Issued October, 1923

U. S. DEPARTMENT OF AGRICULTURE.

BUREAU OF PLANT INDUSTRY.



# INVENTORY

OF

# SEEDS AND PLANTS IMPORTED

BY THE

## OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION DURING THE PERIOD FROM OCTOBER 1 TO DECEMBER 31, 1921.

(No. 69; Nos. 54426 to 54676.)

WASHINGTON
GOVERNMENT PRINTING OFFICE
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# INVENTORY OF SEEDS AND PLANTS IMPORTED BY THE OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION DURING THE PERIOD FROM OCTOBER 1 TO DECEMBER 31, 1921 (NO. 69; NOS. 54426 TO 54676).

## INTRODUCTORY STATEMENT.

Since these inventories were started, over 23 years ago, there has been such a delay in their appearance in type that the plants chronicled therein were in the hands of the experimenters long before they could read the accounts of the plants which had been sent them.

The last plant which is here recorded reached Washington December 29, 1921, and has still to be propagated before it can be sent out; it is to be hoped that before it goes out next spring a printed description of it will have appeared.

With the exception of a small number of Chilean plants secured by Mr. Popenoe just at the close of his last expedition (fig. 1), all of the plants described in this inventory were sent in by friends of plant introduction scattered over the world.

The success of the Japanese and Indian bamboos in the Southern States makes Mr. Hole's introduction of two forms which have not hitherto been established of interest to a wider public than heretofore; these are *Dendrocalamus brandisii* (No. 54429), which grows to 120 feet and has thick-walled culms, and *Melocanna baccifera* (No. 54430), a low-growing form 30 to 50 feet high, which bears fruits the size of a small pear. It is likely that these will prove of more value in Panama, Porto Rico, and Hawaii than anywhere else.

Mr. Dunbar, who is the first in America to have fruited out the half-evergreen oak, *Quercus serrata*, and who considers this tree one of the most ornamental of the Japanese species, sends us for distribution seeds (No. 54433) from his tree in Rochester, N. Y.

Dr. Gustavus Eisen, well known for his pioneer work in the early days of grape and fig introduction in California, has secured through his friend, Mr. Kouchakji, an interesting peach (No. 54441) from Baalbek and three of the famous Aleppo varieties of apricot (Nos. 54442 to 54444), which can not fail to interest Californians.

It is a long time since we have received anything from Doctor Fenzi, known to Californians as Doctor Franceschi, and it is a pleasure to call attention to a new melon (No. 54445) which he sends in from an oasis 10 miles west of Tripoli and which he remarks has hardly any cavity, but is an exceedingly juicy, delicately perfumed variety with greenish white flesh.

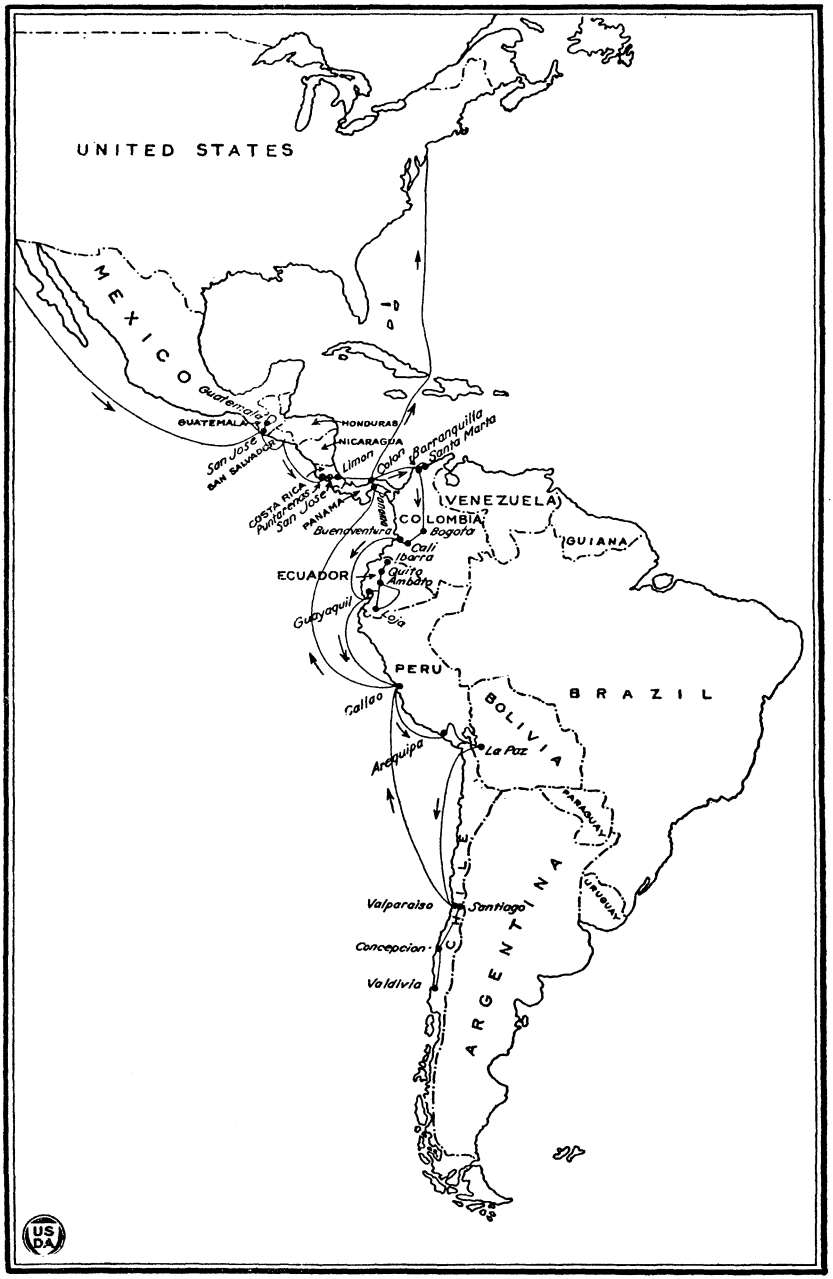



FIG. 1.—Map of Central America and South America, showing Wilson Popenoe's exploration routes from 1919 to 1921. A wealth of new plant material resulted from this trip, including the giant Colombian berry from near Bogota; the Andes berry, many varieties of which are found from Guatemala to Chile; the pejibaye, a staple food of Costa Rica; a number of choice avocados from the Chota Valley, north of Ibarra, Ecuador; several relatives of the papaya; and a host of other plants recorded in this and the four preceding inventories.

Mr. Breakwell, of Sydney, New South Wales, sends two strains of sweet sorghum (Nos. 54435 and 54436), which, when grown under Australian conditions side by side with American varieties of which he imported seeds, were much superior to the latter.

M. Goffart, of Tangier, Morocco, who has made a specialty of acacias for many years, sends us *Acacia pycnantha* (No. 54439), which he finds less intolerant of lime in the soil than any other species, although it is not so hardy. This species ought to do well in Florida, where many species of Acacia fail.

The success which has attended the use of the native species, *Agati* (*Sesbania*) *macrocarpa*, in the Coachella Valley of California has made it seem advisable to try the Indian species *A. grandiflora* (No. 54468), which, although growing into a good-sized tree, has the characteristic of developing its root nodules when quite young and thus suiting itself to use as a green soiling crop. Doctor Lyon, of Hawaii, who sends in the seeds, reports that this species has been so used there by planting thickly and turning under when 4 to 6 feet high.

Most species of Eucalyptus are too tender for cultivation in northern Florida and most parts of California, but *E. gunnii* (No. 54469), the Tasmanian eucalypt, has stood temperatures of 22° F. without the least injury and should be utilized in those localities which are too cool for the other species.

*Garcinia spicata* (No. 54470) from peninsular India will be a valuable thing if the true mangosteen can be grafted on it and if it will grow better than those other species which we have introduced for stock purposes.

The Ohia tree, *Caryophyllus malaccensis* (Nos. 54489 and 54530), as it grows in Panama is a superb ornamental tree even though one must stand under it to see the superbly beautiful rose-pink flowers which form on the larger branches and are partly hidden by the dark-green foliage. Though perhaps not a really first-rate fruit tree, it deserves to be grown wherever possible for its flowers.

The successful acclimatization of the kafir orange, *Strychnos spinosa*, in southern Florida, where its fruits are beginning to be appreciated, makes the introduction of another species of this genus (*Strychnos* sp., No. 54503) of more than usual interest, for it may be possible now to improve this wild fruit which lacks only quality and a knowledge of how to ripen it to make it a plant well worth cultivating in dooryards.

The demand for a timber which the teredos and white ants will not attack should make of particular interest the cultivating of the stringy bark eucalypt, *Eucalyptus obliqua* (No. 54506).

The unusual behavior of hybrids should entitle the Worcester berry (*Ribes nigrum* × *reclinatum*, No. 54507), which is a cross between the gooseberry and the black currant, to a wide trial, particularly since it is said to be a regular bearer and a very vigorous shrub.

Mr. Harrison, of Burringbar, New South Wales, has sent us again some interesting new plants, among them the Congo grass (*Pennisetum purpureum* (No. 54513), a variety of the elephant grass better than the type; it yields permanent fields of fodder on dry soils. He also sends a selected large-fruited variety of the poha, *Physalis peruviana* (No. 54514).

For some time the desirability of a dwarf mango has been felt by the Florida growers, and the introduction of the Père Louis (No. 54526), a new one from Port of Spain, Trinidad, should be of especial interest to mango growers.

A form of the cereal called Job's-tears, the seeds of which, instead of being so hard that they are useful only as beads, are soft when roasted or boiled like rice or pearl barley, should be called to the attention of tropical agriculturists. We are indebted to Mr. Wester for seeds (Nos. 54454 and 54455).

The improvement of the common papaya through hybridization has not, so far as I am aware, been attempted, although there are several unidentified species of Carica which might contribute to the problem. My son, Graham Fairchild, found on the banks of the Rio Pescado in Panama (No. 54529) what appears to be a species quite similar to one found by Mr. Popenoe in Costa Rica.

The yellow mombin, *Spondias mombin*, seems to be as popular a fruit with the children of the Canal Zone as the Wildgoose plums were with the descendants of the pioneers on the Great Plains; but, notwithstanding the fact that the trees bear fruit varying greatly in quality, nothing seems yet to have been done to improve this fruit tree. Seeds (No. 54532) were imported from Panama to see if the species will grow in Florida.

The Chorisia of Paraguay (*C. speciosa*, No. 54551), which is reported to be a tree that will stand more cold than the kapok tree of Java and yields a silky fiber similar to the best kapok, should be thoroughly tried out in our island possessions and even in southern Florida.

The shisham of British India, *Amerimnon latifolium* (Nos. 54554 and 54555), because of its habit of suckering and its great vigor, enabling it to compete with other forest trees, as well as because it produces timber of excellent quality, deserves to be called to the attention of tropical foresters.

During his brief visit to Chile Mr. Popenoe spent some time with the veteran horticulturist of Chile, Sr. Salvador Izquierdo, of Santa Ines, who has one of the most remarkable collections of plants of horticultural interest in all South America. Thanks to Señor Izquierdo's kindness, we are in possession of some very interesting plants, among them being four varieties of peach of Chilean origin and of excellent quality (Nos. 54622 to 54625); seven interesting native trees, including the Belloto (No. 54627), the Patagua (No. 54628), the Laurel de Chile (No. 54633), the Litre (No. 54634), the Tipu (No. 54643), the Boldo (No. 54639), and the Peumo (No. 54629); a collection of strictly Chilean strawberries (Nos. 54630 and 54631) of the *Fragaria chiloensis* group; also the Huidobro apple (No. 54635), which he has found resistant to the worst insect pest of apples in Chile, the woolly aphis; and the so-called evergreen poplar (No. 54641), which is one of his selections from the common species of poplar of that region.

Mr. Popenoe calls attention to what appears to be a true dwarf orange (No. 54651) found growing in Señor Izquierdo's nursery, which, because of its dwarf habit and the quality of its fruits, he considers promising for dooryard plantings; also to the little-known species of fruit tree, *Lucuma obovata* (No. 54653), which is a popu-

lar fruit in central Chile; it resembles the well-known ti-es already grown in southern Florida, but is much larger.

The collections of F. A. McClure, of the Canton Christian College, are particularly interesting since they were made in Annam, French Indo China, a territory little explored and from which very little material has been received. They include the yan nin (*Dracontomelon sinense*, No. 54655), a new fruit tree; two undetermined species of Garcinia (Nos. 54656 and 54657), relatives of the mangosteen, with fruits reminding one of the latter; and the interesting citrus relative, *Severinia buxifolia* (No. 54658), which can stand large amounts of salt in the soil, is suitable for hedges, and appears to be a promising plant for this purpose even if it should not prove of particular value for breeding.

We are again indebted to Doctor Proschowsky, of Nice, France, for a collection of seeds (Nos. 54664 to 54669) from his various Butias, which he calls his fruit palms, and which should certainly be thoroughly tested in those portions of the United States where they are likely to grow. Any fruit-bearing palm adapted to the pinelands of northern Florida would be of considerable value in the years to come.

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

DAVID FAIRCHILD,
*Agricultural Explorer in Charge.*

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION,
*Washington, D. C., January 4, 1923.*

40258—23——2

# INVENTORY.[1]

## 54426 to 54428.

From Canton, China. Seeds presented by F. A. McClure, Canton Christian College, through G. Weidman Groff. Received October 6, 1921.

54426. BENINCASA HISPIDA (Thunb.) Cogn. Cucurbitaceæ. **Wax gourd.** (*B. cerifera* Savi.)

*Cheung tsit kwa.*

For previous introduction, see S. P. I. No. 48553.

54427. CUCURBITA MOSCHATA Duch. Cucurbitaceæ. **Squash.**

*Faan kwa.*

54428. BENINCASA HISPIDA (Thunb.) Cogn. Cucurbitaceæ. **Wax gourd.**

*Paak pei tung kwa.*

## 54429 and 54430.

From Dehra Dun, India. Seeds presented by R. S. Hole, forest botanist, Forest Research Institute and College. Received October 8, 1921.

54429. DENDROCALAMUS BRANDISII Munro. Poaceæ. **Bamboo.**

A large, evergreen, tufted bamboo with ashy gray to greenish gray stems 60 to 120 feet high, 5 to 8 inches in diameter, slightly branched below, more so above, and having thick walls. This splendid bamboo is often confused with the somewhat similar *Dendrocalamus giganteus*, from which it is easily distinguished by the much smaller spikelets and thicker walled culms. It also closely resembles *D. flagellifer*. The stems are said to be used for building. (Adapted from *Annals of the Royal Botanic Garden, Calcutta, vol. 7, p. 90.*)

54430. MELOCANNA BACCIFERA (Roxb.) Kurz. Poaceæ. **Bamboo.** (*M. bambusoides* Trin.)

*Muli* or *Moorli*. The Terai bamboo. This is an evergreen arborescent bamboo, unarmed and beautifully erect without any bend or inequality of surface. It grows in its native habitat, the Chittagong Hills, to the height of 30 to 50 feet with a circumference of 12 to 13 inches at the base. Melocanna, though indigenous to Chittagong, is found all over eastern Bengal and Burma; it delights in a sandy soil, and dry spots suit it admirably.

The culms sprout from an underground ramifying rhizome at some distance from each other; and, though thin walled, the bamboo is strong and durable, being largely used for mats and building purposes. It is also observed that white ants and other insects so destructive to the dry bamboo seldom attack Melocanna. This bamboo also yields more or less *tabasheer*, locally called "choona" (lime), but its most remarkable feature is the large fleshy fruit it bears. This berry is in shape like an inverted pear, 3 to 5 inches long, with a long, curved, tapering point. There is a single oval seed inside the pericarp. The fruit is eaten by the natives. (Adapted from *Proceedings and Journal of the Agricultural and Horticultural Society of India, 1913, p. 62.*)

For previous introduction, see S. P. I. No. 21347.

