For previous introduction, see S. P. I. No. 49640.

55688. *MAGNOLIA CAMPBELLII* Hook. f. and Thoms. Magnoliaceæ.

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

For previous introduction, see S. P. I. Nos. 47714 to 47718.

55689 to 55691. *MICHELIA* spp. Magnoliaceæ.55689. *MICHELIA CATHCARTII* Hook. f. and Thoms.

A lofty tree with magnoliolike foliage and terminal white flowers about an inch in diameter. It is native in the temperate forests of the Sikkim Himalayas, where the moderately hard, dark-brown heartwood is used for planking and for making tea boxes. (Adapted from *Gamble, Manual of Indian Timbers, p. 6*, and *Hooker, Flora of British India, vol. 1, p. 42.*)

For previous introduction, see S. P. I. No. 47730.

55690. *MICHELIA EXCELSA* Blume.

In the temperate regions of the Himalayas, where this tree is native, it is known as the "white magnolia" and is the principal timber tree of the Darjiling Hills. The oblong leaves have silky brown lower surfaces, and the solitary white flowers are 4 or 5 inches in diameter. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 5, p. 243*, and *Hooker, Flora of British India, vol. 1, p. 43.*)

For previous introduction, see S. P. I. No. 49642.

For an illustration of the flowers of this tree, see Plate III.

55691. *MICHELIA LANUGINOSA* Wall.

A tall tree with narrow leaves having white, woolly lower surfaces and solitary white flowers 3 to 4 inches across. Although it is spring flowering in most places in northeastern India, where it is native, in Sikkim it is said to form a large bush which flowers in autumn. (Adapted from *Hooker, Flora of British India, vol. 1, p. 43.*)

For previous introduction, see S. P. I. No. 46089.

55692. *MORUS LAEVIGATA* Wall. Moraceæ.

## Mulberry.

AL India mulberry which occurs wild and cultivated, though not common, in the lower Himalayas, where it forms a medium-sized tree with oval leaves up to 7 inches in length. In early spring appear the long-cylindrical, yellowish white or pale-purple fruits; these are edible, although of a rather insipid sweet flavor. (Adapted from *Atkinson, Notes on the Economic Products of the Northwestern Provinces, pt. 5, p. 83.*)

55693. *PASPALUM CONJUGATUM* Berg. Poaceæ.

## Grass.

A creeping perennial grass with the flowering branches sometimes as much as 3 feet tall. Originally from Dutch Guiana, this species is found in moist places in the Tropics of both hemispheres and forms extensive and close mats. (Adapted from *Contributions from the National Herbarium, vol. 18, p. 318.*)

For previous introduction, see S. P. I. No. 51189.

## 55669 to 55706—Continued.

55694. *PICEA SMITHIANA* (Wall.) Boiss. Pinaceæ. Spruce.  
(*P. morinda* Link.)

The Himalayan spruce is a lofty tree found in the mountains of northwestern India at altitudes of 7,000 to 11,000 feet; the terminal, drooping pale-green cones are 4 to 6 inches long. The stiff, sharp, spirally arranged green leaves are crowded into hanging, taillike twigs when young. The wood is extensively used for rough furniture and planking. (Adapted from Watt, *Dictionary of the Economic Products of India*, vol. 1, p. 4.)

For previous introduction, see S. P. I. No. 47754.

55695. *PIERIS FORMOSA* (Wall.) D. Don. Ericaceæ.

A beautiful evergreen Himalayan shrub with leathery finely toothed leaves and large terminal branching clusters of porcelain-white flowers. It has proved hardy in Cornwall, England. (Adapted from *Gardeners' Chronicle*, ser. 2, vol. 25, p. 568.)

55696. *PRUNUS NAPAULENSIS* (Seringe) Steud. Amygdalaceæ.

A small tree with narrow acuminate leaves, 4 to 6 inches long, and axillary racemes of white flowers. The drupes are about twice the size of a large pea and acid in flavor. This tree is a native of the temperate Himalayas at altitudes of 4,000 to 10,000 feet. (Adapted from *Flora and Sylva*, vol. 3, p. 34.)

For previous introduction, see S. P. I. No. 47767.

- 55697 to 55701. *RHODODENDRON* spp. Ericaceæ.

55697. *RHODODENDRON ARBOREUM* J. E. Smith.

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

For previous introduction, see S. P. I. No. 47771.

55698. *RHODODENDRON CILIATUM* Hook. f.

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

For previous introduction, see S. P. I. No. 47772.

55699. *RHODODENDRON DALHOUSIAE* Hook. f.

This is said to be the finest rhododendron from northeastern India, chiefly because of the great size and beauty of the fragrant flowers, which resemble those of a large lily. It is a straggling shrub, 6 to 8 feet high, with smooth dark-green leaves. The flowers, which occur in terminal clusters of three to five, are nearly 5 inches across. (Adapted from *Curtis's Botanical Magazine*, pl. 4718.)

For previous introduction, see S. P. I. No. 47773.

55700. *RHODODENDRON FALCONERI* Hook. f.

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

For previous introduction, see S. P. I. No. 47774.

## 55669 to 55706—Continued.

## 55701. RHODODENDRON MADDENI Hook. f.

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

For previous introduction, see S. P. I. No. 47776.

## 55702 and 55703. SAURAUJA spp. Dilleniaceæ.

## 55702. SAURAUJA FASCICULATA Wall.

A bush or small tree about 20 feet in height, native to the eastern subtropical regions of the Himalayas at altitudes of 2,000 to 4,000 feet. The long narrow leaves are quite hairy, especially beneath, and the flowers, which are first white, then pink, are borne in red-branched cymes. (Adapted from *Hooker, Flora of British India*, vol. 1, p. 287.)

## 55703. SAURAUJA NAPAULENSIS DC.

A moderate-sized tree with the youngest branches, leaf stems, and midribs covered with rough brown hairs; the narrow, strongly toothed leaves are up to 15 inches in length, the pink flowers are borne in many-flowered panicles, and the edible green fruits have a sweet mealy pulp. The tree is native in the temperate Himalayas at altitudes of 5,000 to 7,000 feet. (Adapted from *Hooker, Flora of British India*, vol. 1, p. 286.)

For previous introduction, see S. P. I. No. 47784.

## 55704. SKIMMIA LAUREOLA (DC.) Sieb. and Zucc. Rutaceæ.

An evergreen, strongly aromatic shrub, found throughout the temperate Himalayas at altitudes ranging from 6,000 to 10,000 feet. The white flowers are crowded into terminal panicles, and the red, fleshy, oval fruits are about three-fourths of an inch in length. The timber is used to make hoe and ax handles. (Adapted from *Watt, Dictionary of the Economic Products of India*, vol. 6, pt. 3, p. 244, and *Hooker, Flora of British India*, vol. 1, p. 499.)

For previous introduction, see S. P. I. No. 47795.

## 55705. SPIRÆA MICRANTHA Hook. f. Rosaceæ.

A very attractive shrub of rather lax habit, found in the eastern temperate Himalayas at altitudes of 5,800 to 10,000 feet. The narrowly ovate doubly toothed leaves are sometimes 7 inches long, and the small pale-pink flowers are borne in very long spreading panicles. (Adapted from *Hooker, Flora of British India*, vol. 2, p. 325.)

For previous introduction, see S. P. I. No. 47802.

## 55706. TRACHYCARPUS MARTIANUS (Wall.) Wendl. Phœnicaceæ. Palm.

A slender-trunked fan-leaved palm from temperate regions of the Himalayas, where it grows to a height of 20 to 50 feet. The unarmed trunk bears at its summit a crown of rigid leathery roundish leaves 4 or 5 feet in diameter which are cut about halfway down into narrow 2-lobed segments. The yellow flowers, followed by blue fruits, are borne on a nodding spadix about a foot in length. (Adapted from *Hooker, Flora of British India*, vol. 6, p. 436.)

For previous introduction, see S. P. I. No. 53471.

## 55707. TRIFOLIUM SUBTERRANEUM L. Fabaceæ.

## Subterranean clover.

From Melbourne, Victoria. Seeds purchased from F. H. Brunning & Co. Received August 18, 1922.

