Issued March 15, 1922.

U. S. DEPARTMENT OF AGRICULTURE.

BUREAU OF PLANT INDUSTRY.

WILLIAM A. TAYLOR, *Chief of Bureau.*

INVENTORY

OF

SEEDS AND PLANTS IMPORTED

BY THE

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION DURING THE PERIOD FROM APRIL 1 TO JUNE 30, 1917.

(No. 51; Nos. 44446 to 44934.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
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INVENTORY OF SEEDS AND PLANTS IMPORTED BY THE OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION DURING THE PERIOD FROM APRIL 1 TO JUNE 30, 1917 (NO. 51; NOS. 44446 TO 44934).

INTRODUCTORY STATEMENT.

The period covered by this inventory is that immediately following the entry of America into the great World War, and it is interesting to record the fact that the work of plant introduction carried on by the office was continued without interruption and that during the three months—April, May, and June—489 new introductions were brought in, carefully inspected, held in the detention greenhouses when necessary, and later sent out to experimenters.

The foreign exploration work was more seriously affected, although it had already felt the effects of the war. Nevertheless, during this period Mr. Meyer continued his exploring work under difficulties along the Yangtze River between Hankow and Ichang and Mr. Wilson Popenoe made a study of the seedling avocado varieties of Guatemala, making excursions on horseback to Antigua, the Los Altos region, Amatitlan, Chimaltenango, Solola, and Totonicapam, where he obtained some of the most promising selections of his collection.

The avocado varieties listed in this inventory are the *Panchoy*, an early-ripening variety; the *Benik*, a midseason sort; the *Tumin*, an unusually productive sort with fruit resembling the *Trapp* in shape; the *Kekchi*, a small, very early sort with a long ripening season; the *Mayapan*, which Mr. Popenoe believes is one of the best of all; the *Cabnal*, a variety with a particularly nutty flavor; the *Cantel*, which has a very small seed; the *Pankay*, which he found at an altitude of 8,500 feet, which is more than 1,000 feet above the zone of citrus fruits; and the *Tertoh*, which produces fruits weighing 4 pounds. This collection of selected avocado seedlings was made with the greatest care. Not only has Mr. Popenoe placed on record in this office a description of the exact locality of each original tree from which he took bud wood, but he made a photograph of the tree itself, wherever it was possible, showing its habit of growth and productiveness; a photograph of the fruit, showing its shape and size and the

relation between seed and flesh and the thickness of the skin; and a most careful pomological description of its flavor, texture, and other characteristics, together with notes written in the field as to its probable season of ripening and productivity. In other words, Mr. Popenoe's collection, as it is being sent out to growers for trial, has had eliminated from it about all the chances for disappointment which it is humanly possible to eliminate when a foreign fruit tree is introduced into an entirely new environment. While the season of ripening may change, the degree of frost which it will stand may change, and even the flavor be affected, it is not to be expected that any great changes in the form of the fruit or in the proportion of seed to flesh will appear in his collection when the fruits ripen in the United States. The difficulty which nurserymen and growers find in handling the cumbersome numbers under which the plants of this office are sent out made it appear necessary to assign names to the various seedlings. In order to do honor to the people from whose country they came and to distinguish them as emigrants from that country, selected names were taken from the Maya language. To this race belongs the distinction of having learned the value of the hard-skinned avocado, and it seems proper that as these Guatemalan varieties become commercially grown in this country they should be called by these Maya names rather than by Americanized names which have no real philological significance. It is believed that these names will enrich rather than impoverish the language of that commerce which is growing up about this important food plant. See *Persea americana*, Nos. 44625 to 44628, 44679 to 44681, 44781 to 44783, 44785, and 44856.

While looking for varieties of the avocado, Mr. Popenoe found a very rare species of Persea known as the *coyó* or *shucte* (*Persea schiedeana*, No. 44682) which deserves to be introduced into all strictly tropical countries. In its wild state and without any attempts having been made at its domestication, it appears to have seedlings which rival the avocado in the size of their fruits and in the quality of these fruits for the table. It seems to have been completely overlooked by the tropical botanic gardens of the world.

Mr. Popenoe also obtained material of the following: The tortoise-shell custard-apple (*Annona testudinea*, No. 44774) which bears fruit with large seed, hard shell, and flesh that is devoid of all grittiness; the monkey-flower tree (*Phyllocarpus septentrionalis*, No. 44775), a species which, according to the explorer, compares in beauty with the royal poinciana and produces in January a mass of crimson-scarlet flowers; the lignum-vitæ (*Guaiacum guatemalense*, No. 44858), which as a small tree with evergreen foliage has already attracted attention in Florida and which, according to Mr. Popenoe,

has "attractive lavender-purple flowers distinguishable for long distances across the plains"; and a wild cherry (*Prunus salicifolia*, No. 44885) of the Guatemalan highlands, which bears fruits three-fourths of an inch in diameter, with a flavor suggesting the Bigarreau cherry. The facts that this cherry produces its fruits in racemes and that the individual fruits are of such unusual size suggest that it be tried in crosses with the chokecherries of the northern United States.