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

**54431 and 54432.** TRITICUM DURUM Desf. Poaceæ. **Durum wheat.**

From Bengazi, Barca, Libia, Africa. Seeds presented by the director of Economic and Financial Affairs, Servizi Agrari, Governo della Cirenaca. Received October 11, 1921.

54431. *Triminia.* 54432. *Tripshiro.*

**54433.** QUERCUS SERRATA Thunb. Fagaceæ. **Oak.**

From Rochester, N. Y. Nuts presented by John Dunbar, Assistant Superintendent of Parks. Received October 29, 1921.

"A half-evergreen oak, native to Japan and Chosen. We have grown it here for about twenty years, and it seems to be perfectly hardy. Two trees fruited quite freely this year; Doctor Sargent has no previous record of any trees having produced mature nuts in this country.

"Being of a half-evergreen nature the leaves remain green until very late in the season; sometimes they do assume a dull-yellow color. I think it is one of the most ornamental of the different species of oaks that have been introduced from Japan." (*Dunbar.*)

**54434.** CANARIUM OVATUM Engl. Balsameaceæ. **Pili nut.**

From Los Banos, Philippine Islands. Seeds presented by Prof. J. E. Higgins, College of Agriculture. Received October 20, 1921.

"Fresh selected *Pili* nuts. You are thoroughly familiar with the excellent quality of the *Pili* nut, and I need not emphasize its value. I believe that the tree ought to grow well in some of the moist places on the northern and eastern sides of Porto Rico and doubtless elsewhere under similar conditions in the West Indies." (*Higgins.*)

For previous introduction, see S. P. I. No. 47901.

**54435 and 54436.** HOLCUS SORGHUM L. Poaceæ. **Sorghum.**
(*Sorghum vulgare* Pers.)

From Sydney, New South Wales, Australia. Seeds presented by E. Breakwell, agrostologist, Botanic Gardens, through H. N. Vinall, United States Department of Agriculture. Received October 29, 1921.

"Two strains of sweet sorghum. These strains are very superior to those grown in the States, seed of which we obtained and grew side by side last season with those mentioned. The climatic conditions, of course, may be the reason for this, but I hope they will be successful with you." (*Breakwell.*)

54435. *Saccaline.* 54436. *No. 61.*

**54437.** CANNA FLACCIDA × IRIDIFLORA. Cannaceæ. **Canna.**

From Manila, Philippine Islands. Roots presented by P. J. Wester, agricultural adviser, Bureau of Agriculture. Received November 16, 1921.

"When I was stationed at Malabang, Mindanao, Philippine Islands, a friend gave me a lot of roots of a plant called locally 'Spanish flag.' The growth was jointed, the leaves similar to the Japanese iris, and the blossom, in cross section, approximately a figure 8. The color of the flower was the peculiar rich red of the flag of Spain, broadly bordered in standards and falls by a glorious and broad band of golden yellow, making the handsomest and most brilliant color combination I ever saw in a flower. The plant grows 6 or 7 feet high and blooms almost constantly." (*Col. J. A. Cole, U. S. Army, retired.*)

"The 'Spanish flag' of which Colonel Cole speaks is a variety of the cultivated canna which has naturalized itself and is common everywhere in the Philippines." (*Wester.*)

**54438.** CHAETOCHLOA ITALICA (L.) Scribn. Poaceæ. **Millet.**
(*Setaria italica* Beauv.)

From Tokyo, Japan. Seeds presented by The Tokyo Plant, Seed, & Implement Co. Received October 15, 1921.

For trial by the Office of Forage-Crop Investigations.

**54439.** ACACIA PYCNANTHA Benth. Mimosaceæ.

From Tangier, Morocco. Seeds presented by M. Jules Goffart. Received October 27, 1921.

"Concerning this Australian acacia, facts which I have just learned show that in certain regions it has much thicker bark than *Acacia mollissima*, and as for the richness in tannin, one may say it has about the same. Moreover, it has, in my opinion, a great advantage, in that it hybridizes more readily than *A. mollissima* when tried with its relatives *A. dealbata* and *A. normalis*. Furthermore, *A. pycnantha* has the advantage, here at least, over *A. mollissima* of tolerating more or less lime in the soil. On the other hand, at Kenitra, a thing which surprises me, although it is certain, is that it freezes more easily than *A. mollissima*. A few meters away both show the same resistance." (*Goffart.*)

For previous introduction, see S. P. I. No. 49485.

**54440.** ECHINOCHLOA CRUSGALLI EDULIS Hitchc. Poaceæ.
**Barnyard millet.**

From Nanking, China. Seeds presented by J. Lossing Buck, College of Agriculture and Forestry, University of Nanking. Received December 13, 1921.

For experimental use by the Office of Forage-Crop Investigations.

For previous introduction, see S. P. I. No. 51341.

**54441 to 54444.**

From Aleppo, Syria. Seeds presented by Constantine Kouchakji, through Dr. Gustavus Eisen, New York, N. Y. Received November 9, 1921. Quoted notes by Doctor Eisen.

54441. AMYGDALUS PERSICA L. Amygdalaceæ. **Peach.**
(*Prunus persica* Stokes.)

"*Derrak*. Peach from Baalbek, in Syria. Fruit green and red, 2¾ inches long, 2¼ inches wide. Matures in September."

54442 to 54444. PRUNUS ARMENIACA L. Amygdalaceæ. **Apricot.**

54442. "Apricot pits from Aleppo of the variety known as *Ájami* or *Áshami* (Persian). This is the largest apricot in Syria. The small fruit, 1¼ by 2 inches, was grown on poor soil. The largest fruit, 2 by 3¼ inches, was grown on very rich soil. The color is green with red blush. The skin is glossy, tough, and hard, making the fruit suitable for shipping. Flavor sweet like sugar, the sweetest of all apricots. I have never before seen such small pits."

54443. "A variety known in Aleppo as Baladi (from the city). Comes from Damascus. The kernel is sweet like a sweet almond. Color of skin yellow on one side, red on the other. Size 2 inches long by 1½ inches wide. This is the best quality of apricot in all northern Syria; grown in Aleppo, but the trees were imported from Damascus where the variety has been grown for generations. The skin is thick, but not hard. The form of the seed is quite swollen."

## 54441 to 54444—Continued.

54444. "Apricot pits from Baalbek. This variety is known as *Baalbek*. The fruit is about 2 inches each way, spherical, creased; the color is yellow, without red. The quality is very fine. The kernels are not sweet."

## 54445. CUCUMIS MELO L. Cucurbitaceæ. **Muskmelon.**

From Tripoli, Libia, Africa. Seeds presented by Dr. E. O. Fenzi, Stabilimento Orticolo Libico. Received October 19, 1921.

"A first-class local variety of melon, known as *Popone di Zanzur* (Zanzur is an oasis on the coast about 10 miles west of Tripoli). The melon is oval-oblong in shape; skin yellowish green, very smooth, and very thin; pulp greenish white, exceedingly juicy, and delicately perfumed, with hardly any cavity, so that there is an unusual proportion of edible fruit. Should be taken up by some specialist, with the view of obtaining a more resistant skin without increasing its thickness." (*Fenzi.*)

## 54446. TIBOUCHINA sp. Melastomaceæ.

From Rio de Janeiro, Brazil. Seeds presented by Dr. J. Simao da Costa. Received October 14, 1921.

"Seeds of *Tibouchina crenulata* trees which, when in full bloom, are among the most beautiful ornaments of the forests of these latitudes." (*Da Costa.*)

"Trees of the genus Tibouchina are common in the forests of tropical America. They are usually erect, slender, and not over 20 or 25 feet high. The leaves are large and attractive in appearance. The flowers, which are often 4 or 5 inches broad and are produced in clusters at the ends of the branchlets, are usually red-purple to purple in color, often changing from one to the other after opening." (*Wilson Popenoe.*)

Received as *T. crenulata*, for which a place of publication has not yet been found.

## 54447 and 54448.

From Sao Paulo, Brazil. Seeds purchased from Sr. Eduardo J. Toedtli, through Sr. José Augusto de Loyolla. Received November 12, 1921.

54447. CYMBOPOGON RUFUS (Nees) Rendle. Poaceæ. **Jaragua grass.** (*Andropogon rufus* Kunth.)

For previous introduction, see S. P. I. No. 49585.

54448. MELINIS MINUTIFLORA Beauv. Poaceæ. **Molasses grass.**

"It is known everywhere in this country that the famous *capim gordura*, which is also called *capim gordura roxo Francano*, was native in this district of Franca, in the State of Sao Paulo, and has actually been cultivated by some farmers here in the north of the State, starting from Restinga up to Pedregulhos, along the Mogyana Railroad. This seed comes from a farm called 'Fazenda Santa Alcina,' which lies exactly between Restinga and Mandihu and belongs to Sr. João Alberto de Faria, who gathered the seed this year." (*Toedtli.*)

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

## 54449. BAMBOS TULDA Roxb. Poaceæ. **Bamboo.**

From Dehra Dun, India. Seeds presented by R. S. Hole, forest botanist, Forest Research Institute and College. Received October 29, 1921.

The common bamboo of Bengal. The wood is strong and the stems are used for roofing and scaffolding, for mats, etc. Native to Bengal and Burma. (Adapted from *Gamble, A Manual of Indian Timbers, p. 247.*)

For previous introduction, see S. P. I. No. 48229.

## 54450. DENDROCALAMUS SIKKIMENSIS Gamble. Poaceæ. Bamboo.

From Dehra Dun, India. Seeds presented by R. S. Hole, forest botanist, Forest Research Institute and College. Received October 19, 1921.

A beautiful tufted bamboo with few culms, 60 feet or more high; it grows largest in Sikkim, where it has bigger culms than those of *Dendrocalamus hamiltonii* and is the one preferred for making the "chungas" for carrying water and milk and for churning butter. The dark-green culms are 5 to 7 inches in diameter, naked below, branched above. The oblong-lanceolate leaves, 6 to 10 inches long, are said to be poisonous. The species is readily distinguished by its large, red-brown, globose flower heads, densely velvety felted stem-sheath, and long ciliate auricles of the leaf sheath. Native to the northeast Himalayas in Sikkim and Bhutan at altitudes of 4,000 to 6,000 feet, and at Tura Peak, Garo Hills, at 3,500 feet. (Adapted from *Annals of the Royal Botanic Garden, Calcutta, vol. 7, p. 82.*)

## 54451 to 54453.

From Syria. Seeds presented by W. R. Meadows, through C. S. Scofield, United States Department of Agriculture. Received October 14, 1921. Quoted notes by Mr. Scofield.

54451. CALOTROPIS PROCERA Ait. Asclepiadaceæ.

"A plant in which Mr. Meadows is particularly interested. It is known, where he collected it, as artificial silk or vegetable silk. He found it growing at Haifa, Syria, on September 7, 1921. Mr. Meadows believes the fiber to have sufficient strength to be used as a filler yarn and hopes that the plant may be produced under observation at some point in the southwestern United States."

For previous introduction, see S. P. I. No. 51429.

54452 and 54453. CERATONIA SILIQUA L. Cæsalpiniaceæ. **Carob.**

For previous introduction, see S. P. I. No. 45924.

54452. "Honey carob selected at the Carmelite monastery near Haifa, on September 7, 1921. Said to contain a larger percentage of sugar than the ordinary carob."

54453. "Shade-tree carob from the Mount of Olives, just outside of Jerusalem, collected September 4, 1921."

## 54454 and 54455. COIX LACRYMA-JOBI MA-YUEN (Rom.) Stapf. Poaceæ. Ma-yuen.

From Manila, Philippine Islands. Seeds presented by P. J. Wester, agricultural adviser, Bureau of Agriculture, through Dr. C. V. Piper, United States Department of Agriculture. Received October 22, 1921.

*Adlay.* A form with soft hulls and very distinct from the ordinary *Coix lacryma-jobi* with hard, beadlike, shining grains. The soft-hulled, edible subspecies under discussion here does not appear to have been known to European writers until in the seventeenth century, though in India, its native habitat, this grain was of very ancient cultivation. Certain forms are roasted, then husked and eaten whole, being either parched (like corn) or boiled in the same manner as rice. Other forms are so very different that the grain may be milled and ground to flour and thereafter baked into bread. In China the grain is eaten in soup like pearl barley, which it very much resembles in appearance.

The Bukidnon forms are very vigorous and attain a height of 2 to more than 2.5 meters (8 feet) under favorable conditions. One plant will make from two to four straws, sometimes five. The roots are shallow and rarely extend beyond 35 to 40 centimeters (14 to 16 inches) from the plant. The yield of grain harvested in 1918 from a plat 5 by 6 meters (16 by 20 feet) in Bukidnon was 3,625 kilos to the hectare (3,236 pounds per acre), of which 72 per cent was hulled clean grain.

*Analysis of adlay and various other cereals.*

| Samples. | Moisture. | Protein. | Fat. | Ash. | Crude fiber. | Carbohydrates, starch, etc., by difference. |
|---|---|---|---|---|---|---|
| | *Per cent.* | *Per cent.* | *Per cent.* | *Per cent.* | *Per cent.* | *Per cent.* |
| Hulled adlay | 10.91 | 11.27 | 6.65 | 1.89 | 0.45 | 68.83 |
| Wheat | 10.62 | 12.23 | 1.75 | 1.81 | 2.36 | 71.18 |
| Corn | 10.93 | 9.88 | 4.17 | 1.36 | 1.71 | 71.95 |
| Rice | 11.88 | 8.02 | 1.96 | 1.15 | .93 | 76.0 |

The tender plants of adlay make a good forage for cattle and horses, and grown for this purpose several cuttings can be obtained from a sowing. (Adapted from *Philippine Agricultural Review, vol. 13, p. 217.*)

**54454.** "Grown in Laguna Province." (*Wester.*)

**54455.** "Grown in Jaro, Leyte Province." (*Wester.*)

For previous introduction, see S. P. I No. 49798.

**54456.** TRIFOLIUM PRATENSE L. Fabaceæ. **Red clover.**

From Valence, France. Seeds purchased from Tezier Frères, through C. Carrigan, American consul, Lyons. Received November 4, 1921.

"Double-cut medium red clover from 2-year-old plants growing on one of the farms of Tezier Frères in the Department of Isere, Dauphine Alps. Harvested in August and September, 1920." (*Carrigan.*)

**54457.** DENDROCALAMUS sp. Poaceæ. **Bamboo.**

From Hankow, China. Seeds presented by Rev. Logan H. Roots, through P. S. Heintzlemann, American consul general. Received November 10, 1921.

"Bamboo seed from the district of Shihnanfu, in the west of Hupeh, where its appearance is connected by the Chinese with the calamities which have recently befallen them. It is said that it comes in hard times to relieve distress, as it acceptably takes the place of rice, and that after it comes the bamboo which produces it dies." (*Roots.*)

**54458.** TITHONIA DIVERSIFOLIA (Hemsl.) A. Gray. Asteraceæ.

From Buitenzorg, Java. Seeds presented by Dr. W. Docters van Leeuwen, director, Botanic Garden. Received November 15, 1921.

"A sunflowerlike plant, 5 to 6 feet high, widespread in Mexico and abundantly introduced into Java and Ceylon; it may be a good plant to use for silage." (*C. V. Piper.*)

**54459.** LAPAGERIA ROSEA Ruiz and Pav. Liliaceæ. **Chilean bellflower.**

From Santiago, Chile. Seeds presented by the Instituto Agricola Bunster, through Wilson Popenoe, Agricultural Explorer of the United States Department of Agriculture. Received November 7, 1921.