"Experiments carried on by the United States Department of Agriculture and by State experiment stations in cooperation with this department during the years 1921 and 1922 have established the fact that this clover will survive the winter as far north as Knoxville, Tenn. At this station, as well as several others, the plants from fall seeding made some growth in the fall, held their own during the winter, and made a rapid and heavy growth early in the spring of 1922. This clover made a strong growth on sandy land at McNeill, Miss.; in this case finely ground bone meal had been used as fertilizer. Preliminary trials have been encouraging and the department is making further tests." (A. J. Pieters.)

For previous introduction, see S. P. I. No. 51212.

### 55708. PTEROCARPUS sp. Fabaceæ.

From Buenos Aires, Argentina. Seeds presented by D. S. Bullock, agricultural commissioner, Bureau of Agricultural Economics, United States Department of Agriculture. Received August 17, 1922.

"(From Cierras de Vilgo, Independencia, Province of La Rioja, Argentina.) Indian name *chica*, which means 'chew forever' or 'chew always.' The seeds are eaten toasted by the Indians." (Bullock.)

### 55709. ANNONA DIVERSIFOLIA Safford. Annonaceæ. **Ilama.**

From Tapachula, Chiapas, Mexico. Seeds purchased through R. O. Stevenson, British vice consulate. Received August 19, 1922.

"The ilama may be termed the cherimoya of the lowlands. The cherimoya does not succeed in the Tropics unless grown at elevations of 4,000 to 6,000 feet, where the climate is cool. The ilama, on the other hand, belongs to the lowlands, but is strikingly similar in character to a good cherimoya. It is a valuable recruit and one which can not be too strongly recommended for cultivation throughout the Tropics." (Wilson Popenoe.)

For previous introduction, see S. P. I. No. 51404.

### 55710. LOTUS ULIGINOSUS Schkuhr. Fabaceæ.

From Paris, France. Seeds purchased from Vilmorin-Andrieux & Co. Received August 19, 1922.

A pasture plant of considerable agricultural importance, rather extensively used in New Zealand, from 10 to 15 tons of seed being sown annually. This plant prefers a wet or swampy habitat. It sold in December, 1918, at about a dollar per pound. It is saved for seed mainly in the Auckland Province, but prior to the war the greater portion was imported, mainly from Germany. This seed was exported from the latter country under the name of *Lotus villosus* or *L. uliginosus*, which are the European trade names for the *L. major* of the New Zealand seed trade. *L. major* is very variable with regard to certain characters, such as hairiness, and in consequence several botanical names have been given to the plant. There are apparently a good many different strains, but whether these breed true from seed and are good agricultural species or whether they are due either to the habitat in which they are growing or to fertilization has not yet been ascertained. (Adapted from *The New Zealand Journal of Agriculture*, vol. 17, p. 347.)

Received as *L. villosus*, which is now referred to *L. uliginosus*.

For previous introduction, see S. P. I. No. 48635.

### 55711. PRINSEPIA SINENSIS Oliver. Amygdalaceæ.

From Jamaica Plain, Mass. Seeds presented by Dr. C. S. Sargent, Arnold Arboretum. Received August 25, 1922.

"*Prinsepia sinensis* is a species which has been comparatively unknown to horticulturists until recent times. It is quite distinct from the Himalayan *P. utilis*, which yields a cooking oil common in India, but is closely similar to *P. uniflora*, which has been introduced by this office several times. Like *P. uniflora* it is a Chinese ornamental shrub with gray or whitish bark and small gray spines. But while *P. uniflora* has white flowers, dark-purple fruits, and thick linear-lanceolate leaves, *P. sinensis* is distinguished by yellow

flowers, deep-red fruits, and thin ovate-lanceolate leaves. The shrub is said to be somewhat hardier than *P. uniflora*. The plant is of striking habit, and the clusters of large bright-yellow flowers must make it a brilliant sight on its native Mongolian hills from Mukden to the Yaboo. It is early blooming, but at the Arnold Arboretum it bears only a few fruits." (*D. C. Peattie.*)

**55712. DIOSCOREA ALATA L. Dioscoreaceæ. Greater yam.**

From Bridgetown, Barbados, British West Indies. Tubers presented by John R. Bovell, Director of Agriculture. Received July 7, 1922.

"*Barbados Red.* The tuber has a purple inner skin, with white flesh usually tinged or mottled with purple. The vine is four angled, with rather prominent maroon wings. The leaves are opposite, broadly ovate, cordate, acuminate; veins maroon; sinus deep and narrow; petioles maroon at base and apex. In the cooked yam the purple color is pale, and the flesh is mealy and of good flavor. The tubers often weigh several pounds each and are usually somewhat cylindrical. This is a standard variety in the West Indies and should be a good market yam for this country." (*R. A. Young.*)

**55713. PHYLLOSTACHYS sp. Poaceæ. Bamboo.**

From Tangsi, Chekiang, China. Plants collected in 1907 by the late Frank N. Meyer, Agricultural Explorer of the United States Department of Agriculture. Received June, 1908. Now numbered for convenience in distribution.

"A small-growing variety not over 10 feet in height, forming dense clumps. The small wiry stems make excellent plant stakes and small fishing rods. It is quite hardy, withstanding freezing temperatures." (*Peter Bisset.*)

Originally introduced under S. P. I. No. 23233 (Meyer's No. 301), but as it does not agree at all with Meyer's note it is necessary to renumber it.

**55714. HORDEUM VULGARE PALLIDUM Seringe. Poaceæ. Barley.**

From Algiers, Algeria. Seeds presented by Dr. L. Trabut. Received July 8, 1922.

"*Trabut.* A very hardy variety selected from the barleys of North Africa." (*Trabut.*)

**55715 to 55717.**

From Jamaica Plain, Mass. Presented by Dr. C. S. Sargent, Arnold Arboretum. Received July 5, 1922.

Seeds of the following varieties of the Japanese flowering cherry (*Prunus serrulata* Lindl.) are to be grown for trial as stocks for edible-fruited cherries.

**55715. PRUNUS SERRULATA PUBESCENS Wilson. Amygdalaceæ.**

A tree up to 55 feet in height, with a trunk sometimes 7 feet in circumference and leaves with pale-green lower surfaces. The white or pink single flowers are usually about four-fifths of an inch in diameter. This variety, known as *Kasumi sakura*, has the widest distribution of any of the Japanese cherries and flowers about two weeks later than *Prunus serrulata spontanea*, from which variety it differs chiefly in the slight hairiness of the leaves. (Adapted from *Wilson, Cherries of Japan, p. 31.*)

For previous introduction, see S. P. I. No. 45709.

**55716. PRUNUS SERRULATA SACHALINENSIS (Schmidt) Makino. Amygdalaceæ. Sargent's cherry.**  
(*P. sargentii* Rehder.)

This variety, the *Yama sakura* of northern Japan, is very similar to *Prunus serrulata pubescens*, except that the leaves are not hairy, and the flowers, which are pink or rose colored, rarely white, are usually a little more than an inch in diameter. It is the handsomest of all the wild cherries of eastern Asia and is the parent of several of the finest double-flowered Japanese cherries. (Adapted from *Wilson, Cherries of Japan, p. 35.*)

For previous introduction, see S. P. I. No. 46533.

## 55715 to 55717—Continued.

55717. *PRUNUS SERRULATA SPONTANEA* (Maxim.) Wilson. Amygdalaceæ.

In Japan this variety is a common wild tree in the woods and thickets from Kagoshima in the south to the Nikko region in the north, where it forms a tree over 75 feet in height with a trunk 15 feet in circumference. In habit and color of flowers this variety agrees closely with the northern *Prunus serrulata sachalinensis*; the flowers are white or pink and a little less than an inch in diameter. It is the *Yama sakura* of southern and central Japan. (Adapted from Wilson, *Cherries of Japan*, p. 28.)

For previous introduction, see S. P. I. No. 41577.

## 55718 to 55721.

From Likiang, Yunnan, China. Seeds collected by J. F. Rock, Agricultural Explorer of the United States Department of Agriculture. Received July 3, 1922. Quoted notes by Mr. Rock.