"(No. 651a. Criadero 'El Verjel,' Angol, Chile. September 29, 1921.) *Copihue.* This, the national flower of Chile, has been grown occasionally in northern greenhouses, where it creates a genuine sensation when in bloom. It is a climbing plant of slow growth, with slender wiry stems and bright-crimson, tubular flowers about 3 inches in length. In southern Chile huge bunches of these blossoms are brought to the railway stations and sold to passing travelers. The plant requires an acid soil." (*Popenoe.*)

**54460.** ACTINIDIA CHINENSIS Planch. Dilleniaceæ. **Yang-tao.**

From Indio, Calif. Seeds presented by Bruce Drummond. Received December 2, 1921.

For previous introduction, see S. P. I No. 46864.

**54461.** TITHONIA DIVERSIFOLIA (Hemsl.) A. Gray. Asteraceæ.

From Peradeniya, Ceylon. Seeds presented by M. Kelway Bamber, secretary, Ceylon Agricultural Society. Received November 3, 1921.

"Seeds of *Tithonia diversifolia* (Singhalese: *Natha-Suriya*, wild sunflower). The plant grows wild." (*Bamber.*)

For previous introduction, see S. P. I. No. 54458.

**54462 to 54464.**

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 November 14, 1921.

54462. BAUHINIA VARIEGATA L. Cæsalpiniaceæ.

"A very handsome tree from India, Siam, Burma, China, and Java, of medium size and well adapted for street and ornamental planting. It has thick, somewhat heart-shaped leaves, and bears, in few-flowered corymbs, purplish red and yellow flowers about 2 inches long and half as broad. It is tropical in its requirements and suitable for cultivation in the United States in the southernmost part of Florida only." (*Wilson Popenoe.*)

For previous introduction, see S. P. I. No. 53568.

54463. CASSIA SIAMEA Lam. Cæsalpiniaceæ.

A medium-sized or sometimes a large tree, with gray, nearly smooth bark, papery, glabrous leaflets, and large, pyramidal, terminal panicles of small yellow flowers. The tree is probably native to Burma and is cultivated throughout India and many tropical countries for its hard heavy wood which is quite durable. The heartwood is dark brown to nearly black in stripes of dark and light; it is used for mallets, walking sticks, for building, and for fuel. (Adapted from *Rock, Leguminous Plants of Hawaii, p. 81.*)

For previous introduction, see S. P. I. No. 51813.

54464. ERYTHRINA VARIEGATA Stickm. Fabaceæ.

"Seeds from the University of Hawaii." (*Lyon.*)

**54465 and 54466.** GOSSYPIUM spp. Malvaceæ. **Cotton.**

From Ebolowa, Kamerun, Africa. Seeds presented by Fred Hope, superintendent, Frank James Industrial School. Received November 21, 1921.

"I took a trip some time ago and saw a lot of these plants and was surprised to learn that some of them were the size of young orange trees when commencing to bear. I should say the stalk was 4 inches in diameter. The branches in many cases had a spread of 10 feet. One tree was 8 years old, and the owner says he expects many more crops from the tree. Another that I saw, the largest, had a spread of 12 feet." (*Hope.*)

54465. Kidney cotton. 54466. Wild cotton.

**54467.** TRIFOLIUM PRATENSE L. Fabaceæ. **Red clover.**

From Salisbury, England. Seeds purchased from the Dunns Farm Seeds, Ltd., through Prof. R. G. Stapledon, Welsh Plant-Breeding Station, Aberystwith. Received December 9, 1921.

"*Dorset Marl-Grass Double-Cut red clover.* This is the most genuine strain and possesses the strongest vitality of any of the red clovers grown in this country." (*Dunns Farm Seeds.*)

**54468.** AGATI GRANDIFLORA (L.) Desv. Fabaceæ.
(*Sesbania grandiflora* Poir.)

From Honolulu, Hawaii. Seeds presented by Dr. H. L. Lyon, in charge Department of Botany and Forestry, Experiment Station of the Hawaiian Sugar-Planters' Association. Received December 10, 1921.

"If given plenty of room, this plant grows into a tree some 30 feet tall, with a trunk diameter of 6 to 8 inches. Seedlings of this tree develop numerous large nodules on their roots at a very early stage in their growth, and we have used the species as a green soiling crop, the seeds being planted thickly and the plants turned under when they were 4 to 6 feet tall." (*Lyon.*)

For previous introduction, see S. P. I. No. 27580.

**54469.** EUCALYPTUS GUNNII Hook. f. Myrtaceæ.

From Hobart, Tasmania, Australia. Seeds presented by L. A. Evans, Acting Director of Agriculture. Received November 2, 1921.

The cider eucalypt is usually about 50 feet high and grows at altitudes of 4,000 to 5,000 feet in Australia. In the spring the Tasmanians make an excellent cider from the sweetish sap. The tree is also known as sugar gum, because of the sweetness of its leaves, which are browsed by stock. The bark yields tannin, which, in a 12-weeks' process, colors leather light brown and makes it rather flexible. The tree is usually crooked, but is used as a forest cover, and the wood is used for fuel and charcoal. It has stood 22° F. without the least injury. The species is well adapted to dry situations and has grown 7 feet a year on deep, sandy soil in Florida. (Adapted from *Eucalypts in Florida, U. S. Department of Agriculture, Forest Service Bulletin No. 87, pp. 19, 44,* and *Maiden, Useful Native Plants of Australia, pp. 126, 318, 465.*)

For previous introduction, see S. P. I. 36620.

**54470.** GARCINIA SPICATA (Wight and Arn.) Hook. f. Clusiaceæ.

From Yokohama, Japan. Seeds purchased from the Yokohama Nursery Co. Received November 10, 1921.

Introduced as a possible stock for the mangosteen.

A medium-sized tree native to the western peninsula of India, with obtuse, shining leaves up to 3 by 8 inches, small flowers in spikes, and smooth, deep-green fruits the size of a walnut. (Adapted from *Hooker, Flora of British India, vol. 1, p. 269.*)

For previous introduction, see S. P. I. No. 16787.

**54471.** HOLCUS SORGHUM L. Poaceæ. **Sorghum.**
(*Sorghum vulgare* Pers.)

From Poona, Bombay, India. Seeds presented by the director, Department of Agriculture, through Dr. C. R. Ball, United States Department of Agriculture. Received November 21, 1921.

"The heads were about 4 inches long, exceedingly compact and somewhat pyriform, while the seeds were similar in shape to those of *milo* or *feterita*, but smaller and of a yellowish white color." (*Ball.*)

**54472.** BAUHINIA FLAMMIFERA Ridley. Cæsalpiniaceæ.

From Singapore, Straits Settlements. Seeds collected by I. Henry Burkill, director, Botanic Garden. Received November 26, 1921.

A very lofty climber with scurfy red twigs and ovate-cordate leaves, usually notched at the tip, with red, pubescent petioles and veins. The red-stalked flowers are rich yellow on opening but soon turn to a bright red; they are borne on terminal panicles 8 inches long and nearly as thick. The petals are crisped and hairy outside. This is the common Bauhinia which forms such a conspicuous mass of color in the woods of the low country in Selangor and Perak. (Adapted from *Ridley, New and Rare Species of Malayan Plants, Journal of the Straits Branch, Royal Asiatic Society, No. 82, September, 1920, p. 182.*)

**54473.** CUCUMIS MELO L. Cucurbitaceæ. **Muskmelon.**

From Santiago, Chile. Seeds presented by Sr. Salvador Izquierdo, through Wilson Popenoe, Agricultural Explorer of the Department of Agriculture. Received November 10, 1921.

"*Escrito* melon. The melons of Chile, which ripen during the months of February, March, and April, are famous for their delicate flavor and remarkable keeping qualities. In 1920 a few of them were shipped from Valparaiso to New York, reaching the latter market in good condition. This seed, which has been obtained at the suggestion of Franklin Adams, of the Pan American Union, is of an unusually good variety, oblong in shape, and of large size. It should be tested in our Southwestern States." (*Popenoe.*)

**54474.** RIBES VULGARE Lam. Grossulariaceæ. **Garden currant.**

From Faringdon, England. Plants purchased from R. Tucker & Sons. Received December 3, 1921.

Introduced for experimental work by department specialists.

"A midseason variety of upright growth with grayish green foliage and long, medium-sized bunches of dark-red berries. A hardy and prolific variety which has been grown for many years." (*George Bunyard.*)

**54475 to 54487.** HOLCUS SORGHUM L. Poaceæ. **Sorghum.**
(*Sorghum vulgare* Pers.)

From Khartum, Anglo-Egyptian Sudan, Africa. Seed presented by G. E. Massey, botanist for the Department of Agriculture, Sudan Government, through H. N. Vinall, United States Department of Agriculture. Received December 5, 1921.

"This seed was selected by Mr. Massey as representative of the different varieties of the cultivated sorghums in the provinces or countries adjacent to Khartum." (*Vinall.*)

54475. *Abgara dura.*
54476. *Dura Safra.*
54477. *Faterita* (A).
54478. *Fateria* (B).
54479. *Faterita* (C).
54480. *Faterita* (D).
54481. *Faterita* (E).
54482. *Faterita* (F).
54483. *Faterita* (G).
54484. *Gahan* (?) *dura.*
54485. *Gassabi dura.*
54486. *Hamisi dura.*
54487. *Wad el Fahl.*

**54488.** TRIFOLIUM PRATENSE L. Fabaceæ. **Red clover.**

From Melbourne, Australia. Seeds purchased from F. H. Brunning. Received December 5, 1921.

To be grown in comparison with American-grown seed; for use of department specialists.

"Locally grown medium red clover." (*Brunning.*)

**54489.** CARYOPHYLLUS MALACCENSIS (L.) Stokes. Myrtaceæ. **Ohia.**
(*Eugenia malaccensis* L.)

From Ancon, Canal Zone. Seeds presented by James Zetek. Received December 10, 1921.

A beautiful tree up to 60 feet high, native to the Malay Archipelago. The thick, glossy, dark-green leaves, 6 to 7 inches long, form a rich background for the showy clusters of flowers with their long, spreading, bright-red stamens. In early summer the shady interior of the tree seems to be filled with a delicate scarlet haze. The thin-skinned, white to crimson fruits, 2 to 3 inches

long, have crisp, white, juicy flesh. While the fruit is not especially esteemed, the tree is of distinct value as a tropical ornamental. (Adapted from *Popenoe, Manual of Tropical and Subtropical Fruits, p. 308.*)

## 54490 and 54491.

From Holguin, Cuba. Plants presented by Thomas R. Towns, citrus nurseryman and florist. Received December 30, 1921.

54490. ROSA ODORATA (Andrews) Sweet. Rosaceæ. **Rose.**

*Rosa macho.* This rose is recommended as a stock by Mr. Towns who states that it is a very strong growing rose which roots very easily. Although it is somewhat thorny he has found that *Paul Neyron*, a thornless variety, after 10 buddings on this stock shows very few thorns. The branches are 4 to 6 feet long and can be budded every 4 inches. In Cuba the plants are ready for budding three months after being set out; they bloom about two months after budding, and two months after this they are considered hardened and ready for sale.

The origin of the *macho* rose is unknown. However, Mr. Goucher, of this office, has also found a previous introduction of this species, S. P. I. No. 44426, to be extremely useful as a stock. The methods used are described under that number.

54491. PSIDIUM GUAJAVA L. Myrtaceæ. **Guava.**

"Seedlings of the everbearing guava." (*Towns.*)

## 54492. TRIFOLIUM PRATENSE L. Fabaceæ. Red clover.

From Milan, Italy. Seeds purchased from Stabilimento Agrario Botanico Fratelli Ingegnoli, through North Winship, American consul. Received December 23, 1921.

For experimental use by the Office of Forage-Crop Investigations.

"This clover is produced in the 'Comune of Cologno Monzese,' in the Province of Milan, Italy, in deep, flinty, clayey soil, slightly chalky." (*Winship.*)

## 54493. TRIFOLIUM PRATENSE L. Fabaceæ. Red clover.

From Paris, France. Seeds purchased from Vilmorin-Andrieux & Co., through Hon. A. M. Thackara, American consul general. Received December 29, 1921.

"The type of red clover known as '*Trèfle violet de Bretange*' from the 'Cotes du Nord' is a stronger grower and a better yielder than ordinary red clover." (*Thackara.*)

## 54494 to 54496. ECHINOCHLOA CRUSGALLI EDULIS Hitchc. Poaceæ. Barnyard millet.

From Yokohama, Japan. Seeds purchased from the Yokohama Nursery Co. Received December 22, 1921.

For the use of specialists of the United States Department of Agriculture.

54494. White.

54495. Brown.

54496. Korean.

## 54497 and 54498.

From Corfe Mullen, Wimborne, England. Plants purchased from J. J. Kettle. Received December 14, 1921.

54497. RUBUS sp. Rosaceæ. **Raspberry.**

*Lloyd George.* This variety is said to be perpetual in habit, to keep a supply of fruit from the earliest season until late autumn, and to be immensely vigorous and productive.

## 54497 and 54498—Continued.

54498. RUBUS sp. Rosaceæ. **Raspberry.**

*Perfection* (Marlboro). George Bunyard & Co. give a description and the history of this raspberry as follows: "Fruit large, red, of excellent flavor and vigorous growth; canes very stout, bright crimson. Raised by A. J. Caywood of Marlboro, N. Y.; introduced in 1884, and named by him *Marlboro*."

## 54499. DIOSCOREA JAPONICA Thunb. Dioscoreaceæ. Japanese yam.

From Hereford, England. Bulbils presented by Dr. H. E. Durham, "Dunelm." Received November 22, 1921.

"*Japanese round* yam. This yam seems so far as one can see from a single season's trial, to be the most promising variety I have yet tested. It grows more freely and regularly than the round *Upeh*. The rate of growth, both in a cool house, was about double that of the *Chappellier*." (*Durham.*)

## 54500. PISONIA ALBA Span. Nyctaginaceæ. Lettuce tree.

From Lamao, Bataan, Philippine Islands. Cuttings presented by P. J. Wester, agricultural adviser, Lamao Horticultural Station. Received November 16, 1921.

"The *lettuce tree* is fairly common in Manila, but I have never seen it flower and do not believe seeds are obtainable in the Philippines. As to the value of the tree for Florida, I am in doubt. The leaves are too thin and therefore likely to be easily injured by frost and would probably also be torn to shreds by the fall and winter winds, in which event the tree would be of little value as an ornamental, at least during the tourist season. The tree may do well in Porto Rico. I have tried the leaves boiled as turnip greens and they are remarkably good as a potherb, so good, in fact, that if on analysis they are found to have a fair amount of nutrients and vitamins the plant is certain to become widely grown in the Tropics. The leaves can not be eaten raw, however. I am using the common name *Malukо* for it. The tree is easily propagated, and once it gets a start can be broadcasted within a very short time." (*Wester.*)

## 54501. GOSSYPIUM sp. Malvaceæ. Cotton.

From Ceiba, Honduras. Seeds presented by Alexander K. Sloan, American consul. Received December 6, 1921.

Cotton seeds from the Aguan Valley near Trujillo.

"The natives make very little attempt to cultivate cotton, as the only use they put it to is as a binding for cuts in order to check the flow of blood. As a consequence the bush is undisturbed and grows in the course of six or seven years into a tree some 8 or 10 inches in diameter and from 25 to 30 feet in height. As the tree grows larger, the bolls become smaller and the yield in quantity and quality less. In those places where the native wants to obtain a larger crop than usual, the bush is cut to the ground each year and allowed to reseed itself. In that way the bolls are kept at their largest size." (*Sloan.*)

For previous introduction, see S. P. I. No. 28364.

## 54502. QUERCUS LANUGINOSA Thuill. Fagaceæ. Oak.

(*Q. pubescens* Willd.)

From Nice, France. Seeds presented by Dr. A. Robertson Proschowsky. Received December 8, 1921.

A southern European oak which varies in size from a large shrub to a tree 40 feet in height. The grayish green leaves are deciduous and have very wavy margins. (Adapted from *Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 314.*)

This oak may prove to be a valuable ornamental for regions of mild winters.

**54503.** STRYCHNOS sp. Loganiaceæ.

From Elizabethville, Katanga, Belgian Congo. Seeds presented by Mrs. Mary Jacobs. Received December 9, 1921.

"From the forest near Elizabethville. This fruit is found in large quantities in this country." (*Mrs. Jacobs.*)

"The fruit is quite similar to that of *S. spinosa* in character, round, about 3 inches in diameter, with a thick, hard shell, inclosing gelatinous aromatic pulp in which numerous flattened seeds are embedded. Although the genus Strychnos is noted for the production of strychnine, a violent poison, the pulp of these fruits is edible. It is not, however, of much economic value." (*Wilson Popenoe.*)

**54504.** PHYSALIS ALKEKENGI L. Solanaceæ.

From Peking, China. Seeds presented by William Bembower. Received December 10, 1921.

"A red spherical solanaceous fruit I found being sold on the market here. It is said to furnish good medicine for colds." (*Bembower.*)

For previous introduction, see S. P. I. No. 28317.

**54505.** LYCOPERSICON ESCULENTUM Mill. Solanaceæ. **Tomato.**

From Avondale, Auckland, New Zealand. Seeds presented by H. R. Wright. Received December 12, 1921.

For use of specialists in the department.

"I have seen some splendid crops of this variety." (*Wright.*)

"*Yates Market Favorite.* One of the earliest and hardiest varieties grown. A selection of the old large red, with large, slightly ribbed, solid, juicy fruits which are produced in great profusion and have a good flavor. This variety will thrive and perfect its fruit in dry or wet seasons, when all others are affected with black-spot and rot." (*Yates.*)

**54506.** EUCALYPTUS OBLIQUA L'Her. Myrtaceæ.

From Hobart, Tasmania, Australia. Seeds presented by L. A. Evans, acting Director of Agriculture. Received December 13, 1921.

A rapid-growing Tasmanian eucalypt 300 feet high, which grows on poor, stony ranges or on barren sandy soils if not subjected to prolonged drought. The tree is known as *stringy bark* and *Tasmanian oak* and is in much demand for railway sleepers, being nearly everlasting. The wood, being practically non-inflammable, makes a valuable safeguard against conflagrations in tunnels and is especially suitable for underground railways.

*Stringy bark* is especially suitable for harbor construction, being one of the densest timbers in the world and immune from the attacks of marine insects. It is one of the few kinds which can be obtained in great lengths and contains a resinous substance which resists the Xylophagas. There is an essential oil in the wood which prevents its rotting under exposure to moisture and at the same time acts as a preservative to iron. It stands great exposure to heat and damp, besides possessing the valuable property of repelling the white ant and teredo worm. This timber is of great value in building breakwaters, docks, etc., as its high specific gravity is such that it is unnecessary to weight the piles to get them into position when in deep water. (Adapted from *U. S. Department of Agriculture, Forest Service Bulletin 87, p. 44,* and from *Commerce Reports, 1910, p. 1052.*)

**54507.** RIBES NIGRUM × RECLINATUM. Grossulariaceæ.

From Wisley, Ripley, Surrey, England. Cuttings presented by Fred J. Chittenden, director, Royal Horticultural Society's Gardens. Received December 28, 1921.

The *Worcester berry.* A cross between *Whinham's Industry* gooseberry and *Boskoop Giant* black currant.

A bush 4½ feet high covering 30 to 36 square feet. It is extremely vigorous and makes shoots up to 5 feet long in a year. In general appearance the bush is a gooseberry and a very spiny one. It bears regularly and heavily, producing round fruits the size of a small gooseberry, arranged just as gooseberries are, purple-black in color, with a flavor like that of a sweet gooseberry and without a trace of the black currant. (Adapted from notes by *F. J. Chittenden* and *William Crump* in *The Garden, vol. 84, p. 607.*)

**54508.** GOSSYPIUM BARBADENSE L. Malvaceæ. **Cotton.**

From Cairo, Egypt. Seed presented by James A. Prescott, Sultanic Agricultural Society, Cairo, Egypt. Received December 27, 1921.

"*Zagora*, if true to type, is the earliest and most productive of the Egyptian types, running from 33 to 35 millimeters. It is very possible that it will succeed in parts of Texas where the longer staples and later Egyptians are not productive." (*George Freeman.*)

**54509.** LECYTHIS ZABUCAJO Aubl. Lecythidaceæ. **Paradise nut.**

From Port of Spain, Trinidad. Seeds presented by Eugene André. Received December 27, 1921.

"Nuts from 3 or 4 trees that bore fruits for the first time. Several fruited this year and are doing quite well at the Dabadie Nurseries, where few plants thrive in the poor, stiff clay. In all I have 33 trees of different sizes.

"The fruits are large, urn shaped, and vary in size, and they carry a considerable number of nuts." (*André.*)

**54510 to 54514.**

From Burringbar, New South Wales, Australia. Seeds presented by B. Harrison. Received December 22, 1921. Quoted notes by Mr. Harrison.

54510 and 54511. CUCUMIS MELO L. Cucurbitaceæ. **Muskmelon.**

54510. "*Kankri.* An East Indian fruit between the muskmelon and cucumber. The yellow fruit, 2 to 3 feet long, can be eaten with either sugar or salt, according to taste. It should be useful for pies and preserves."

54511. "*Mammoth Yellow.* Grows from 12 to 15 pounds in weight and is very prolific."

54512. PASSIFLORA EDULIS Sims. Passifloraceæ. **Granadilla.**

"*Mammoth passion fruit.* The fruits, of a very delicious flavor and very productive, are twice the size of the ordinary variety."

54513. PENNISETUM PURPUREUM Schumach. Poaceæ. **Elephant grass.**

"*Congo grass.* A variety of elephant grass, 10 to 12 feet high, with thicker stalks, larger leaves, and less fiber than other varieties. Yields 40 to 50 bushels of good fodder per acre and is permanent for some years when established. It grows well in dry soil and is very fattening."

54514. PHYSALIS PERUVIANA L. Solanaceæ. **Poha.**

"*Harrison's Giant.* Evolved by careful selection and cultivation. The very large berries, many 1½ inches in diameter, have a splendid flavor and make delicious pies and preserves. They are as easily grown as tomatoes."

**54515.** COELOCOCCUS AMICARUM (Wendl.) W. F. Wight. Phœnicaceæ. **Apple-nut palm.**

From Hilo, Hawaii. Seeds presented by Matthias Newell. Received November 10, 1921.

"The *apple-nut* or *ivory-nut* tree is 30 to 50 feet high and is found in the islands of the Pacific. The beautiful brownish scaly fruits are 3 inches in diameter and are used chiefly in the manufacture of the very large buttons used on ladies' coats. Much larger buttons can be made from this nut than from

that of the South American ivory nut, *Phytelephas macrocarpa*, and the buttons are more expensive also because there are fewer trees of *Coelococcus*." (*C. B. Doyle.*)

**54516.** AGATI TOMENTOSA (Hook. and Arn.) Nutt. Fabaceæ.
(*Sesbania tomentosa* Hook. and Arn.)

From Kaunakakai Molokai, Hawaii. Seed presented by James Munro, manager, Molokai Ranch. Received December 17, 1921.

A woody leguminous plant with pale glabrous compound leaves, silky pubescent beneath, and red or pale salmon-colored flowers an inch long. The plant is prostrate and forms dense mats on the white coral sands of Molokai and on the dunes at Moomomi; on Kauai it is a branching erect shrub several feet in height. (Adapted from *Rock, Leguminous Plants of Hawaii, p. 155.*)

**54517 to 54519.** CHAYOTA EDULIS Jacq. Cucurbitaceæ. **Chayote.**
(*Sechium edule* Swartz.)

From Vera Cruz, Mexico. Seeds presented by Paul H. Foster, American consul. Received October 3, 1921. Quoted notes by L. G. Hoover.

54517. "Fruits white, smooth, spineless, flattened oval to pyriform, about 9 ounces in weight, no corrugations; a desirable type, 4 inches long, 2½ inches wide, and 2 inches thick."

54518. "Fruits light green, smooth spineless surface, with five slight corrugations; shape flattened oval to pyriform; weight about 9 ounces; a desirable type."

54519. "Fruit attenuated pear shaped, color green; 6 inches long by 2 inches in diameter at greatest thickness; spiny; an undesirable type; weight 6 ounces."

**54520.** PERSEA AMERICANA Mill. Lauraceæ. **Avocado.**
(*P. gratissima* L. f.)

From Panama. Seeds presented by James Zetek. Received October 1, 1921.

"The lot seemed to be above the average for avocados, both in size and in quality. The fruit varied to some extent in form and substance, apparently including fruit of more than one tree. The seeds were not excessively large and completely filled the seed cavities." (*H. R. Fulton.*)

**54521 to 54523.**

From Panama. Collected by Dr. David Fairchild, Agricultural Explorer in Charge of the Office of Foreign Seed and Plant Introduction. Received October 4, 1921. Quoted notes by Doctor Fairchild.

54521. MELICOCCA BIJUGA L. Sapindaceæ. **Mamoncillo.**

"No. 3. A single seed collected September 17, 1921. From a tree of *mamoncillo* on the place of Samuel Lewis on the Sabana. Mr. Lewis's son sold this year $55 worth of fruit from this tree. The fruit of this seedling is one of the most delicious I tasted in Panama. There was only one fruit hanging on the tree. Apparently nothing has been done in the way of selecting this excellent fruit, which has an exquisite flavor but has the handicap of very fine silky fibers, which are attached to the seeds themselves and are rather annoying to one not accustomed to them. It is quite possible that this objectionable feature could be eliminated by selection."

For an illustration of this tree, see Plate I.

54522. ROSA sp. Rosaceæ. **Rose.**

"Cuttings of a rose collected in Panama."

## 54521 to 54523—Continued.

54523. MELICOCCA BIJUGA L. Sapindaceæ. **Mamoncillo.**

"No. 2. Seeds collected September 22, 1921. A tall fruit tree, very popular among the better classes of Panamans. These fruits came from the market of Panama and are not as fine as those from Samuel Lewis's large tree."

For previous introduction, see S. P. I. No. 54521.

## 54524. AESCULUS TURBINATA Blume. Æsculaceæ. Japanese horse-chestnut.

From Rochester, N. Y. Seeds presented by John Dunbar, Assistant Superintendent of Parks, Rochester, N. Y. Received October 10, 1921.

"This is a rare tree in this country and in Europe." (*Dunbar.*)

A Japanese horse-chestnut up to 100 feet high with bright deep-green leaves sometimes 27 inches long, which turn clear golden yellow in the autumn. The erect, slender pyramidal panicles, nearly a foot long, are composed of creamy white flowers with petals center blotched with yellow turning pink with age. The tree is distinguished from the familiar European *Aesculus hippocastanum* by the smaller, warty, not spiny capsules 2 inches in length and width and by the finely and more evenly toothed edges of the leaflets. (Adapted from *Curtis's Botanical Magazine, pl. 8713.*)

## 54525. DATURA LEICHHARDTII F. Muell. Solanaceæ.

From Brisbane, Queensland, Australia. Seeds presented by C. T. White, Government botanist. Received October 7, 1921.

A tall coarse annual, 1 to 3 feet high, with ovate leaves 3 to 4 inches long and pale yellowish white flowers 2 inches long. The reflexed, globular capsule, an inch in diameter, is very prickly. Native to North Australia and Queensland. (Adapted from *Bentham, Flora Australiensis, vol. 4, p. 468.*)

## 54526. MANGIFERA INDICA L. Anacardiaceæ. Mango.

From Port of Spain, Trinidad, British West Indies. Plants presented by R. O. Williams, curator, St. Clair Experiment Station. Received October 10, 1921.

"*Père Louis* is a dwarf-growing variety, fruiting early. The plant from which the budwood was taken is a round-headed dwarf tree, furnished with branches to the ground. I remember receiving the *Père Louis* in Demerara, from St. Lucia, and this had much the same habit. I think that the dwarf, early-fruiting habit is inherent. I do not think that the stocks used have anything to do with it, because they are taken indiscriminately and when sufficiently large are grafted upon." (*J. F. Waby, acting curator.*)

"The *Louis* bears very young, has no fiber nor any sourness at the core, and the flavor is nearly as good as that of the *Julie*, which is the best for flavor I have ever eaten. (*O. W. Barrett.*)

## 54527 and 54528.

From Panama. Seeds collected by Dr. David Fairchild, Agricultural Explorer in Charge of the Office of Foreign Seed and Plant Introduction. Received October 4, 1921. Quoted notes by Doctor Fairchild.

54527. ANNONA MURICATA L. Annonaceæ. **Soursop.**

"Seeds procured September 17, 1921, from an unusually large, presumably fine-flavored fruit of the guanabana, *Annona muricata.* I am not sufficiently familiar with the varieties of this fruit to say whether this was really superior to others which may have been already introduced. The fruit was at least 15 inches long and about 8 inches in diameter, and the flavor could not be very well estimated, because the fruit was picked while green, but Samuel Lewis, who gave me the fruit, assured me it was one of the best varieties he had seen."

## 54527 and 54528—Continued.

54528. ANNONA PURPUREA Moc. and Sesse. Annonaceæ. **Soncoya.**

"Procured September 18, 1921, from a tree growing beside the path leading to the cove from the Hotel Aspinwall, Taboga.

"The fruit is apparently little appreciated by the people, for it is left to rot on the ground. Some of them were 5 or 6 inches in diameter and very attractive looking, but the flesh was so fibrous and it had so little character that I doubt whether it would be worth growing for its own sake. The gorgeous orange-yellow color of the fruit flesh, however, may make it of value as a species for breeding purposes."

## 54529. CARICA sp. Papayaceæ.

From Rio Pescado, Panama. Seeds collected by Graham Fairchild. Received October 4, 1921.

"At first glance this fruit resembles the ordinary wild papaya, *Carica papaya*, but on examination it proves to be an entirely different thing. It is rather typically papaya shaped, with more pronounced grooves, not as deep, however, as those of the mountain papaw, *Carica candamarcensis*, of a golden yellow color, very attractive, and has a faint and very pleasant aroma. The fruits are of a peculiarly uniform size and shape. The interior is filled with a white frothy arillus around the seed; this arillus is acidulous in character but without very much flavor. The flesh of the fruit is thin and has little flavor; the fruit as it stands is comparatively worthless. The leaves, instead of being laciniate, are almost entire. The texture of the leaves seems to be harsher than that of the papaya. The tree grows to be about 20 inches high, I should judge. From the low lands near the river." (*David Fairchild.*)

Fruits of this papaya are shown in Plate II.

## 54530 to 54536.

From Panama. Seeds collected by Dr. David Fairchild, Agricultural Explorer in Charge of the Office of Foreign Seed and Plant Introduction. Received October 4, 1921. Quoted notes by Doctor Fairchild.

54530. CARYOPHYLLUS MALACCENSIS (L.) Stokes. Myrtaceæ. **Ohia.** (*Eugenia malaccensis* L.)

"Seeds from beneath trees cultivated by the late Enrique Lewis at his place on the Sabana, Panama. Gathered September 17, 1921.

"The fruit is much esteemed by members of Mr. Lewis's family and by others, and I had the pleasure of tasting preserves made from it which seem to have a characteristic flavor of some merit. When in flower, the branches of this tree are gorgeous, covered as they are with masses of large flowers an inch or so across, composed of hundreds of beautiful deep rose-pink or crimson stamens. The tree itself is a beautiful ornamental, and it would seem as though more work in the selection of this species should be attempted. The remarkable structure of the seeds suggests a high degree of polyembryony. When the seed germinates (as many of them were doing under the tree) the whole, large, brilliant-green seed seemed to break up into fragments."

For previous introduction, see S. P. I. No. 26412.