55718. *BERBERIS DICTYOPHYLLA* Franch. Berberidaceæ. **Barberry.**

"(No. 3388. May 15, 1922.) A fine yellow-flowered, somewhat spiny shrub which grows on limestone soil in the Likiang Mountains at an altitude of 12,000 feet. The fruits are a brilliant red, and the shrub would make an excellent ornamental."

For previous introduction, see S. P. I. No. 49056.

55719. *PRINSEPIA UTILIS* Royle. Amygdalaceæ.

"(No. 3281. Lashihpa. May 10, 1922.) A spiny shrub of great ornamental value, which grows north of Talifu on limestone soil at altitudes of 8,000 to 10,000 feet. In December and January the pendent branches bear a great profusion of white flowers. A cooking oil is expressed from the seeds, which are gathered by the Chinese and native tribes."

For previous introduction, see S. P. I. No. 42623.

55720. *PRUNUS* sp. Amygdalaceæ. **Cherry.**

"(No. 3256. May 9, 1922.) A wild cherry which forms a large spreading tree 50 feet high with a trunk up to 2 feet in diameter; it grows at 8,500 feet altitude in forests beyond Chinhô. It should be a fine tree for stock purposes; it bears large numbers of small yellow fruits."

55721. *ROSA* sp. Rosaceæ. **Rose.**

"(No. 3238. Lashihpa. May 10, 1922.) A fine climbing rose which grows in great profusion at 8,000 feet altitude near Likiang. It is a prolific bloomer, bearing large corymbs of flowers which are at first yellow, but become white when fully opened."

For an illustration of this rose, see Plate IV.

55722. *TRIFOLIUM PRATENSE* L. Fabaceæ. **Red clover.**

From London, England. Seeds presented by Walter S. Tower, American commercial attaché, London, through the Bureau of Foreign and Domestic Commerce, United States Department of Commerce. Received July 3, 1922.

Introduced for department agrostologists.

55723. *MAGNOLIA CAMPBELLI* Hook. f. and Thoms. Magnoliaceæ.

From Darjiling, India. Seeds presented by G. H. Cave, curator, Lloyd Botanic Garden. Received July 3, 1922.

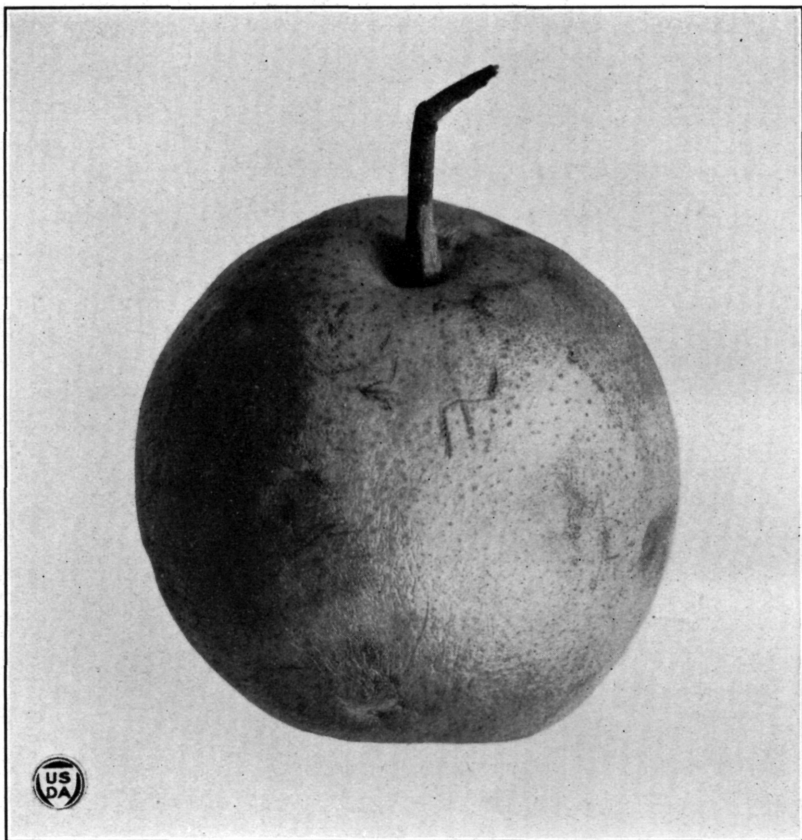
A beautiful deciduous magnolia from the Himalayas, where it ascends to 8,000 feet above sea level. It reaches a height of 80 feet, has very dark bark,



**A NEW WILD ROSE FROM SOUTHWESTERN CHINA. (ROSA SP.; S. P. I. No. 55721.)**

This beautiful climbing rose was discovered by J. F. Rock on a high plateau in the cooler portion of the Himalayas in southwestern China at 8,000 feet altitude. The flowers, at first yellow but later becoming a delicate creamy white, are single and are borne in large clusters. (Photographed by J. F. Rock on the Lashipa Plain, Yunnan, China, May 11, 1922; P30247FS.)





**A NEW HYBRID PEAR. (PYRUS SEROTINA × COMMUNIS; S. P. I. No. 55835.)**

The Van Fleet pear, a hybrid produced by the late Dr. Walter Van Fleet at Little Silver, N. J., merits the serious attention of fruit growers because the tree appears to be resistant to fire-blight and at the same time the fruit is excellent for cooking and preserving. The pear is medium to large, with golden-yellow skin and sweet whitish flesh. The tree is vigorous, with large, thick, glossy leaves. No trace of blight has appeared in the two original trees which have been growing for 10 years at the Plant Introduction Garden, Chico, Calif. (Photographed by E. L. Crandall, September 12, 1922; P27943FS.)

large elliptical dark-green leaves, and white to purple flowers 10 inches in diameter. This magnolia has flowered freely in southern France and Italy. (Adapted from *Curtis's Botanical Magazine*, vol. 111, pl. 6793.)

For previous introduction, see S. P. I. No. 47718.

**55724. MEDICAGO SATIVA L. Fabaceæ.**

**Alfalfa.**

From Lima, Peru. Seeds presented by W. E. Dunn, acting commercial attaché, through the Department of Commerce, Washington, D. C. Received July 3, 1922.

"This Peruvian alfalfa is known as 'San Pedrana.' Sr. Carlos Alvarez Calderón, who obtained the sample for us, says that it was grown in the coast region and may be harvested every 45 days throughout the year, whereas from the ordinary variety 'del pais' only about six cuts per year can be obtained." (*Dunn.*)

Peruvian alfalfa has proved of great value in certain parts of the United States. In the hope of originating new strains which may be superior in certain respects to any now grown in this country, an effort is being made to obtain seed from as many different regions in Peru as possible. The following note is adapted from H. L. Westover, in "The Development of the Peruvian Alfalfa Industry in the United States," United States Department of Agriculture Circular 93:

As compared with common alfalfa, both types of Peruvian alfalfa are more upright, less branched, and have fewer and somewhat coarser stems and smaller crowns. In thick stands, these differences are hardly noticeable. Most of the Peruvian introductions are also characterized by rapid growth, quick recovery after cutting, and in sections having a mild climate ability to make growth in cool weather after ordinary alfalfas have ceased growing. Under such conditions the Peruvian alfalfas start growth earlier in the spring and continue later in the fall, thereby giving more cuttings each season. The principal objection advanced in times past to these alfalfas is their tendency to become somewhat woody when allowed to stand beyond the flowering stage, but this difficulty is easily obviated by earlier harvesting. Lack of hardiness will always confine the successful production of the true and smooth Peruvian alfalfas to the southern and southwestern portions of the United States, where the climatic conditions are comparatively mild. They can not be grown to advantage where the winter temperature falls below 10° F. At the present time most of the Peruvian and smooth Peruvian alfalfa in the United States is found in Arizona and California. It has also been grown to a limited extent in New Mexico, Texas, and the coastal regions of the Southeastern States. The results seem to indicate that in much of this region the common alfalfa could be replaced very profitably by the Peruvian varieties.

**55725. PRUNUS ARMENIACA L. Amygdalaceæ.**

**Apricot.**

From Algiers, Algeria. Seeds presented by Dr. L. Trabut. Received July 3, 1922.