54531. CAPSICUM ANNUUM L. Solanaceæ. **Pepper.**

"Seeds of a brilliant-yellow pepper grown in Panama. Collected September 15, 1921. This specimen was collected on the Chillibrillo River at a native Panaman hut. The owner of the plant described it as being 'hot as a candle.' In reality it is a rather mild, almost sweet pepper."

54532. SPONDIAS MOMBIN L. Anacardiaceæ. **Yellow mombin.**

"Seeds of the *jobo* or *yellow mombin*, presented by Mr. Zetek, of Panama, September 19, 1921.

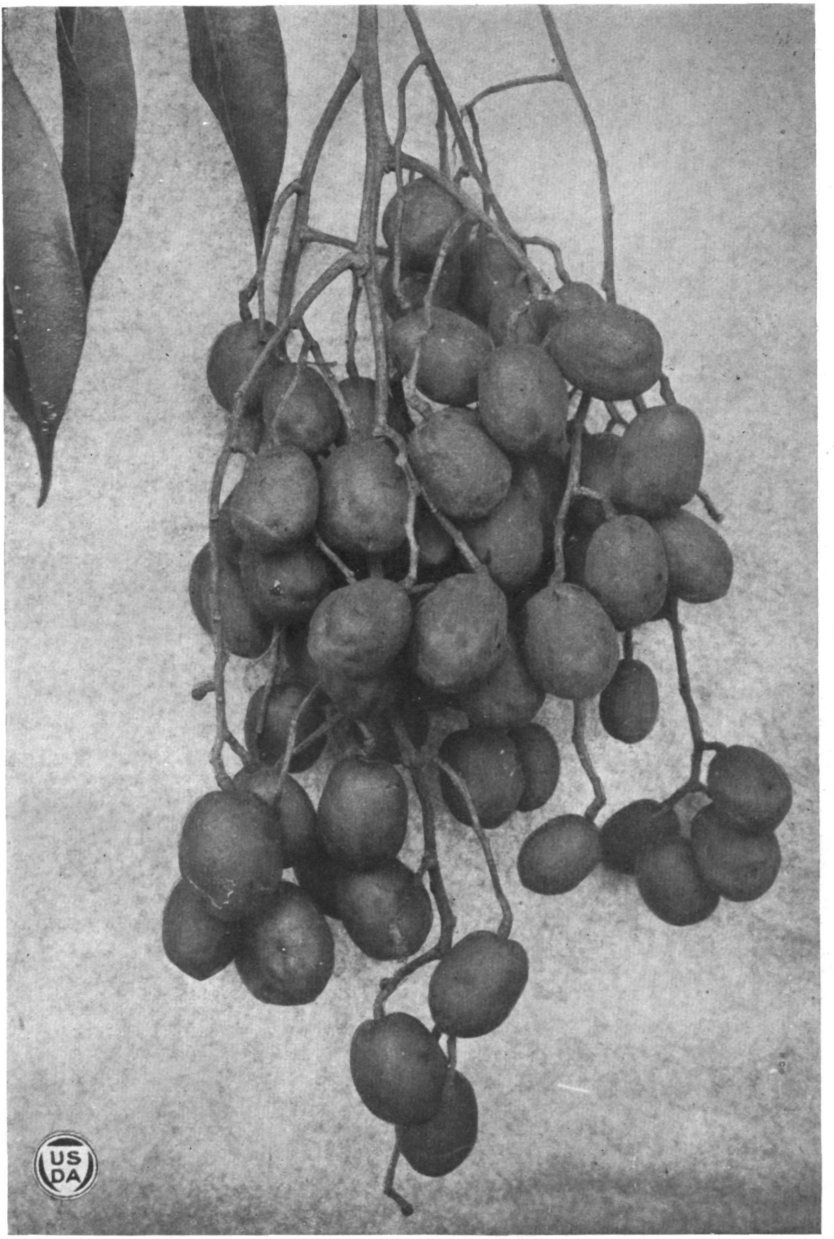
"Few fruit trees which I have ever seen are more heavily laden with fruits than this *jobo*. It is a favorite fruit of the children of Panama, and everywhere at this season of the year you find children throwing sticks at the trees to knock down the *jobos*. The fruits vary tremendously in flavor and amount of fruit flesh, also in the texture of the skin

THE MAMONCILLO, A NEGLECTED FRUIT TREE OF TROPICAL AMERICA.
(MELICOCCA BIJUGA L., S. P. I. NO. 54521.)

Not the least important phase of plant introduction is the propagation by vegetative means of superior forms of species such as the mamoncillo, which, as usually seen on tropical American seacoasts, is not a fruit of great value, but which occurs now and then in superior seedling forms. From the tree here shown $55 worth of fruit was sold in one season. Good mamoncillos are the size of plums; they have a thick leathery skin within which is yellowish-white, translucent pulp of aromatic flavor and a single large seed to which the pulp clings tenaciously. (Photographed by David Fairchild, Panama, Canal Zone, September 15, 1921; P27619FS.)


A RELATIVE OF THE PAPAYA. (CARICA SP., S. P. I. No. 54529.)

Throughout tropical America are found many wild species of Carica, whose edible fruits are usually similar to the cultivated papaya in general character, though oftentimes of very different flavor. The desirability of crossing some of these wild forms with the cultivated sorts has many times been suggested, but so far as known has not yet been seriously attempted. The species here shown, which occurs in the Canal Zone, yields small golden-yellow pleasantly flavored fruits. (Photographed by David Fairchild, Rio Pescado, Canal Zone, September 9, 1921: P27607FS.)



A NEGLECTED FRUIT OF TROPICAL AMERICA. (SPONDIAS MOMBIN L., S. P. I. No. 54532.)

The despised hog plum, or yellow mombin, abundant in many tropical American countries, is sometimes found in superior seedling varieties which merit propagation. Ordinarily it has a strongly terebinthine taste which makes it unattractive to most palates, but occasional forms are sweet, pleasant, and even delicious. Since nearly all species of Spondias are easily propagated in the Tropics by means of large cuttings, it should be a simple matter to improve the yellow mombin by selection and make it a valuable fruit. (Photographed by David Fairchild, Ancon, Canal Zone, September 15, 1921; P27616FS.)


THE CAPUCHIN ORANGE OF CHILE. (CITRUS SINENSIS (L.) OSBECK, S. P. I. No. 54651.)

This orange, presumably a horticultural variety of the common sweet orange, differs from the latter in its dwarf habit of growth and the small size of its fruits, which are rarely over 2 inches in diameter. Since the flavor and quality of the fruit are excellent, the variety suggests itself as of interest for cultivation in California and Florida, where it may prove useful as an attractive dooryard tree. (Photographed by Wilson Popenoe, Santiago de Chile, October 6, 1921; P18886FS.)

## 54530 to 54536—Continued.

and the size of the seed. Evidently nothing has been done in the way of selection, and yet the tree is perfectly adapted to conditions on the Zone. It seems to me that the best seedlings should be found and preserved by budding. Ice creams and 'chichas' are also made from the fruit flesh."

For previous introduction, see S. P. I. No. 45086.

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

54533. SPONDIAS MOMBIN L. Anacardiaceæ. **Yellow mombin.**

"Five fruits of a particularly fine-flavored seedling growing back of the Aspinwall Hotel, at Taboga. Collected September 18, 1921."

For previous introduction, see S. P. I. No. 54532.

54534. SPONDIAS sp. Anacardiaceæ.

"Nine seeds of a variety which I did not see. Collected September 18, 1921. I found the seeds on the path leading along the river from the center of the town over into the center of the island of Taboga. These may represent a better strain of the *jobo* than any of the other seeds."

54535. STERCULIA sp. Sterculiaceæ.

"Seeds of a species of Sterculia, sent me by Hugh White, from a handsome shade tree near the corner of his house at Balboa. Collected September 15, 1921. I think this is one of the handsomest shade trees used on the avenues of Balboa, stately and with rather majestic branching habit and, according to Mr. White, bearing good edible seeds of which the children are very fond. The quality of the seeds seems to me rather indifferent. I was unable to find out what species of Sterculia this is, although I suspect it may be *Sterculia foetida*, and if it is, the stench of its flowers should be taken into account seriously by anyone planting it for shade. *S. foetida* has one of the foulest odors known in plants."

54536. ARISTOLOCHIA sp. Aristolochiaceæ.

"Two basketlike fruits of a vine found on the road along the little stream leading from the center of the town back into the island of Taboga. Collected September 18, 1921. The fruits themselves are a distinct curiosity; the vine is not particularly attractive."

## 54537 to 54539. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**

(*Sorghum vulgare* Pers.)

From Buitenzorg, Java. Seeds presented by A. A. Crince le Roy, chief, Plant-Breeding Station. Received October 3, 1921. Quoted notes by H. N. Vinall, agronomist, United States Department of Agriculture.

54537. "*Black* sorghum. Seed resembles that of ordinary Black Amber sorgo."

54538. "*Klakah* sorghum. Probably a sweet sorghum, but the seed is unlike that of any of our common varieties."

54539. "*Brown* sorghum. Seed resembles very closely that of Red Amber sorgo."

## 54540 to 54544.

From Landskrona, Sweden. Seeds presented by W. Weibull. Received October 3, 1921.

Introduced for testing by the Office of Cereal Investigations.

54540 and 54541. AVENA SATIVA L. Poaceæ. **Oats.**

54540. *Echo* oats. 54541. *Fortune* oats.

54542. SECALE CEREALE L. Poaceæ. **Rye.**

*Storm* winter rye.

**54540 to 54544**—Continued.

54543 and 54544. TRITICUM AESTIVUM L. Poaceæ. Common wheat. (*T. vulgare* Vill.)

54543. *Iduna* winter wheat.

54544. *Standard* winter wheat.

**54545 and 54546.** SACCHARUM OFFICINARUM L. Poaceæ. **Sugar cane.**

From Saigon, Cochin China. Cuttings presented by M. E. Carle, director, Laboratoire de Genetique, Institut Scientifique de L'Indochine. Received October 6, 1921. Notes adapted from *Bulletin Agricole de L'Institut Scientifique de Saigon, vol. 2, p. 278.*

54545. *271¼ POJ.* A cross between *236¼ POJ* (*100 POJ*, very sweet, × *Kassoer*, sereh resistant[2]) and *EK 28.* An early cane similar to *100 POJ*, but thicker, with long, straight internodes, very large, long green leaves at first erect, becoming bent, and a thick inflorescence. This cane suckers freely and has strong, rapid growth. The juice is 15.8 to 20.3 per cent saccharose.

54546. *272.5 POJ.* A cross between *236¼ POJ* (*100 POJ*, very sweet, × *Kassoer*, sereh resistant[2]) and *EK 28.* An early cane similar to *100 POJ*, but thicker, with very large, bluish green, bent leaves, and thick inflorescence. The cane suckers freely and is of strong, rapid growth. The juice is 19.5 to 21.9 per cent saccharose.

**54547 and 54548.** OLEA EUROPAEA L. Oleaceæ. **Olive.**

From Haifa, Syria. Bud sticks presented by Amram Khazanoff, Department of Experimental Agriculture. Received October 8, 1921. Quoted notes by Mr. Khazanoff.

"Material from the oldest and at the same time thriftiest looking olive trees on the Mount of Olives. These happened to be on the premises of the Greek monastery close to the Garden of Get-Shemane (Gethsemane) and appeared to be several centuries old."

54547. "Wild variety on which the cultivated variety was budded."

54548. "Cultivated variety from old trees."

**54549.** KOPSIA ARBOREA Blume. Apocynaceæ.

From Littleriver, Fla. Seeds presented by Charles T. Simpson. Received October 10, 1921.

"A beautiful, large shrub or small tree native to Japan. It has opposite or whorled, thick, glossy, oblong leaves and corymbs of pretty white flowers which are followed by large, brilliant-crimson, almond-shaped fruits. It is a very fine ornamental, and its only apparent drawback is that it is rather tender. It should be grown in a protected place in lower Florida." (*Simpson.*)

For previous introduction, see S. P. I. No. 39543.

**54550.** THESPESIA LAMPAS (Cav.) Dalz. and Gibs. Malvaceæ.

From Chota Nagpur Circle, Bengal, India. Seeds presented by A. P. Cliff, Director of Agriculture, through Dr. C. V. Piper. Received October 11, 1921.

"*Ban Kapas* (wild cotton)." (*Cliff.*)

A treelike herbaceous plant with palmately lobed, pilose leaves, 5 inches across and tomentose beneath. The yellow, bell-shaped flowers are 2½ inches wide, with a crimson center. (Adapted from *Kirtikar, Indian Medicinal Plants, vol. 1, p. 188.*)

For previous introduction, see S. P. I. No. 52386.

[2] Sereh is a serious disease of sugar cane in Java. Its cause is not yet definitely known.

## 54551 and 54552.

From Horqueta, Paraguay. Seeds presented by Thomas R. Gwynn, through Harry Campbell, American consul, Asuncion, Paraguay. Received November 14, 1921.

54551. CHORISIA SPECIOSA St. Hil. Bombacaceæ.

"A regular, beautifully formed tree 20 feet high, abundant in Argentina as far north as Formosa and in the river provinces of Paraguay. The boll is 4½ inches in diameter and 6 inches long. The yellow fiber, called Samahu or Samuy, and similar to the best Javan kapok, is used to a limited extent for stuffing pillows and can be used commercially for life preservers, jackets, water wings, mattresses, etc. The tree has resisted 3° C. without injury to its flowers, although the bolls require hot sun. It is one of the most promising plants for cultivation in the warmer parts of the United States and is probably hardier than kapok." (*L. H. Dewey.*)

54552. CYPHOMANDRA sp. Solanaceæ.

"*Aguaraya* (fox fruit). A bush very like the eggplant, except that all the stems and underside of the leaves are covered with short stout thorns. The fruit is the shape and size of a big Stone tomato, light green, thin skinned, and the seed bunched in the center; the meat is abundant, cream colored, and tastes like a Brazilian *mango de oro*. The plant is very sensitive to frost." (*Gwynn.*)

For previous introduction, see S. P. I. No. 39336.

## 54553. PENNISETUM ORIENTALE TRIFLORUM (Nees) Stapf. Poaceæ. Himalaya grass.

From Kingston, Jamaica. Seeds presented by W. S. Goodman, acting superintendent, Hope Gardens. Received November 10, 1921.

"Called *Himalaya grass* in the West Indies and reputed to be a good forage. Typical *Pennisetum orientale* is regarded as a good fodder grass in Baluchistan." (*C. V. Piper.*)

## 54554 and 54555. AMERIMNON LATIFOLIUM (Roxb.) Kuntze. (*Dalbergia latifolia* Roxb.) [Fabaceæ. Shisham.

From British India. Seeds presented by C. P. Hartley. Received November 25, 1921. Quoted notes by Mr. Hartley.

"Seeds of a tree that may possibly be of economic value in the southern United States. In Java the tree grows rapidly, outgrowing and suppressing teak on some of the poor soils of eastern Java. The wood is heavier and stronger than teak and is used for furniture, tool handles, and other exacting work, most of the carving in the market here being done on Dalbergia (*sono kling*). The heart is beautiful purple-brown on a fresh cut, changing to nearly black-brown after exposure to the air. The chief limitation on its usefulness is its hardness. From the silvicultural standpoint its remarkable root-sprouting capacity is of interest. In Java it practically never produces seed, reproduction being easily obtained on cut-over areas by wounding the roots of the old trees. I imported this seed from British India in the hope of getting a strain resistant to the local canker disease that affects the quality of the timber here. There is some reason to suspect that, with teak, this tree may have been introduced from British India in the days of the Hindu kingdoms here."

54554. "From Belgaum, Bombay Presidency."

54555. "From Chikalda, Melghat Forest Division, Central Provinces."

## 54556 to 54560.

From Malanzhe, Angola, Africa. Seeds collected by John Gossweiler and presented by H. A. Longworth, agricultural missionary, Methodist Episcopal Church. Received November 25, 1921.

**54556 to 54560**—Continued.

54556. CHLORIS MYRIOSTACHYA Hochst. Poaceæ. **Finger grass.**

A perennial grass 1 to 2 feet high ascending from a procumbent base, with flat or convolute leaves. Native to the Dekkan Peninsula. (Adapted from *Hooker, Flora of British India, vol. 7, p. 292.*)

54557. CYMBOPOGON RUFUS (Nees) Rendle. Poaceæ. **Jaragua grass.** (*Andropogon rufus* Kunth.)

A tufted perennial up to 8 feet high, very generally distributed throughout tropical Africa. It is commonly used for grass fencing in Nigeria and for thatching in Angola. The erect or ascending stems are often stout and bear narrow, rigid, erect leaves and slender, lax panicles 1 to 2 feet long. (Adapted from *Stapf, Flora of Tropical Africa, vol. 9, p. 304,* as *Hyparrhenia rufa.*)

54558. ERAGROSTIS sp. Poaceæ. **Grass.**

"Native forage grass." (*Longworth.*)

54559. TRICHOLAENA sp. Poaceæ. **Grass.**

"Native forage grass." (*Longworth.*)

54560. VETIVERIA NIGRITANA (Benth.) Stapf. Poaceæ. **Grass.**

A coarse smooth perennial with stout rhizomes, stems up to 6 feet high, with oblong panicles up to 1 foot long. The linear, erect, rigid leaves are pale green and 1 to 3 feet long. Native to tropical Africa. (Adapted from *Stapf, Flora of Tropical Africa, vol. 9, p. 157.*)

**54561 to 54620.** SOJA MAX (L.) Piper. Fabaceæ. **Soy bean.** (*Glycine hispida* Maxim.)

From China. Seeds presented by B. W. Skvortzow, Harbin, Manchuria. Received November 16, 1921.

54561. No. 1. Green soy bean for oil, from southern Manchuria.

54562. No. 2. Yellow soy bean from Kaiyuan, Shengking Province.

54563. No. 3. Yellow soy bean from Jungchiangko, Shengking Province.

54564. No. 4. Brown soy bean from Jungchiangko, Shengking Province.

54565. No. 5. Yellow soy bean from Changchun, Kirin Province.

54566. No. 6. Yellow soy bean from Tiehling, Shengking Province.

54567. No. 7. Black soy bean from Tiehling, Shengking Province.

54568. No. 8. Green soy bean from Changchun, Kirin Province.

54569. No. 9. Black soy bean from Kungchuling, Shengking Province.

54570. No. 10. Yellow soy bean from Chutzecheng, southern Manchuria.

54571. No. 11. Yellow soy bean from Shwangchengfu, Kirin Province.

54572. No. 12. Yellow soy bean from Kungchuling, Shengking Province.

54573. No. 13. Black soy bean from Kaiyuan, Shengking Province.

54574. No. 14. Yellow soy bean from Tiehling, Shengking Province.

54575. No. 15. Yellow soy bean from Tungtzedeng, southern Manchuria.

54576. No. 16. Yellow soy bean from Taomen, southern Manchuria.

54577. No. 17. Yellow soy bean from Suntzetai, near Kaiyuan, southern Manchuria.

54578. No. 18. Black soy bean from Changchun, Kirin Province.

54579. No. 19. Yellow soy bean from Changchun, Kirin Province.

54580. No. 20. Green soy bean from Tiehling, Shengking Province.

**54561 to 54620**—Continued.

54581. No. 21. Green soy bean from Changchun, Kirin Province.
54582. No. 22. Green soy bean from Changchun, Kirin Province.
54583. No. 23. Green soy bean from Kaiyuan, Shengking Province.
54584. No. 24. Yellow soy bean from southern Manchuria.
54585. No. 25. Green soy bean from Liaoyang, Shengking Province.
54586. No. 26. Green soy bean from Liaoyang, Shengking Province.
54587. No. 27. Yellow soy bean from Liaoyang, Shengking Province.
54588. No. 28. Black soy bean from Liaoyang, Shengking Province.
54589. No. 29. Yellow soy bean from Beitzeyangcheng, southern Manchuria.
54590. No. 30. Green soy bean from Yutzecheng, southern Manchuria.
54591. No. 31. Small green soy bean from Yungchiangkou, southern Manchuria.
54592. No. 32. Yellow soy bean from Chonko, southern Manchuria.
54593. No. 33. Green soy bean from Liaoyang, Shengking Province.
54594. No. 34. Black soy bean from Liaoyang, Shengking Province.
54595. No. 35. Yellow soy bean from northern Manchuria.
54596. No. 36. Yellow soy bean from Changchun, Kirin Province.
54597. No. 37. Yellow soy bean from Tungtzedeng, southern Manchuria.
54598. No. 38. Black soy bean from Changchun, Kirin Province.
54599. No. 39. Black soy bean from Liaoyang, Shengking Province.
54600. No. 40. Yellow soy bean from Liaoyang, Shengking Province.
54601. No. 41. Yellow soy bean from northern Manchuria.
54602. No. 42. Black soy bean from Liaoyang, Shengking Province.
54603. No. 43. Yellow soy bean from Tungkalun, Kirin Province.
54604. No. 44. Green soy bean from Shungyanghe, southern Manchuria.
54605. No. 45. Black soy bean from Nungansieng, southern Manchuria.
54606. No. 46. Yellow soy bean from Penhsiku, southern Manchuria.
54607. No. 47. Yellow soy bean from Shengshaton, southern Manchuria.
54608. No. 48. Yellow soy bean from Shachoutai, southern Manchuria.
54609. No. 49. Yellow soy bean from Chanchuen, Kwangtung Province.
54610. No. 50. Brown soy bean from Changchun, Kirin Province.
54611. No. 51. Yellow soy bean from Anda railway station, northern Manchuria.
54612. No. 52. Yellow soy bean from Tiehling, Shengking Province.
54613. No. 53. Yellow soy bean from Tiehling, Shengking Province.
54614. No. 54. Yellow soy bean from Changchun, Kirin Province.
54615. No. 55. Yellow soy bean from Harbin, Kirin Province.
54616. No. 56. Yellow soy bean from Kungchuling, Shengking Province.
54617. No. 57. Yellow bean from Fangtzetung, southern Manchuria.
54618. No. 58. Yellow soy bean from Ssupingkai, southern Manchuria.
54619. No. 59. Yellow soy bean from Kaiyuan, Shengking Province.
54620. No. 60. Yellow soy bean from Changchun, Kirin Province.

**54621.** LAPAGERIA ROSEA Ruiz and Pav. Liliaceæ.
**Chilean bellflower.**

From Santiago, Chile. Plants presented by the Instituto Agricola Bunster, through Wilson Popenoe, Agricultural Explorer of the United States Department of Agriculture. Received November 7, 1921.

"(No. 651. Criadero 'El Verjel,' Angol, Chile. September 29, 1921.)" (*Popenoe.*)

For previous introduction, see S. P. I. No. 54459.

## 54622 to 54643.

From Santiago, Chile. Plants presented by Sr. Salvador Izquierdo, through Wilson Popenoe, Agricultural Explorer of the United States Department of Agriculture. Received November 7, 1921. Quoted notes by Mr. Popenoe.

**54622 to 54625.** AMYGDALUS PERSICA L. Amygdalaceæ. **Peach.**
(*Prunus persica* Stokes.)

**54622.** "(No. 662. Santa Ines, Chile. October 7, 1921.) *Sport No. 1.* A variety originated at Sr. Izquierdo's nursery, Santa Ines. It is described as a large white cling, round in form, and of very sweet and pleasant flavor. It ripens in February and is considered excellent both for table use and for preserving."

**54623.** "(No. 663. Santa Ines, Chile. October 7, 1921.) *Sport No. 2.* A variety originated very recently at Sr. Izquierdo's nursery, Santa Ines, and not yet named. It is a cling, of somewhat elliptical form with a sharp point at the apex, white fleshed, and weighing up to 450 grams. It ripens in February and is considered to be a promising new sort."

**54624.** "(No. 664. Santa Ines, Chile. October 7, 1921.) *Transparente de Conservas* peach. From Sr. Izquierdo's nursery, Santa Ines. This is a standard preserving variety, recommended as one of the very best. It is described as the earliest white peach grown in central Chile; its fruit has much aroma and is of delicate texture and very rich flavor. The tree is said to be more robust and resistant to disease than most other varieties."

**54625.** "(No. 665. Santa Ines, Chile. October 7, 1921.) *Almendruco* peach. From Sr. Izquierdo's nursery, Santa Ines. This is a remarkable small-fruited peach, believed to have originated in the Elqui Valley of northern Chile, where it is grown commercially. It produces two crops; the fruits of the first one are of medium size and fair quality; those of the second are smaller, very sweet, with almost no seeds in them. These small fruits are used for drying whole and are also preserved in sirup. The variety is a clingstone and is recommended by Prof. John W. Gilmore for trial in California."

**54626.** AMYGDALUS PERSICA NECTARINA Ait. Amygdalaceæ. **Nectarine.**

"(No. 666. Santa Ines, Chile. October 7, 1921.) *Cardinal Mora.* A nectarine said to have originated as a chance seedling in Sr. Izquierdo's nursery at Santa Ines. It is described as the best nectarine grown in Chile, because of its large size, aromatic flavor, and richly colored juice. It ripens toward the end of January and is recommended for commercial planting."

**54627.** BELLOTA MIERSII Remy. Lauraceæ. **Belloto.**

"(No. 673. Santa Ines, Chile. October 6, 1921.) Sr. Izquierdo describes this species as follows: 'A large Chilean tree whose wood is highly appreciated for the manufacture of household utensils because of the great diameter which the trunk attains. It has attractive foliage and fruits, the latter when ripe being useful for feeding hogs. A good tree for parks, because of the excellent shade which it gives.' For trial in the Southwestern States and on the Pacific coast."

**54622 to 54643**—Continued.

54628. CRINODENDRON PATAGUA Molina. Elæocarpaceæ. **Patagua.**
(*Tricuspidaria dependens* Ruiz and Pav.)

"(No. 672. Santa Ines, Chile. October 6, 1921.) *Patagua.* A Chilean tree which grows well in swampy regions. It has small, bell-shaped, white, fragrant flowers, giving it value as an ornamental. The wood is used for cabinetmaking and the bark for tanning. Introduced at the request of Dr. F. V. Coville, of the United States Department of Agriculture."

54629. CRYPTOCARYA RUBRA (Molina) Skeels. Lauraceæ. **Peumo.**
(*C. peumus* Nees.)

"(No. 667. Santa Ines, Chile. October 6, 1921.) One of the handsomest of the native Chilean ornamental trees of rather small size, erect in habit, and in character of foliage somewhat suggests the live oak of southern California. In autumn it bears a profusion of red fruits the size of olives, which greatly add to its decorative value. The fruits have a thin layer of pulp surrounding a large seed and are eaten when cooked. They are not, however, of much value. The species is one which should be tried in our Southwestern States."

54630 and 54631. FRAGARIA CHILOENSIS (L.) Duchesne. Rosaceæ.
Chilean strawberry.

54630. "(No 653. Santa Ines, Chile. October 6, 1921.) *Frutilla roja*, or red-fruited Chilean strawberry. This is a selected strain of the common Chilean strawberry, said to produce fruits of large size and good quality. It will be of interest to strawberry breeders in the United States, and in addition it is worthy of trial in our Southwestern States. While the fruit of *Fragaria chiloensis* is inferior in quality to that of our best cultivated strawberries, it is remarkable for its excellent shipping and keeping qualities; and it seems that varieties might be produced by selection which would merit cultivation on a commercial scale.

"The berry is much used for canning and preserving. It is also eaten fresh. It is a curious circumstance that this species of strawberry, whose fruits are commonly an inch to an inch and a half long, should be called in Chile, Peru, and Ecuador *frutilla* (little fruit), while the much smaller fruit of *Fragaria vesca*, rarely over half an inch long, is termed *fresa* or strawberry. This last-named species is cultivated commercially at Quillota, Chile, whence the fruit, which ripens earlier than that of *F. chiloensis*, is sent to the markets of Santiago.

"As far as I can ascertain by careful examination of the plants and fruits, the *frutillas* of Chile, Peru, and Ecuador are of the same species. Neither in Peru nor in Chile, however, do the plants bear all through the year as they do on the sandy plains near Ambato, Ecuador. I suspect the difference in climatic conditions is the cause of this; on the Equator there are no well-defined seasons and the plants remain active throughout the year; while here in Chile the seasons are fairly well defined and vegetative activity ceases during a part of each year, as with us. The ripening season of *F. chiloensis* in the highlands of southern Peru and central Chile seems to extend, approximately, from the latter part of October to January."

54631. "(No. 654. Santa Ines, Chile. October 6, 1921.) *Frutilla blanca de Chile*, or white Chilean strawberry. This strawberry differs from S. P. I. No. 54630 in the color of its fruits, which are of a much lighter shade of red than those of the latter. It does not seem to be nearly so well known nor so extensively grown in Chile as the common red variety, but it is recommended by Sr. Izquierdo as a large and handsome fruit, highly perfumed. It will be of interest to our strawberry breeders."

**54622 to 54643**—Continued.

**54632.** FRAGARIA sp. Rosaceæ. **Strawberry.**

"(No. 655. Cascada del Salto, near Santiago de Chile. October 7, 1921.) This strawberry, of which the varietal name has been lost, is believed by Sr. Izquierdo to have been introduced into Chile from Europe. It may, therefore, be one of the sorts already known in the United States. It succeeds in Chile much better than most other European strawberries, however, and for this reason it seems worthy of introduction into the United States for trial in regions with dry, rather hot climates. The fruits are of good size and excellent quality."

**54633.** LAURELIA SEMPERVIRENS (Ruiz and Pav.) Tulasne. Monimiaceæ. (*L. aromatica* Juss.) **Chilean laurel.**

"(No. 675. Santa Ines, Chile. October 6, 1921.) *Laurel de Chile.* A handsome tree of southern Chile with dark-green, aromatic foliage. The wood, which is durable and never injured by boring insects, is much used for flooring. For trial on the Pacific coast, where it may be of value as an ornamental plant."

**54634.** LITHRAEA CAUSTICA (Molina) Hook. and Arn. Anacardiaceæ. (*L. venenosa* Miers.) **Litre.**

"(No. 674. Santa Ines, Chile. October 6, 1921.) A native Chilean tree which resists drought and produces hard wood, employed in the manufacture of carts and wagons. Its leaves are ovate or obovate, thick, and leathery in texture. The flowers, borne in axillary or terminal panicles, are followed by small, white fruits. The sap is caustic and said to be poisonous. For trial in the Southwestern States and on the Pacific coast.

**54635 to 54638.** MALUS SYLVESTRIS Mill. Malaceæ. **Apple.** (*Pyrus malus* L.)

**54635.** "(No. 657. Santa Ines, Chile. October 7, 1921.) *Huidobro* apple. Also known as *Araucana* and *Araucana Huidobro.*

"*Huidobro* is said to have originated on the hacienda of Sr. Vicente G. Huidobro in Chile from an Italian seed. The tree is described as very vigorous and productive, the fruit as medium to large, yellow, of firm texture, sweet, aromatic, and juicy. Its ripening season is late autumn (April to May), and the fruits can be kept in good condition, without cold storage, until the following October or sometimes November. Its shipping qualities are excellent.

"*Huidobro* can not be strongly recommended as a dessert apple and, indeed, it is not introduced as such; it has another quality which gives it interest and makes it valuable in Chile and perhaps elsewhere. I refer to its immunity from the attacks of the woolly aphis, perhaps the worst pest of Chilean orchards. Sr. Izquierdo has found that plants of this variety grafted on seedling apple roots will be attacked by the aphis only from the roots upward to the union of stock and scion, not a single insect ever passing on to the scion to carry on his nefarious activities. Because of this characteristic, it is possible that *Huidobro* may have value in the United States as a stock plant on which to graft other and better varieties of the apple.