"A native apricot known as *louz*; the tree is very productive and the fruit excellent. This tree is cultivated at M'Sila, a subarid region." (*Trabut.*)

**55726. FRAGARIA ROSEIFLORA Boulay. Rosaceæ.**

**Strawberry.**

From Chenebourg, near Geneva, Switzerland. Seeds purchased from H. Correvon, Floraire Nursery. Received July 11, 1922.

Introduced for experiments in strawberry breeding.

This is very closely allied to *Fragaria vesca*, from which it is distinguished by its round, uniformly pink petals and its roundish depressed fruits. It is found wild on the slopes of the Vosges Mountains in Alsace. (Adapted from *Bulletin de la Société de France*, vol. 18, p. 92.)

**55727. CERATONIA SILIQUA L. Cæsalpiniaceæ.**

**Carob.**

From Bari, Italy. Budwood presented by Dr. E. Pantanelli, director, Agricultural Experiment Station. Received July 7, 1922.

"*Améle*. This is considered the best variety of carob cultivated in this province (Bari); it may be the kind with large sweet pods which has been reported to you from this region." (*Pantanelli*.)

**55728. GARCINIA MANGOSTANA L. Clusiaceæ. Mangosteen.**

From Peradeniya, Ceylon. Seeds purchased through H. F. McMillan, Botanic Garden, Peradeniya. Received August 31, 1922.

Introduced for the purpose of establishing the mangosteen in our tropical dependencies.

"This delicious fruit is about the size of a mandarin orange, round and slightly flattened at each end, with a thick, smooth, rich red-purple rind, which, when cut, exposes the white segments lying loose in the cups. The cut surface of the rind is a most delicate pink. The separate segments are whitish and covered with a delicate network of fibers. The texture of the pulp resembles that of the plum, and the flavor is indescribably delicious." (*David Fairchild*.)

For previous introduction, see S. P. I. No. 55496.

**55729. PRUNUS ARMENIACA L. Amygdalaceæ. Apricot.**

From Likiang, Yunnan, China. Seeds collected by J. F. Rock, Agricultural Explorer of the United States Department of Agriculture. Received August 26, 1922.

"(Nguluke, Likiang Valley. June 25, 1922.) The trees are 45 feet or more high and found in this region at altitudes of 8,000 to 9,200 feet. They are apparently free from disease and should make good stock plants. The small, sour, rich-red fruits are deliciously fragrant and are excellent for jam or for stewing." (*Rock*.)

**55730. LILIUM sp. Liliaceæ. Lily.**

From Likiang, Yunnan, China. Bulbs collected by J. F. Rock. Received August 30, 1922.

"(No. 4756. Nguluke, near Likiang. June 27, 1922.) This may be a variety of *Lilium sutchuenense*. The plant, which grows on the Likiang Range at an altitude of 11,000 feet, is about 4 feet tall, with linear-lanceolate leaves and large brightly colored reddish yellow flowers spotted with a rich purple." (*Rock*.)

**55731. ORYZA SATIVA L. Poaceæ. Rice.**

From Szemao, Yunnan, China. Seeds collected by J. F. Rock. Received August 30, 1922.

"(Szemao, Yunnan. March 11, 1922.) A bright-red rice of fine grade, called *tzu no mi* by the Chinese and sold in Szemao." (*Rock*.)

**55732. PRUNUS MAJESTICA Koehne. Amygdalaceæ. Cherry.**

From Talifu, Yunnan, China. Seeds collected by J. F. Rock. Received August 30, 1922.

"(No. 3174. Talifu, Yunnan. April 25, 1922.) A fine large tree, 60 to 70 feet in height, of *Prunus pseudo-cerasus* type, found in the foothills of Talifu at altitudes of 6,700 to 7,000 feet. The tree from which these seeds were collected had three trunks clothed with a smooth, shining, bronze-colored bark with horizontal bands speckled with white. Each trunk was over a foot in diameter, the branches were stout and erect, the foliage dark green, and the fruits small, oblong, reddish, and cherrylike in appearance." (*Rock*.)

**55733. CARICA PAPAYA L. Papayaceæ. Papaya.**

From Bangkok, Siam. Seeds presented by Lao Leng Hui, clerk, American Legation. Received September 1, 1922.

A mixed collection of papayas from Bangkok, Siam, for trial in southern Florida. The Siamese papayas are recommended by the Hon. W. P. Hunt,

former American Minister to Siam, as of unusually good quality and free from the objectionable odor which characterizes those of many other countries.

**55734. PHELEUM PRATENSE L. Poaceæ. Timothy.**

From Budapest, Hungary. Presented by the Hungarian Seed Culture Co. Received August 29, 1922.

Locally grown seed introduced for timothy breeding experiments.

**55735. MYRICA RUBRA Sieb. and Zucc. Myricaceæ. Yang mae.**

From Yokohama, Japan. Seeds purchased from the Yokohama Nursery Co. Received August 31, 1922.

"The beautiful dark-purple fruits are the size of crab apples and can be eaten out of hand or made into compotes and pies. There is great variation in the habit and productivity of the trees and also in the color, size, and taste of the fruits. The trees are evergreen and thrive best on well-drained rocky terraces. The localities that will best suit them in the United States will probably be the southern sections of the Gulf Coast States and the milder parts of California. Chinese name *yang mae*." (Frank N. Meyer.)

For previous introduction, see S. P. I. No. 53982.

**55736. PERSEA AMERICANA Mill. Lauraceæ. Avocado.**  
(*P. gratissima* Gaertn. f.)

From Laguna, Guatemala. Budwood collected by Wilson Popenoe, Agricultural Explorer of the United States Department of Agriculture. Received October, 1916. Numbered September, 1922.

This variety was not distributed along with others introduced from Guatemala in 1916-17, as no buds were saved at Washington, and only one was successfully established at Miami, where several budsticks of the original shipment were sent. For a year or more the variety was considered to be lost. When it came into bearing, less than two years after the original buds were top-worked on an old tree of the West Indian race at the Miami Plant Introduction Garden, the variety was seen to be sufficiently meritorious to justify a wider trial. In habit and character of growth it is excellent; the branches are strong, not drooping, and the growth vigorous. The fruits, which ripen at Miami in late winter and early spring, are slender pyriform, about 18 ounces in weight, dark green, with the surface somewhat rough; the skin is thick and woody and the flesh cream yellow, smooth, and free from fiber, of rich flavor and excellent quality. The seed is rather small and tight in the cavity.

The original note on this variety is as follows:

"(No. 41. Laguna, Guatemala. October 2, 1916.) Avocado No. 2. *Hzamna*. A fruit of good size, having a very small seed and flesh of good quality and ripening very early in the season. The tree does not seem to be a very heavy bearer, but it is in such condition that it is difficult to say what its behavior may be under more favorable culture.

"The parent tree is growing among coffee bushes in the finca of Don Miguel Soto, a few hundred yards from the northern shore of Lake Amatitlan, at an altitude of 3,900 feet. The soil is a heavy black loam, rich and moist. The tree is about 25 feet high, with a trunk 1 foot in diameter and a rather scanty top. The amount of fruit which it is ripening this year (1916) is not great, but the crop may be considered a fair one.

"Following is a description of the fruit:

"Form oblong-pyriform, not necked; size above medium, weight 14 to 16 ounces, length  $5\frac{1}{4}$  inches, greatest breadth  $3\frac{1}{4}$  inches; base rounded, with the stem insertion nearly central; stem moderately stout, 5 inches long; apex rounded; surface pebbled, light green to yellowish green, with fairly numerous yellowish dots; skin slightly less than one-sixteenth of an inch thick at base of fruit, more than one-sixteenth of an inch thick at apex, separating readily from the flesh, brittle, and granular in texture; flesh pale cream, greenish near the skin, firm, with very slight fiber markings toward the base of the fruit; flavor nutty; quality very good; seed very small, ovate-conic in form,  $1\frac{1}{4}$  inches long,  $1\frac{1}{2}$  inches thick, with both seed coats adhering closely and tight in the cavity.