"The trees of *Huidobro* introduced under the present number are grafted on seedling apple roots."

**54636.** "(No. 658. Santa Ines, Chile. October 7, 1921.) *Bella Rosa* apple. Described as a medium-sized fruit of firm texture and sweet flavor, recommended for cultivation on a commercial scale. It is immune from the attacks of woolly aphis and is introduced for trial in the United States as a rootstock on which to graft other apples."

**54637.** "(No. 659. Santa Ines, Chile. October 7, 1921.) *Chestnut* apple. Described as a medium-sized fruit for fall and winter use. Its chief interest lies in its immunity from the attacks of woolly aphis, and it is introduced principally for trial as a rootstock."

**54622 to 54643**—Continued.

54638. "(No. 660. Santa Ines, Chile. October 7, 1921.) *Reina Cristina* apple. This variety is considered by Sr. Izquierdo the best aphis-resistant apple in Chile. It is said to be a fruit of much better quality than *Huidobro* and worthy of cultivation on a large scale. I doubt if it will prove to be as good as many of our North American apples, but it is worthy of a trial. It should also be tested as a rootstock for other varieties."

54639. PEUMUS BOLDUS Molina. Monimiaceæ. **Boldo.**

"(No. 668. Santa Ines, Chile. October 6, 1921.) A small tree esteemed in Chile for its ornamental and medicinal value. The dried leaves are exported to Europe, where they are employed in diseases of the liver. An infusion of the flowers is also used medicinally. The fruits are eaten, but are not of great value.

"The tree is diœcious and very aromatic in all its parts. It has opposite, rough, short-petioled, ovate leaves; flowers in small axillary racemes; and fruits the size of our northern haws."

54640. POPULUS sp. Salicaceæ. **Poplar.**

"(No. 669. Santa Ines, Chile. October 6, 1921.) Giant poplar of Santa Ines. This tree, more vigorous in growth and ultimately larger than the common poplar of Chile, originated at Santa Ines as a bud sport or mutation. Sr. Izquierdo says of it: 'It grows very rapidly when planted on good soil. Its wood is equal to that of the common poplar, but has few knots because of the rapidity of growth.' Of interest for our Southwestern States."

54641. POPULUS sp. Salicaceæ. **Poplar.**

"(No. 671. Santa Ines, Chile. October 6, 1921.) *Alamo de hoja persistente.* Evergreen poplar. The commonest tree in southern Chile is the *alamo,* or poplar. It is used in place of fences to mark the boundaries of many farms and is planted along numerous roads and avenues. It is commonly a deciduous species, but occasionally trees hold their leaves longer than others and a few are nearly evergreen in character. Sr. Izquierdo has selected one of the latter and has propagated it by cuttings. It seems worthy of trial in our Southwestern States and on the Pacific coast, where it may be of value as a quick-growing ornamental. Its lumber is much used in Chile for rough purposes."

54642. PRUNUS AVIUM L. Amygdalaceæ. **Sweet cherry.**

"(No. 661. Santa Ines, Chile. October 7, 1921.) *Precoz del Salto* cherry (Salto early). This is recommended by Sr. Izquierdo as the best early cherry grown in Chile. It is probably of European origin, but its early history is not known; Sr. Izquierdo found the variety growing at Cascada del Salto when he bought the property a few years ago. Its fruits, which are said to ripen two to three weeks earlier than other cherries cultivated in the same region, are described as medium sized, sweet, and of good quality. The variety is worthy of trial on the Pacific coast."

54643. TIPUANA TIPU (Benth.) Lillo. Fabaceæ. **Tipu.**
(*T. speciosa* Benth.)

"(No. 670. Santa Ines, Chile, October 6, 1921.) *Tipu.* Sr. Izquierdo describes this plant as follows: 'A handsome ornamental tree from the Argentine Republic. It has compact, delicate foliage and is excellent for parks and for planting along streets and avenues. In its native country it is said to grow nearly as rapidly as *Eucalyptus globulus.* In the Botanic Gardens at Buenos Aires it has reached a height of 4½ meters (15 feet) in 31½ months. Plants imported from Argentina have shown much vigor at Santa Ines and have grown even during the winter months. Its wood is useful for furniture and rough purposes. Its horizontal branches make it an excellent shade tree.' For trial on the Pacific coast and in our Southwestern States."

## 54644 to 54650.

From Santiago, Chile. Plants presented by Instituto Agricola Bunster, Angol, Chile, through Wilson Popenoe, Agricultural Explorer of the United States Department of Agriculture. Received November 4, 1921. Quoted notes by Mr. Popenoe.

**54644 to 54646.** AMYGDALUS PERSICA L. Amygdalaceæ. **Peach.**
(*Prunus persica* Stokes.)

"It seemed worth while to obtain for trial in the United States a small collection of Chilean peaches. These should be of especial interest in our Pacific coast and Southwestern States, where the climatic conditions approximate those of Chile. Probably we shall not obtain from the latter country any peaches of better quality than our finest sorts; indeed, this should not be expected, but it seems entirely possible that some of these varieties may prove interesting because of resistance to disease, difference of ripening season, or some other important characteristic. They are, so far as known, varieties which have originated in Chile as seedlings."

**54644.** "(No. 642. Criadero 'El Verjel,' Angol, Chile. September 29, 1921.) *Maipu* is described as a very productive variety, with large, very sweet fruit having a small stone and ripening in January. The trees which are introduced under this number are budded on stocks of the *Marianna* plum grown from cuttings."

**54645.** "(No. 643. Criadero 'El Verjel,' Angol, Chile. September 29, 1921.) *Blanquillo de Mayo* peach. This variety is one of the latest which is cultivated in Chile, its ripening season extending into May. It is not a large fruit, but is considered valuable for canning. The tree is said to be very productive. Budded on stocks of the *Marianna* plum."

**54646.** "(No. 644. Criadero 'El Verjel,' Angol, Chile. September 29, 1921.) *Monstruoso amarillo de Viña del Mar* (large yellow from Vina del Mar) peach. This variety produces fruits of large size, as indicated by the name. The flesh is yellow and of excellent quality. Freestone. The ripening season in Chile is during February. The plants introduced under this number are budded on *Marianna* plum grown from cuttings."

**54647 to 54649.** MALUS SYLVESTRIS Mill. Malaceæ. **Apple.**
(*Pyrus malus* L.)

**54647.** "(No. 645. Criadero 'El Verjel,' Angol, Chile. September 29, 1921.) *Huidobro* apple."

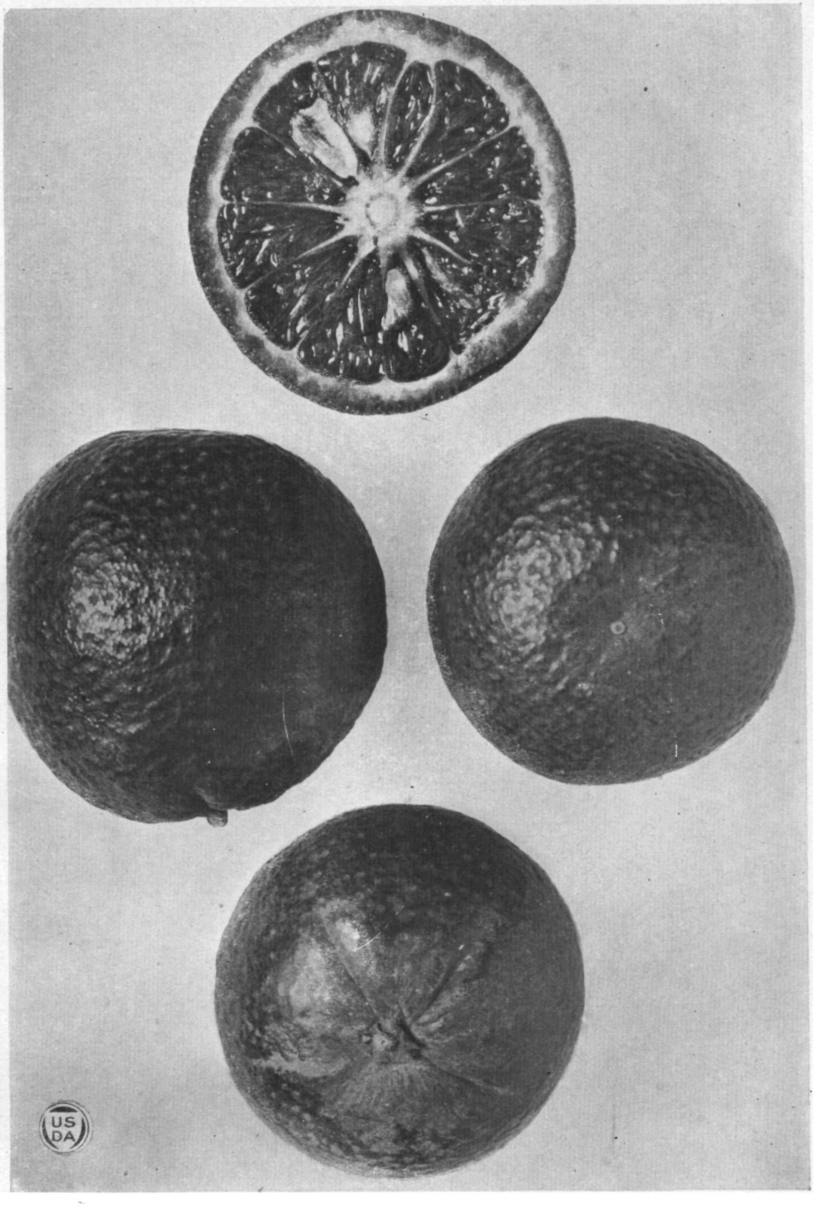
For previous introduction, see S. P. I. No. 54635.

**54648.** "(No. 647. Criadero 'El Verjel,' Angol, Chile. September 29, 1921.) *Verjel* apple. This variety originated at the Criadero 'El Verjel,' of which the Instituto Agricola Bunster is the successor. It is remarkable because of its lateness in flowering, and for this reason is considered valuable. Early-flowering varieties run the risk in southern Chile of having the crop destroyed by late frosts or of being injured by the excessive and cold rains which occur.

"*Verjel* is described as a medium-sized, sweet apple. Messrs. Crouse and Reed, of the Instituto Agricola Bunster, tell me that it is rather inferior in quality and not likely to meet with favor in the United States. It is introduced mainly for trial as a stock plant; very possibly its tardiness in commencing vegetative activity in the spring might be transmitted, in some measure at least, to other varieties grafted upon it. The tree is said to be notably productive here in southern Chile.

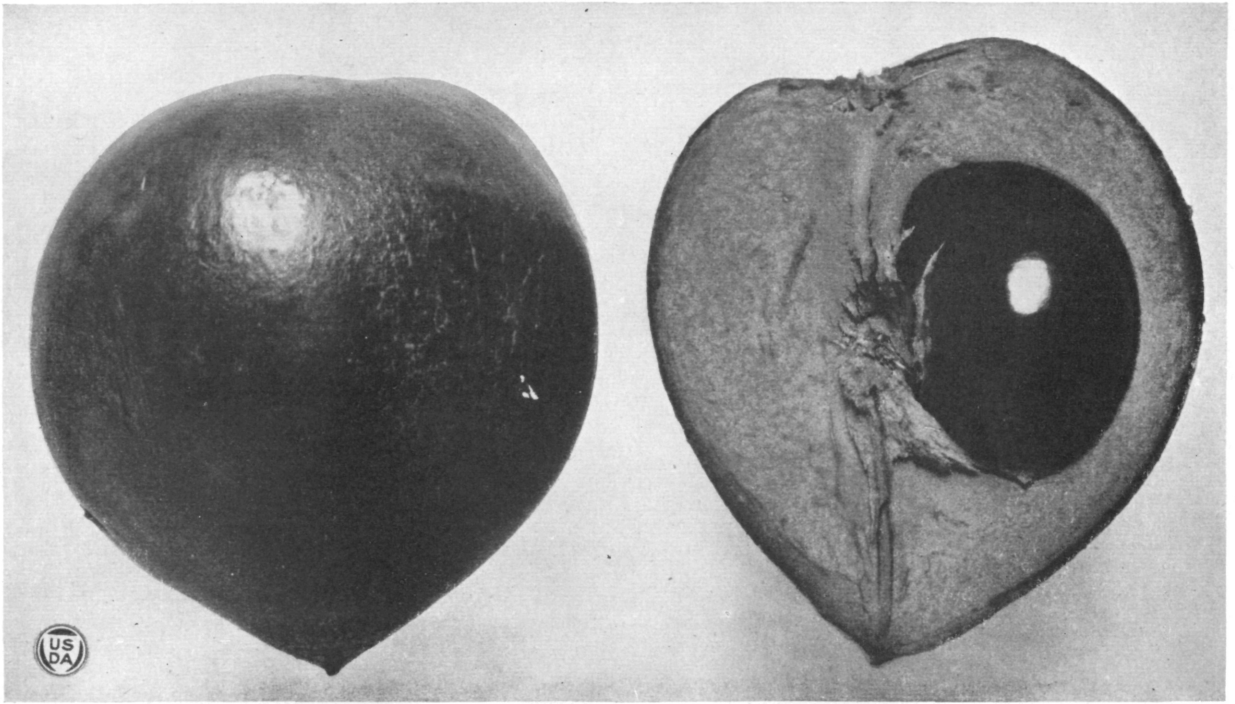
"The plants sent under this number are on seedling apple roots."

**54649.** "(No. 648. Criadero 'El Verjel,' Angol, Chile. September 29, 1921.) *Puchacay tempranera* (Early Puchacay) apple. Albert Reed, of the Instituto Agricola Bunster, tells me that this apple ripens at the same season as *Duchess of Oldenburg*, and that it is



FRUITS OF THE CAPUCHIN ORANGE, NATURAL SIZE. (CITRUS SINENSIS (L.) OSBECK, S. P. I. NO. 54651.)

When grown in the climate of central Chile, this variety strongly resembles in appearance and flavor the Washington navel orange of California. Its fruits are slightly too sour for Chileans, who, in common with other South Americans, prefer sweet fruits to those which are subacid. The Capuchin orange, which is believed to have originated in a monastery at Santiago de Chile, seems worthy of cultivation in other countries for its ornamental value, as well as for the usefulness of its fruit. (Photographed by Wilson Popenoe, Santiago de Chile, October 7, 1921; P18894FS.)



THE LUCMA, A POPULAR FRUIT IN CHILE. (LUCUMA OBOVATA H. B. K., S. P. I. No. 54653.)

This little-known species is cultivated in parts of Ecuador, Peru, and Chile. The dull-green russet-blotched fruit has a thin skin and sweet, mealy, deep-yellow flesh, in flavor resembling somewhat the sapote or Ti-es of southern Florida. (Photographed, natural size, by Wilson Popenoe, Santiago de Chile, October 3 ,1921; P18836FS.)

**54644 to 54650**—Continued.

for a summer apple, of very fair quality. Salvador Izquierdo considers it to be synonymous with the European variety *Calville Rouge d'Ete.* It is widely and favorably known in Chile and is introduced into the United States with the idea that it may be a variety of Chilean origin, slightly distinct from the last-named sort (with which, I take it, North American pomologists are already familiar).

"*Puchacay tempranera* is described as a large, handsome fruit, with aromatic, sweetly acidulous flesh of excellent quality. It ripens in southern Chile in January and February.

"The plants sent under this number are on seedling apple roots."

54650. PRUNUS AVIUM L. Amygdalaceæ. **Sweet cherry.**

"(No. 646. Criadero 'El Verjel,' Angol, Chile. September 29, 1921.) *Tardia de El Verjel* (Verjel late) cherry. This is a cherry which was first disseminated by the Criadero 'El Verjel,' of which the Instituto Agricola Bunster is the successor. It is either a seedling of one of the European cherries or else a variety brought originally from Europe and given a new name in Chile. It is described as a large, bright rose-colored fruit ripening in January (which is late for cherries in Chile). The tree is recommended as very productive.