"The fruit reaches maturity by the end of September at Lake Amatitlan and is then picked for market, but the quality would doubtless be much better if it were left on the tree some time longer. In excessively wet weather the fruits fall as soon as they are mature. With less soil moisture they hang on longer." (*Wilson Popenoe*.)

### 55737. *TABEBUIA PENTAPHYLLA* (L.) Hemsl. Bignoniaceæ.

From St. Croix, Virgin Islands. Seeds presented by J. B. Thompson, agronomist in charge, Agricultural Experiment Station. Received August 25, 1922.

This tree is native in the West Indies and Central America and is often cultivated as an ornamental.

"The *matiliscuate* is a handsome flowering tree found in north-central Guatemala, especially in the Valley of Salama, and commonly growing near small streams. I have seen it at altitudes of 2,000 to 3,500 feet. The tree is about 35 feet high at maturity, with a spreading crown, deciduous during the latter part of the dry season (January to March), and producing large clusters of pink flowers which make the tree a mass of color visible for some distance. Its flowering season is from January to March, and the seeds, which are produced in long slender pods, ripen in May and June.

"As an ornamental tree for cultivation in southern Florida and possibly also in California, the *matiliscuate* seems well worthy of trial. The only defect of this plant is the habit of dropping its leaves during the dry months of the year. If it flowers in the same months in Florida as in Guatemala, it should be a valuable addition to the flowering trees of that region. It thrives on heavy but rocky land and does not seem to require a large supply of water." (*Wilson Popenoe*.)

For previous introduction, see S. P. I. No. 44998.

### 55738. *PAULLINIA CUPANA* Kunth. Sapindaceæ. **Guarana.**

From Rio de Janeiro, Brazil. Seeds presented by Dr. J. Simão da Costa, through Dr. W. L. Schurz, commercial attaché of the American Embassy. Received September 6, 1922.

A stout, bushy vine found wild in Venezuela and northwestern Brazil and also cultivated in the latter country for the sake of the grapelike fruits, from which is obtained the product known as guarana. This, in the form of a black paste, has received considerable attention in the pharmaceutical world in recent years as a natural source of caffeine.

The following analysis shows the composition of guarana:

	Per cent.		Per cent.
Caffein.....	5.388	Starch.....	9.350
Essential oil.....	2.950	Glucose.....	.777
Resin.....	7.800	Pectic acid, malic acid, dextrin,	
Coloring matter.....	1.570	etc.....	7.470
Saponin.....	.060	Vegetable fiber.....	49.125
Guarana-tannic acid.....	5.902	Water.....	7.650
Pyro-guarana acid.....	2.750		

Owing to the fact that guarana is so rich in caffeine, a small dose enables a man to endure extraordinary hardship, and taken sparingly it is said to be excellent for intestinal trouble.

The Mauhe district in Para, Brazil, produces about 25 tons of guarana paste annually, and the cultivation of the plant has recently been begun in the States of Goyaz and Rio de Janeiro. A number of new and successful pharmaceutical compounds contain this product. (Adapted from *Bulletin of the Pan American Union*, vol. 51, p. 268.)

### 55739 to 55747.

From Avondale, Auckland, New Zealand. Budwood and trees presented by H. R. Wright. Received September 13, 1922. Quoted notes by Mr. Wright.

## 55739 to 55747—Continued.

55739 to 55742. *AMYGDALUS PERSICA* L. Amygdalaceæ. Peach.  
(*Prunus persica* Stokes.)

55739. "Dormant buds of *Kings Seedling*. A white-fleshed clingstone variety, with the skin uniformly of a beautiful red."

55740. "Dormant buds of *Sunrise*. One of the earliest varieties, of high color and superb quality. The tree is sturdy, close jointed, and a good cropper."

55741. "Dormant buds of *Watts Early*. A variety that might be suitable for Florida because of its short resting period. It starts its growth nearly a month before any other variety; consequently should not be planted in districts subject to late frosts. The ripening season is extra early."

55742. "*White Cling*. Tree belonging to a variety found growing near a native hut in the Coromandel district. It is said to bear heavy crops of fine-flavored, very juicy fruits."

55743. *CITRUS SINENSIS* (L.) Osbeck. Rutaceæ. Orange.

"*Groerly Narel*. Trees of a Queensland variety with fruits of large size. This variety is an enormous cropper and well worth a trial."

55744. *MALUS SIEBOLDII* (Regel) Rehder. Malaceæ.

"Selected trees which are aphid resistant, but not suitable as stock plants, lacking affinity. They are essentially ornamentals, having very pretty foliage and being very handsome while in fruit."

55745 to 55747. *PRUNUS SALICINA* × *CERASIFERA*. Amygdalaceæ.

Hybrid plum.

55745. "Dormant buds of *Ford's Early* (?)."

55746. "Dormant buds of *Ford's Early*. A hybrid plum which is early ripening and a good cropper."

55747. "Dormant buds of *Norris Early*. Said to be a hybrid plum."

## 55748 to 55750.

From Nice, France. Seeds presented by Dr. A. Robertson Proschowsky. Received September 12, 1922.

55748. *INDIGOFERA DOSUA TOMENTOSA* Baker. Fabaceæ. Indigo.

For previous introduction and description, see S. P. I. No. 55683.

55749. *MIMOSA RUBICAUPLIS* Lam. Mimosaceæ.

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

For previous introduction, see S. P. I. No. 47734.

55750. *NICOTIANA SYLVESTRIS* Speng. Solanaceæ.

Tobacco.

An ornamental tobacco from Argentina which has the double merit of large handsome leaves and a free-flowering habit. Its white sweet-scented flowers are very attractive, but should be shaded from the direct rays of the midday sun. (Adapted from *The Gardeners' Magazine, vol. 52, p. 48.*)

For previous introduction, see S. P. I. No. 42344.

## 55751 to 55753.

From Mili, Szechwan, China. Tubers and bulbs obtained by J. F. Rock, Agricultural Explorer of the United States Department of Agriculture. Received September 12, 1922.

**55751 to 55753**—Continued.55751 and 55752. *LILIUM* spp. Liliaceæ.

Lily.

55751. *LILIUM* sp.

“(July, 1922.) A tall plant with purplish white flowers borne in twos or threes; collected in the mountains.”

55752. *LILIUM* sp.

“(No. 5054. July 12, 1922.) A rather rare species with pink flowers speckled with purple, found in the mountains at an altitude of 12,000 feet.”

55753. (Undetermined.)

“(No. 5053. July, 1922.) Tubers collected in the mountains.”

**55754. HYPERICUM CANARIENSE** L. Hypericaceæ.

From Nice, France. Seeds presented by Dr. A. Robertson Proschowsky. Received September 15, 1922.

“A small graceful tree with drooping branches, which will grow on the driest and poorest of soils. The wood is the strongest I have ever seen: it is almost impossible to drive a nail into it. The boys here use its thin straight stems as net handles, all other kinds of wood breaking under the strain of pushing the net through the water. I should think that such remarkably strong wood which can be produced on such poor soil would have a practical value.” (*Proschowsky.*)

For previous introduction, see S. P. I. No. 47581.

**55755. RUBUS** sp. Rosaceæ.**Blackberry.**

From San Jose, Costa Rica. Seeds collected by Edward Goucher, Plant Propagator, Bureau of Plant Industry. Received September 14, 1922.

“The fruits of this species of *Rubus* were collected at Paraiso, near San Jose, Costa Rica. The plants grew along the roadside and were from 6 to 8 feet in height. The fruits, which were produced in abundance, were about 1 inch in length and very firm in texture, but of poor flavor.” (*Goucher.*)

**55756 to 55761.**

From Yunnan, China. Collected by J. F. Rock, Agricultural Explorer of the United States Department of Agriculture. Received September 11, 1922. Quoted notes by Mr. Rock.

55756. *LILIUM* sp. Liliaceæ.

Lily.

“(No. 4931. Likiang. July 7, 1922.) Bulbs of a beautiful lily with thick, oval, alternate leaves which are far apart. The single terminal flower has rich pink reflexed petals spotted with dark purple. This rare plant grows on the edge of pine forests of the Likiang Snow Range at an altitude of 12,000 feet. This may be only a variety of *Lilium duchartrei*, but it is a decidedly handsome plant.”

55757 to 55761. *PRUNUS* spp. Amygdalaceæ.

Seeds of the following wild cherries and plums:

55757. *PRUNUS* sp.**Cherry.**

“(Likiang. July 6, 1922.) A smaller tree than the following [No. 4858, S. P. I. No. 55758]; the fruits also are smaller, globose, and dark red. It grows in the Likiang Snow Range at an altitude of 12,000 feet. The tree is apparently free from any disease.”

55758. *PRUNUS* sp.**Cherry.**

“(No. 4858. Likiang. July 6, 1922.) A fine looking cherry tree, 35 to 40 feet in height, which grows at an altitude of 12,000 feet among limestone boulders on the edge of alpine meadows on the

## 55756 to 55761—Continued.

Likiang Snow Range. The foliage is dark green, and the orange-red, oval-pointed, sour fruits are much sought after by birds and hence difficult to collect."

55759. *PRUNUS* sp.

Plum.

"(Szemao. July, 1922.) A plum tree of fine shape, 40 to 50 feet in height, growing in the mountains at an altitude of 5,000 feet or more. The small yellow fruits, about the size of an olive, are not very sour; the flesh is scanty but quite tasty."

55760. *PRUNUS* sp.

Plum.

"(Szemao. July, 1922.) A plum tree growing in the mountains at an altitude of 5,000 feet."

55761. *PRUNUS* sp.

Plum.

"(Szemao. July, 1922.) A plum tree, 30 to 35 feet in height, growing in the mountains at an altitude of 5,000 feet or more. The fruit, somewhat larger than an olive, is yellow, hard, and sour. Owing to its freedom from disease and prolific bearing, this species, as well as the two preceding ones, should be suitable for stocks."

55762. *GARCINIA MANGOSTANA* L. Clusiaceæ. Mangosteen.

From Paris, France. Seeds purchased from Vilmorin-Andrieux & Co. Received September 6, 1922.

For previous introduction and description, see S. P. I. No. 55728.

55763. *ACANTHOSICYOS HORRIDA* Welw. Cucurbitaceæ.

From Louws Creek, Eastern Transvaal, Union of South Africa. Seeds presented by E. B. Edwards. Received September 14, 1922.

"*Narras*. A remarkable cucurbitaceous plant which grows on the dunes of the Namib, where subterranean waters exist. The plant subsists even when this water is at great depths. It forms thorny thickets on the sand hills of Southwest Africa and is adapted to a hot, dry climate, with little or no rainfall. The fruit is the size of an ostrich egg. Both the pulp and seeds are used as food by the natives. The fruits are produced in abundance, and for about four months of the year the more primitive Hottentots are said to survive with practically no other source of food or water. The fruits are eaten and water is obtained from them. The seeds when ripe are plump, about the size of watermelon seeds.

"The plant is one which should be of great value to our Indians of the Southwest if once established on the sand dunes of Arizona and southern California. It is doubtful whether any plant can be obtained which seems offhand to give greater promise in that region than does this cucurbit." (*H. L. Shantz*.)

For previous introduction, see S. P. I. No. 55486.

55764 and 55765. *PRUNUS SEROTINA* Ehrh. Amygdalaceæ. Capulin.

From the city of Guatemala, Guatemala. Seeds presented by Sr. Jorge Garcia Salas, Director General of Agriculture. Received August 17, 1922.

"In Guatemala this tree is found throughout the highlands generally, sometimes as a semicultivated plant, sometimes as a wild species, or at least having the appearance of one. Its zone of cultivation lies between 4,000 and 9,000 feet. The Kiche Indians who live near Quezaltenango know the fruit as 'tup' and distinguish two varieties—the 'ek-i-tup' (red tup) and the 'sak-i-tup' (white tup), the latter having fruits of much lighter color than the former. The presence of a name for this fruit in the Kiche language argues an ancient cultivation in the Guatemalan highlands.



"The capulin is used in the same manner as the northern cherry—for eating out of hand, for preserving, for jams, etc. In those countries where good varieties grow it is popular among all classes of people.

"There is considerable difference in flavor of the fruits from different trees of a given region where this species grows, some of the fruits being disagreeably bitter, while others are sweet, pleasant, and altogether delicious. It is these latter which must be sought out and propagated if the possibilities of the capulin are to be fully realized and if it is to become eventually, as we confidently believe it will, a popular fruit throughout the subtropical regions of the entire world." (*Wilson Popenoe.*)

For previous introduction, see S. P. I. No. 41328.

**55764.** "A bitter cherry from cool regions of Chimaltenango." (*Garcia Salas.*)

**55765.** "A sweet cherry from cool regions of San Martin Jilotepeque." (*Garcia Salas.*)

**55766 to 55768.** CUCUMIS spp. Cucurbitaceæ.

From Burringbar, New South Wales. Seeds presented by B. Harrison. Received September 14, 1922. Quoted notes by Mr. Harrison.

**55766.** CUCUMIS MELO L. **Muskmelon.**

"Seeds of the Australian casaba which I believe originally came from India. It is a most prolific plant, bearing cream-colored fruit about the size of a cucumber. It is sometimes called the 'apple melon' and is quite popular here, being very palatable when eaten with sugar or made up into pies. It is hardy, prolific, early, and should thrive well throughout the United States."

For previous introduction, see S. P. I. No. 46029.

**55767 and 55768.** CUCUMIS SATIVUS L. **Cucumber.**

**55767.** "*Mammoth.* This cucumber grows to a very large size, almost as large as a medium-sized vegetable marrow, and keeps well. The flesh is very firm, crisp, and sweet."

For previous introduction, see S. P. I. No. 48156.

**55768.** "*Harrison's Giant.* Grows to a length of 3 feet and is well flavored. This variety has been evolved through careful selection and cultivation."

**55769.** CARAGANA PYGMAEA (L.) DC. Fabaceæ. **Dwarf pea tree.**

From Indian Head, Saskatchewan, Canada. Seeds presented by Norman M. Ross, Forestry Branch, Nursery Station, Indian Head. Received September 15, 1922.

A handsome shrub with small leaves and yellow flowers, which grows spontaneously in hilly places in the southern provinces of Russia, and in great abundance in the region south of Lake Baikal. In cultivation it rarely exceeds 4 feet, but in its wild state it is often 6 feet high with a stem 2 inches thick. The bright-yellow shoots when old are long and flexible and are made into flyflaps. The shoots are much tougher than those of any of our cultivated osiers and are better suited for tying. The hard dull-brown wood is streaked with red and is well adapted for veneering. (Adapted from *Edicard's Botanical Register, vol. 12, p. 1021.*)

For previous introduction, see S. P. I. No. 52698.

**55770.** LILIUM sp. Liliaceæ. **Lily.**

From Mili, Szechwan, China. Bulbs collected by J. F. Rock, Agricultural Explorer of the United States Department of Agriculture. Received September 15, 1922.

"(No. 5051. Mili. July 10, 1922.) A lily related to *Lilium duchartrei*, with large racemes of white flowers; the petals are reflexed and sprinkled with purple. The bulbs were collected in southwestern Szechwan, in the mountains of the Lama Kingdom." (*Rock.*)

**55771 to 55774.**

From Komaba, Tokyo, Japan. Seeds presented by Prof. M. Shirai, Botanical Institute, College of Agriculture, Komaba. Received September 19, 1922.

**55771 and 55772. ELAÆAGNUS MULTIFLORA Thunb. Elæagnaceæ. Gumi.**

A very attractive white-flowered Japanese shrub about 6 feet in height. The lower surface of the oval leaves is silvery white and the dull-red oval fruits, about an inch in length, are much relished for their brisk tart flavor, being excellent for preserves. (Adapted from *The Florists' Exchange*, vol. 38, p. 185.)

55771. *Ogumi*.55772. *Togumi*.**55773 and 55774. RUBUS spp. Rosaceæ.**

These native Japanese species of *Rubus* are introduced for breeding experiments.

**55773. RUBUS INCISUS Thunb.**

An erect shrubby species with purplish stems, few spines, heart-shaped leaves, and solitary axillary white flowers. (Adapted from *Thunberg, Flora Japonica*, p. 216.)