"It is not probable that this variety will prove to be valuable in the United States. Because of its lateness in ripening, however, and the likelihood that it is of Chilean origin it is worthy of a trial, especially in those regions of the United States whose climate is similar to that of central and southern Chile.

"Plants grafted on seedling cherry roots."

**54651.** CITRUS SINENSIS (L.) Osbeck. Rutaceæ. **Sweet orange.**

From Santiago, Chile. Plants and cuttings presented by Sr. Salvador Izquierdo, through Wilson Popenoe, Agricultural Explorer of the United States Department of Agriculture. Received November 4, 1921.

"(No. 656. Cascada del Salto, near Santiago, Chile. October 7, 1921.) *Capuchin* orange. This appears to me to be a dwarf form of the common sweet orange. Its origin is unknown; Sr. Izquierdo tells me that it was grown formerly in the monastery of the Capuchin monks, which fact accounts for its common name of *Capuchin* orange. In recent years it has been propagated by Sr. Izquierdo and disseminated on a small scale throughout the citrus-growing regions of Chile.

"The tree is much smaller than that of the common sweet orange but is not otherwise distinguishable from the latter so far as I have been able to ascertain. The fruits, which are borne in great profusion, are from 1½ to 2 inches in diameter, round, deep orange, with a rather thin skin and orange-colored flesh containing an abundance of juice. The flavor is much like that of the Washington Navel orange, and the seeds are very few. The ripening season in Chile coincides with that of the Washington Navel. The fruits are somewhat acid for Chileans, who commonly prefer a very sweet orange, but they will, I believe, be found very acceptable to the North American palate. Because of its dwarf character and its decorative value when in fruit, I believe the variety worthy of cultivation in dooryards and perhaps as a house plant." (*Popenoe.*)

For illustrations of the Capuchin orange, see Plates IV and V.

**54652.** VITIS VINIFERA L. Vitaceæ. **Grape.**

From Chile. Cuttings presented by Prof. John W. Gilmore, through Wilson Popenoe, Agricultural Explorer of the United States Department of Agriculture. Received November 4, 1921.

"(No. 677.) These cuttings were obtained by Professor Gilmore in the Elqui Valley, some distance north of Santiago. This is the grape which furnishes the Huasco raisin, well known throughout Chile. I have examined some of these raisins and find them lighter in color than the muscatel raisins of California,

with very few and small seeds, and with a mild, very pleasant flavor, somewhat less rich than that of the California product. The method of drying which is practiced in the Elqui Valley is a curious one. The grapes are taken from the vine to a small house or shed, in which they are suspended from the rafters; the sun never touches them during the drying process." (*Popenoe.*)

**54653.** LUCUMA OBOVATA H. B. K. Sapotaceæ. **Lucma.**

From Santiago, Chile. Seeds collected by Wilson Popenoe, Agricultural Explorer of the United States Department of Agriculture. Received November 7, 1921.

"(No. 652a. Santiago, Chile. October 3, 1921.) Seeds from fruits purchased in the market. This is a little-known fruit cultivated in various parts of Ecuador, Peru, and as far south as Santiago, Chile. It is not highly esteemed in Ecuador, but is popular in central Chile, where the fruits seem to be of better quality than in the former country. The tree reaches 40 feet in height, and when well grown it has a round, dense crown of very attractive appearance. The leaves, which are clustered toward the ends of the branchlets, are obovate, oval or elliptic in outline, subacute at the base, and rounded at the apex, commonly 5 to 10 inches long, deep green, with the margins entire. The small flowers are produced in great abundance along the branches; they are three-fourths of an inch long, the corolla tubular, deeply five toothed, and pale green in color. The fruit is round to elliptic, sometimes with a sharp point at the apex, and commonly 3 to 4 inches long. The surface is deep brownish green, heavily marked or overspread with russet. The skin is very thin and easily broken. The flesh is deep yellow, dry, mealy, and very sweet, resembling in flavor that of the sapote and the *ti-es*, or egg fruit, of southern Florida. The seeds are one or two in number, broadly oval, about 1¾ inches long, dark brown and glossy, especially on the flattened and whitish ventral surface.

"The lucma, as this fruit is called in Chile, is probably too tender for cultivation in California, but will perhaps succeed in southern Florida." (*Popenoe.*)

Fruits of the lucma are shown in Plate VI.

## 54654 to 54658.

From Tourane, Anam, French Indo China. Seeds presented by F. A. McClure, instructor, Canton Christian College. Received November 10, 1921. Quoted notes by Mr. McClure.

**54654.** ARTOCARPUS INTEGRA (Thunb.) L. Moraceæ. **Jack fruit.**
(*A. integrifolia* L.)

"Seeds of the *jack fruit* secured on the market at Hue, Anam, September 30, 1921. Chinese name: *Poh loh mat.*"

For previous introduction, see S., P. I. No. 51012.

**54655.** DRACONTOMELON SINENSE Stapf. Anacardiaceæ.

"Chinese name: *Yan min* or *ngan nim.* The seeds were secured on September 24, 1921, from L. Laforge, who is in charge of the public gardens and trees of Hanoi, Tonkin. The trees from which the fruits were taken are from 8 to 10 meters (26 to 33 feet) in height and are growing along some of the avenues and in the botanic gardens at Hanoi. The soil is fertile delta silt loam, poorly drained. The trees seem to be growing better than ours at the college, which are in tight clay.

"The brownish yellow ovoid fruits are from 3.5 to 5 centimeters (1 to 2 inches) in diameter. The taste is pleasant, but slightly acid."

**54656.** GARCINIA sp. Clusiaceæ.

"Seeds of a fruit secured from a tree growing in a thicket surrounding a Chinese ancestral hall about 4 kilometers (2½ miles) southeast of Hue, Anam. The Chinese name is *shaan chuk;* local name, *maang tuk.*

"The tree from which the seeds were taken is about 10 meters (33 feet) in height and 25 centimeters (10 inches) in diameter, breast high. The soil in which it is growing is rich, brown sandy loam, and rather moist.

## 54654 to 54658—Continued.

"The light-yellow fruit is from 3 to 5 centimeters (1 to 2 inches) in diameter, slightly oval, with a slight prominence at the stem end. It has a pleasant odor and the flavor is delicate, similar to that of the mangosteen which we sometimes get on the Canton market."

54657. GARCINIA sp. Clusiaceæ.

"The tree from which the fruit was secured is about 8 meters (26 feet) in height and 20 centimeters (8 inches) in diameter breast high. It is growing in the edge of a thicket on a mountain side near Hue, about 50 meters (164 feet) above sea level.

"Unfortunately, I could get only a few seeds. The fruit evidently is closely related to S. P. I. No. 54656. It is, however, more plump, and flatter in shape, lighter yellow in color, and distinctly inferior in flavor and quality. The fruit is found commonly for sale in the streets of Hue. Local name: *Tai t'oi.*"

54658. SEVERINIA BUXIFOLIA (Poir.) Ten. Rutaceæ.

"Seeds from sand waste near Tourane, Anam. Secured October 2, 1921. Chinese name: *Tsau peng lak*, known also as *saan kat* and *kau kwat lak*. There was a great deal of variation among the plants observed, some being tall (3 to 4 feet) with long thorns and large leaves and others being short (1 foot), with short, very sharp thorns and small leaves. I collected seeds from the specimens which seemed to be most promising as grafting stock for citrus, being larger and freer from thorns than usual."

A handsome much-branched, spiny shrub which can withstand unusually large amounts of salt in the soil. It may be of use as a stock for citrus fruits in regions having alkali in the soil or having salty irrigation water. The boxlike leaves are shiny above and the small, dark-red, berrylike fruits, half an inch in diameter, become nearly black as they ripen. The plant is readily propagated from cuttings and is suitable for hedges. Native to southern China, Annam, Formosa, and Tonkin. (Adapted from *Journal of the Washington Academy of Sciences, vol. 6, p. 651.*)

For previous introduction, see S. P. I. No. 24433.

## 54659. QUERCUS ILEX L. Fagaceæ. Oak.

From Nice, France. Seeds presented by Dr. A. Robertson Proschowsky. Received November 23, 1921.

A large handsome evergreen tree, sometimes reaching a height of 70 to 90 feet, native to the Mediterranean region and cultivated in Europe as an ornamental. The mature leaves are a dark glossy green and usually narrowly oval. The tree prefers a warm light soil and is perfectly hardy in the southern and western parts of England. (Adapted from *Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 311.*)

## 54660 to 54662. DIOSCOREA spp. Dioscoreaceæ.

From Orleans, France. Tubers presented by E. Versin, St. Jean le Blanc. Received December 23, 1921. Quoted notes by R. A. Young.

54660. DIOSCOREA BATATAS Decaisne. Chinese yam.

"*Chappellier.* A somewhat short-tubered variety of the Chinese yam which in the unimproved state produces very long, slender tubers. The flesh is very white and of good quality. This species is adapted for growing in temperate regions."

54661. DIOSCOREA JAPONICA Thunb. Japanese yam.

"A white-fleshed, thin-skinned yam of good quality. The tubers are long and slender; a specimen 13 inches long was 1½ inches in greatest diameter and weighed 5 ounces."

54662. DIOSCOREA VILLOSA L. Wild yam-root.

"A slender-tubered yam with moist, white flesh of rather inferior quality. A specimen 16 inches long was 1½ inches in greatest diameter and weighed 9 ounces."

**54663.** ANANAS SATIVUS Schult. f. Bromeliaceæ. **Pineapple.**

From Limon, Costa Rica. Slips presented by G. P. Chittenden, manager, Costa Rica division, United Fruit Co., through Paul V. Siggers, pathologist for the United Fruit Co., Costa Rica. Received December 20, 1921.

"The *Chocoana* pineapple is commercially cultivated on the island of Taboga, in the Gulf of Panama, whence the fruit is shipped to Panama, Colon, and other cities of the Canal Zone. It is a medium-sized fruit, weighing 2 to 3 pounds, slender and rather tapering in form, externally yellowish green. The white, juicy flesh is sweet and of delicate flavor, making the fruit an excellent one for dessert use, though probably not well adapted for canning." (*Wilson Popenoe.*)

## 54664 to 54670.

From Nice, France. Seeds presented by Dr. A. Robertson Proschowsky. Received December 22, 1921.

**54664 to 54669.** BUTIA spp. Phœnicaceæ. **Palm.**

Notes adapted from an article by Dr. Robertson Proschowsky on "The Butias as Fruit Palms for Temperate Climates," Gardeners' Chronicle, 3d ser., vol. 70, p. 260.

**54664.** BUTIA CAPITATA DELICIOSA Proschowsky.

The fruits are almost globular, of a beautiful orange color, and have a rose-colored base. They are the size of large cherries and somewhat smaller than those of *Butia capitata pulposa.* The flesh, though of good thickness, is just a little less abundant than in *B. capitata pulposa,* but by continued selection and hybridization there is every reason to believe that still superior varieties can be raised, of larger size and of different flavors, absolutely fiberless, with abundant flesh and smaller seeds.

**54665.** BUTIA CAPITATA LILACEIFLORA (Chab.) Beccari.
(*Cocos lilaceiflora* Chab.)

Fruits of orange color, about the size of those of *Butia capitata deliciosa,* but usually a little more flattened; base of fruits somewhat rose colored; taste acidulous, agreeable; contains rather many fibers, but these are fine, and many persons eat all the flesh, including the fibers.

**54666.** BUTIA CAPITATA ODORATA (Barb.-Rodr.) Beccari.
(*Cocos odorata* Barb.-Rodr.)

Fruits somewhat variable as to size, ranging from that of small to ordinary cherries, but flattened, of light-orange color, the base very slightly rose colored. Flesh fibrous, taste acidulous, like that of *Butia capitata lilaceiflora.* The agreeable perfume found in all the varieties of *B. capitata* is most pronounced in this variety, hence the varietal name.

For previous introduction, see S. P. I. No. 45073.

**54667.** BUTIA CAPITATA PULPOSA (Barb.-Rodr.) Beccari.
(*Cocos pulposa* Barb.-Rodr.)

Fruits the largest of all, somewhat depressed (flattened), of light-yellow color with rose-colored base. Rather abundant flesh of very good taste, somewhat sweeter than that of *Butia capitata deliciosa,* the taste resembling, perhaps, mostly a mixture of peach and apricot; containing fibers, but not to such an extent as to prevent some persons eating the whole. The seeds are large, about twice the size of those of *B. capitata deliciosa.*

For previous introduction, see S. P. I. No. 51890.

**54668.** BUTIA CAPITATA PYGMAEA Proschowsky.

The flesh is not very abundant; though very fibrous, the acidulous taste is not much inferior to that of *Butia capitata odorata.* This tiny palm has the merit of being especially adapted to pot culture.

**54664 to 54670**—Continued.

The small seeds, inclosed in the hard endocarp, have kernels of very good taste, like that of the well-known coconut (*Cocos nucifera*). If a way could be found of extracting these seeds without crushing them, there could undoubtedly be found ample use for them.

54669. BUTIA CAPITATA SUBGLOBOSA Beccari.

Fruit the size of ordinary cherries, of very light yellow color, red at the base, almost globose, as the name indicates; flesh nearly fiberless, of acidulous, sweetish flavor, but having a slightly bitter taste.

54670. RAPHIOLEPIS UMBELLATA (Thunb.) C. Schneid. Malaceæ.
(*R. japonica* Sieb. and Zucc.)

"Fresh seeds (berries) of a beautiful evergreen, very hardy bush which will, I think, thrive in the southeastern parts of the United States, at least as far as North Carolina." (*Proschowsky.*)

**54671 and 54672.** ORYZA SATIVA L. Poaceæ. **Rice.**

From Kagoshima, Japan. Seeds presented by K. Tamari, Kagoshima Imperial College of Agriculture and Forestry. Received December 8, 1921.

54671. Scented rice from Hioki County.

54672. Scented rice from Kimotsuki County.

**54673 and 54674.** MUSA spp. Musaceæ. **Banana.**

From Honolulu, Hawaii. Shoots presented by Willis T. Pope, horticulturist, Agricultural Experiment Station. Received November 28, 1921.

54673. MUSA FEHI Bert.

"*Tahitian, Fehi,* or *Barabora.* The shoots of this variety are very long and slim while young. A red, upright-fruiting variety in Hawaii." (*Pope.*)

54674. MUSA PARADISIACA SAPIENTUM (L.) Kuntze.

"*Honduranian Common,* known as the *Brazilian banana* in Honolulu." (*Pope.*)

A large commercial variety of good quality.

For previous introduction, see S. P. I. No. 38923.

**54675.** DIOSCOREA CAYENENSIS Lam. Dioscoreaceæ. **Yellow Guinea yam.**

From Port Antonio, Jamaica, British West Indies. Tubers presented by E. R. Sasscer, United States Department of Agriculture. Received December 14, 1921.

"Yam taken from the cargo of the American steamship *Bella,* from Port Antonio, Jamaica. The specimen was collected at Baltimore, Md." (*Sasscer.*)

"A yellow-fleshed yam which produces individual tubers up to 2 pounds or more in weight. The flavor of this yam is less delicate than that of some, and the flesh is quite firm, but the texture is good and the color attractive." (*R. A. Young.*)

**54676.** SOLANUM BULLATUM Vell. Solanaceæ

From Lavras, Minas Geraes, Brazil. Seeds presented by Benjamin H. Hunnicutt, director, Instituto Evangelico, Escola Agricola de Lavras, through C. C. Knight, vice director. Received December 29, 1921.

A South American plant of considerable interest for experimental use as a forage plant because of its large percentage of protein.

For previous introduction, see S. P. I. No. 51802.

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