**55774. RUBUS MICROPHYLLUS L. f.***(R. palmatus Thunb.)*

A much-branched shrub with slender climbing branches, scattered recurved prickles, roundish five or six lobed bright-green leaves, solitary axillary pure-white flowers, and yellow juicy fruits nearly an inch in diameter. (Adapted from *Curtis's Botanical Magazine*, pl. 7801.)

**55775 to 55787.**

From China. Collected by J. F. Rock, Agricultural Explorer of the United States Department of Agriculture. Received September 21, 1922. Quoted notes by Mr. Rock.

**55775 and 55776. AMYGDALUS PERSICA L. Amygdalaceæ. Peach.**  
*(Prunus persica Stokes.)*

**55775.** "(Near Puerhfu, Yunnan, July, 1922.) Seeds of a tree 40 feet in height, which is a prolific bearer. The fruits are unusually fine, although small; they are juicy and of a delicious strawberry-like flavor, freestone, and with a strawberry-red surface."

**55776.** "(Puerhfu, Yunnan, July 10, 1922.) Seeds from large trees growing wild in the mountains 30 li [about 8 miles] from Puerhfu at an altitude of 5,000 feet. The fruits are large, freestone, quite juicy, and of good flavor."

**55777. ARISAEMA sp. Araceæ.**

"(No. 5053. Mili, Szechwan, July 12, 1922.) Tubers of an aroid of great beauty collected in the mountains. The large spathe is white, with a tinge of pale green toward the apex."

**55778 to 55780. LILIUM spp. Liliaceæ. Lily.****55778. LILIUM sp.**

"(Likiang, Yunnan, July, 1922.) Bulbs of a lily with red stems, dark-green leaves, and yellowish red flowers; the reflexed petals are spotted with purple. This lily was found on the western slope of the Likiang Snow Range at an altitude of 14,000 feet."

**55779. LILIUM sp.**

"(Likiang, Yunnan, July 20, 1922.) Bulbs of a small lily with single white flowers; found on the Likiang Snow Range at an altitude of 14,000 feet."

## 55775 and 55787—Continued.

55780. *LILIUM* sp.

"(Likiang, Yunnan, July, 1922.) Bulbs of a lily with red stems and thick, fleshy, light-green leaves, collected on the eastern slope of the Likiang Snow Range at an altitude of 14,000 feet. The yellowish green flowers are marked with purple stripes."

55781 to 55784. *PRUNUS* spp. Amygdalaceæ.55781. *PRUNUS TOMENTOSA* Thunb.

Bush cherry.

"(Likiang, Yunnan, July 18, 1922.) Seeds of a shrubby cherry which grows on the Yunnan-Szechwan border about five days' journey north of Likiang in the scrub forests near Fengkow, not far from the Yangtze River, at an altitude of 11,000 feet. The plant is 8 to 10 feet high, with a gray pubescence, branching from the base and forming a large round bush. It is a most prolific bearer, and in the latter part of July is loaded with the oval orange-yellow cherries of a sweetish sour flavor."

55782. *PRUNUS* sp.

Cherry.

"(No. 5052. Mili, Szechwan, July 10, 1922.) Seeds of a fine spreading tree 35 to 40 feet in height, collected in the mountains at an altitude of 12,000 feet. The small oval red fruits have very small seeds. The tree should make a good stock plant."

55783. *PRUNUS* sp.

Plum.

"(Near Puerhfu, Yunnan, July, 1922.) Seeds of a fine tree which bears bright-yellow, very juicy fruits of a mild, sweet flavor, the size of a small apple. This species could doubtless be improved."

55784. *PRUNUS* sp.

Plum.

"(Near Puerhfu, Yunnan, July, 1922.) Seeds of a tree 35 to 40 feet high, with bright-yellow, slightly bitter fruits the size of a small walnut."

55785 to 55787. *RUBUS* spp. Rosaceæ.

Raspberry.

55785. *RUBUS* sp.

"(Likiang, Yunnan, July, 1922.) Seeds of a rambling shrub collected on the Likiang Snow Range at an altitude of 15,000 feet in exposed situations covered with snow in winter and early spring. The entire plant is woolly white and slightly spiny, and the leaves are snow white beneath. The fruits, the size of a thimble, have a sweet, delicious flavor, and the individual drupelets are large and transparent."

55786. *RUBUS* sp.

"(Likiang, July 20, 1922.) Seeds of a climbing shrub, with leaves silvery beneath and green above, growing on the Likiang Snow Range at an altitude of 13,000 feet. The orange-red berries have a sweet subacid flavor and attractive color."

55787. *RUBUS* sp.

"(Likiang, July 20, 1922.) Seeds of a shrub 5 to 6 feet high, collected on the slopes of the Likiang Snow Range at an altitude of 13,000 feet. The small leaves are green on both sides, and the scarlet berries are sweet and very palatable."

55788. *RUBUS GLAUCUS* Benth. Rosaceæ.

Andes berry.

From Guatemala. Seeds presented by B. M. Young, Morgan City, La. Received September 25, 1922.

"The Andes berry occurs as a wild plant from Mexico to Ecuador. It is a vigorous raspberry-like plant, bearing maroon-colored fruits which resemble Logan blackberries in flavor, but are sweeter. It can probably be culti-

vated on the Pacific coast and in the Gulf States. A full description of the plant, its cultivation, and uses may be found in the *Journal of Heredity*, vol. 12, pp. 387-393, November, 1921." (*Wilson Popenoe.*)

For previous introduction, see S. P. I. No. 52734.

**55789. RHEUM RHAPONTICUM L. Polygonoaceæ. Rhubarb.**

From Ottawa, Canada. Crowns presented by Prof. T. F. Ritchie, Department of Horticulture, Central Experimental Farm. Received September 28, 1922.

"A new variety of rhubarb of very fine quality; it has a slender purplish stalk." (*W. A. Orton.*)

**55790. CALLIANDRA TERGEMINA (L.) Benth. Mimosaceæ.**

From Dominica, British West Indies. Seeds presented by Joseph Jones, curator, Botanic Gardens, Dominica. Received September 22, 1922.

"Seeds of a small native tree known locally as *bois ravine*; it makes a good hedge plant and is very pleasing when in flower." (*Jones.*)

A beautiful leguminous shrub of the habit of the mimosas, but thornless, with compound leaves composed of six leaflets arranged characteristically in two groups of three each. The long purple filaments of the dense axillary flower heads make this shrub a very pleasing ornamental. (Adapted from *Plumier, Plantarum Americanarum, ed. Burmann, pl. 10.*)

**55791. OSYRIS ALBA L. Santalaceæ.**

From Nice, France. Seeds presented by Dr. A. Robertson Proschowsky. Received September 23, 1922.

"This is a small evergreen bush which is very ornamental when loaded with its red fruits. It grows in very dry poor soil." (*Proschowsky.*)

A small upright shrub 3 feet high, widely distributed throughout the Mediterranean region. It has stiff, narrow, yellowish green leaves, small axillary greenish yellow flowers, and small red fruits. The roots and fruit possess astringent properties. (Adapted from *Schneider, Illustriertes Handbuch der Laubholzkunde, vol. 1, p. 277.*)

**55792 to 55795.**

From Freetown, Sierra Leone, West Africa. Seeds presented by Prof. William N. Martin, Albert Academy, Freetown. Received September 25, 1922.

**55792. CUCUMEROPSIS MANNII Naud. Cucurbitaceæ. Kiffy.**

A cucurbitaceous yellow-flowered climbing vine from tropical Africa.

"The gourdlike fruits, about the size and shape of a goose egg, are produced on vines like that of the ordinary gourd. The seeds when parched and ground produce a delicious condiment, and kiffy seed is an important ingredient in the popular Liberian dish called dumboy. The flavor of the parched seed is similar to that of the parched seeds of *Sesamum indicum*, which are used in the same manner by the natives of Liberia. The seeds are obtained by macerating the fruits in water and washing them free from the pulp. This plant probably would mature its fruits only in the extreme southern United States." (*G. N. Collins.*)

For previous introduction, see S. P. I. No. 31365.

**55793 and 55794. HOLCUS SORGHUM L. Poaceæ. Sorghum.**  
(*Sorghum vulgare* Pers.)

**55793. Cush Cush.** Seeds yellow.

**55794. Cush Cush.** Seeds red.

**55795. ORYZA SATIVA L. Poaceæ. Rice.**

"Temne rice, the sweetest in Sierra Leone." (*Martin.*)

**55796. GUILIELMA UTILIS** Oerst. Phœnicaceæ. **Pejibaye.**  
(*Bactris utilis* Benth. and Hook.)

From San Jose, Costa Rica. Plants purchased through Oton Jimenez. Received September 15, 1922.

A shipment of plants of the pejibaye. For an extended account of this interesting food palm, see the *Journal of Heredity*, vol. 12, pp. 154-166, April, 1921.

For previous introduction and description, see S. P. I. No. 54776.

**55797 to 55804.**

From Harbin, Manchuria. Seeds presented by G. C. Hanson, American consul, Harbin. Received September 25, 1922. Quoted notes by Mr. Hanson.

"The following collection of farm products grown in the Provinces of Heilungchiang and Kirin, Manchuria, was prepared for a world's farm exhibit to be held in Lagrange, Ind., in October, 1922. The seeds are all of the 1921-22 crop."

**55797. CANNABIS SATIVA** L. Moraceæ. **Hemp.**

"A variety of hemp grown at Anda."

For previous introduction, see S. P. I. No. 44712.

**55798. FAGOPYRUM VULGARE** Hill. Polygonaceæ. **Buckwheat.**  
(*F. esculentum* Moench.)

"Buckwheat from Anda."

**55799. HOLCUS SORGHUM** L. Poaceæ. **Sorghum.**  
(*Sorghum vulgare* Pers.)

"Kaoliang from Tzitzikar."

**55800. LINUM USITATISSIMUM** L. Linaceæ. **Flax.**

"Siberian linseed from the Ussurisk Railway district."

**55801. PANICUM MILIACEUM** L. Poaceæ. **Proso.**

"Red millet from Tzitzikar."

**55802. SOJA MAX** (L.) Piper. Fabaceæ. **Soy bean.**  
(*Glycine hispida* Maxim.)

"North Manchurian soy beans; average quality from the River Sungari district."

**55803. TRITICUM AESTIVUM** L. Poaceæ. **Common wheat.**  
(*T. vulgare* Vill.)

"Manchurian wheat; 124/125 Zolotnika natural weight; from Anda."

**55804. ZEA MAYS** L. Poaceæ. **Corn.**

"A yellow variety of maize from Anda."

**55805. PYRUS SEROTINA** × **COMMUNIS.** Malaceæ. **Van Fleet pear.**

Trees grown at the Plant Introduction Garden, Chico, Calif., under P. I. G. No. 6583. Numbered September, 1922.

"A hybrid pear raised by the late Dr. Walter Van Fleet at Little Silver, N. J., and presented to the Plant Introduction Garden in 1909. Promising as a blight-resistant cooking and preserving pear for sections where fire-blight is destructive.

"Origin, Little Silver, N. J. A hybrid probably between Golden Russet, an oriental pear, and one or more of the *communis* types. Medium to large, roundish, obovate; skin golden, covered with numerous small round dots; stalk long, stout; cavity around stalk quite shallow or none at all; basin at the calyx end more or less abrupt, deep, russet; flesh whitish, sweet, slightly subacid, granular; core medium; seeds few, large; not gritty.

"A handsome golden colored pear which when properly ripened makes a fine baking and preserving fruit. The trees are strong and vigorous with large,

thick, glossy leaves. The two original trees have been grown at Chico for more than 10 years and no trace of blight has appeared. J. E. Morrow, superintendent of the Chico garden, who has watched this pear carefully for a number of years, says that it is a splendid cooking pear and that after being cooked it tastes something like pineapple. He further says that, owing to its extreme vigor, size, hardness, immunity to blight, and heavy cropping qualities, he believes the pear has much promise. He regards it as much better than Kieffer or LeConte and is of the opinion that it should be thoroughly tested, especially in the Southern States." (B. T. Galloway.)

For an illustration of this fruit, see Plate V.

**55806. PHELEUM PRATENSE L. Poaceæ. Timothy.**

From Sydney, New South Wales. Seeds presented by George Valder, Department of Agriculture. Received September 29, 1922.

Locally grown timothy introduced for comparison and cultural experiments.

For previous introduction, see S. P. I. No. 55480.

**55807. GUILIELMA UTILIS Oerst. Phœnicaceæ. Pejibaye.**  
(*Bactris utilis* Benth. and Hook.)

From San Jose, Costa Rica. Seeds collected by Edward Goucher, Plant Propagator, Bureau of Plant Industry. Received September 19, 1922.

For previous introduction and description, see S. P. I. No. 55796.

**55808 to 55811.**

From Buitenzorg, Java. Seeds presented through Carl Hartley. Received September 23, 1922. Quoted notes by Mr. Hartley.

**55808 to 55810. ARACHIS HYPOGAEA L. Fabaceæ. Peanut.**

Presented by the Java Department of Agriculture.

"All of these peanuts mature in 100 days, or, according to the natives, in three months."

**55808.** "(No. 24 M.) *Broel*. This is a dominantly 3-seeded red-skinned peanut from East Java. It is moderately wilt resistant."

**55809.** "(No. 74.) *Paarse Holle*. This variety is named for its dark-red seed skin. It is mostly two seeded with some 3-seeded pods and is moderately wilt resistant."

**55810.** "(No. 71.) *Toeban*. This is grown by the Selectietuin here as their most productive strain. Unlike some of the kinds named 'Toeban' in other places, it has a white seed skin. Of the early-maturing strains, with one exception, it is the most resistant to the locally prevalent wilt, *Bacterium solanacearum*. It is of the bunch type, easily handled and harvested.

**55811. CASTANOPSIS ARGENTEA (Blume) A. DC. Fagaceæ. Chestnut.**

"(April, 1922.) An edible chestnut obtained from the head forester at Palembang, Sumatra."

An evergreen tree 50 to 60 feet high, with narrow, thin leaves 5 to 7 inches long, and very spiny dense clusters of burs; each bur is about 2 inches wide and contains normally a single nut an inch in diameter. (Adapted from *Hooker, Flora of British India, vol. 5, p. 621.*)

For previous introduction, see S. P. I. No. 52533.

**55812. MANGIFERA ALTISSIMA Blanco. Anacardiaceæ.**

From Manila, Philippine Islands. Budwood presented by Sr. Adn. Hernandez, director, Bureau of Agriculture. Received September 6, 1922.

A Philippine relative of the mango, which is found wild from northern Luzon to southern Mindanao, where it forms a large tree, sometimes reaching a height of 116 feet. The tree is not cultivated, although the mangolike, smooth, green or yellowish fruits, 2 to 3 inches long, are used for making pickles. The

leaves are long, narrow, and pointed at both ends, and the small, fragrant, white flowers are borne in large numbers in branched clusters. (Adapted from *W. H. Brown, Wild Food Plants of the Philippines, p. 94.*)

**55813. AMYGDALUS PERSICA L. Amygdalaceæ. Peach.**  
(*Prunus persica* Stokes.)

From the Plant Introduction Garden, Chico, Calif. A sucker from the stock plant on which was budded *Amygdalus tangutica*, S. P. I. No. 41700. Numbered September, 1922, for convenience in distribution.

"This tree has matured a very good crop of exceptionally fine freestone peaches. The fruit is yellow with red cheeks, in shape slightly flattened at the ends and bulging in the center, in size about 3 inches in diameter and 2½ inches long. The basin is wide and shallow, the suture rather indistinct. The flesh is yellow, very juicy, of extra fine quality, and very red at the pit, which is rather large, rough, and deeply corrugated. Average weight about 6½ ounces. A number of persons who have sampled this peach have pronounced it superb. It compares favorably with *Late Crawford* and is about a week later than *Elberta*. It is not as coarse in texture as the latter." (*J. E. Morrow.*)

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