The desire persists in the Tropics for a tropical grape of good quality, and possibly the callulos (*Vitis* sp., No. 44921), which has unusually large berries in a solid bunch and which has shown itself adapted to cultivation in Florida, may contribute toward that end.

Of seeds and plants which have come in as a result of the interest of foreigners or have been imported through correspondence, the following merit mention in this statement:

The guabiroba (*Compomanesia fenzliana*, No. 44784), a fruit tree of which a new quantity of seed has been sent in from Lavras, Brazil, by Mr. Hunnicutt, was first brought to this country by Messrs. Dorsett, Shamel, and Popenoe in 1914. Three-year-old trees of it which were standing in the plant-introduction garden at Miami were not injured by the freeze of 1917 and have already flowered. This shows promise of becoming a valuable fruit plant where it can be grown.

Consul Dawson, of Rosario, has sent in the seeds of a bitter variety of corn (*Zea mays*, No. 44564) which has proved of interest to those sections of Argentina which are overrun by locusts or grasshoppers, owing to the fact that the leaves are so bitter that these insects will not eat it unless there is nothing else to devour. Although the variety is a poor yielder and the corn itself is not immune to the attacks of the locusts, is it not possible that so striking a character as that of bitterness might be valuable in breeding work for the purpose of producing varieties of corn immune to various insects and fungous diseases?

It is a curious coincidence that the highbush cranberry of the Northwestern States and the Kansu viburnum (*Viburnum kansuense*, No. 44547) should both be used for the making of preserves. In the improvement of our native species (*V. americanum*), may not the Chinese species be of value?

The susceptibility of one of our best ornamental bushes, the barberry, to the wheat rust and the fact that the various species of barberries cross easily make it a problem of not a little importance to get the various species of these shrubs together and by crossing them to produce superior forms. The existence of hardy evergreen forms and of forms with seedless fruits can not but add to the possi-

bilities of the situation. As these shrubs are among the most hardy known, as they are very heavy bearers, and as some of the varieties are seedless, a large-fruited seedless variety which could be used for jam production might not be so unimportant as it would seem at first thought (*Berberis* spp., Nos. 44523 to 44530).

Through the Central Experimental Farm of Ottawa, Ontario, a remarkable collection of new selected seedling varieties of apples (Nos. 44713 to 44720) has been introduced. Five of them are seedlings of the well-known Wealthy variety, which, because of the hardiness of the trees and the most excellent eating qualities of the fruit, deserve especial attention by our horticulturists in the northern tier of States.

In connection with the search for a species of the genus Pyrus which might prove immune to the pear-blight, is it not possible that the closely related genus Docynia, of which the species *D. delavayi* occurs in western Szechwan and also in Yunnan, might furnish such a species and at the same time prove a suitable stock for the cultivated pear? E. H. Wilson photographed a tree which was 25 feet tall and 7 feet in circumference and reports it to bear edible fruits 1 inch long. No. 44677 represents seeds of this species sent in by Mr. Frank Pilson, but it can be easily grown from cuttings.

The existence of delicious-fruited hybrids between the cherimoya and the sugar-apple, produced independently by Wester in the Philippines and by Simmonds in Florida, and the fact, according to Pittier, that these hybrids occur in Venezuela and are recognized as distinct from the ordinary cultivated anonas, make the production by Wester of a hybrid which represents three species (Nos. 44671 to 44673) of special interest. The large number of related species and the fact that so many of them have edible fruits and that, as orchard trees, they bear early would seem to single out this family, Annonaceæ, as one particularly favorable for the plant breeder's work. The biribá of Brazil, *Rollinia mucosa* (Nos. 44658 and 44659), is another species introduced for the breeders of this family.

The great beauty of the different species of Styrax for use as shrubs around the dooryard, where they follow in their flowering habit the early-flowering shrubs like the lilac and spirea, will make the collection (*Styrax* spp., Nos. 44591 to 44595) imported from Chenault & Sons, Paris, welcome to nurserymen.

Dr. E. D. Merrill, of the Department of Agriculture of the Philippine Islands, has sent in a remarkable species of ornamental Ficus, *Ficus pseudopalma* (No. 44470), from Corregidor, which, because of its resemblance to a slender-stemmed palm, is known as the little coconut. It has a crown of leaves which are nearly a meter in length.

In the Coachella Valley the most rapidly growing species of tree is a North African tamarisk (*Tamarix aphylla*). It makes so remarkable a growth there that trees 2½ years old have a girth of 3 feet a foot above the ground. Dr. Trabut sends with the seed of this species (No. 44554) the information that a mite (acarian) in the Sahara produces galls on the tree which contain as high as 45 per cent of pyrogallic tannin; and the suggestion of the use of this remarkable tree as a source of tannin is perhaps allowable.

Though the parkways are often lined with what is called *Catalpa bungei*, in reality a form of *C. bignonioides*, the true *C. bungei* is a very rare tree in this country. Mr. Frank N. Meyer pointed out some years ago that it had unusual promise as a timber tree for the semi-arid regions of the Southwest along irrigating ditches. It grows to a height of 100 feet; its timber resembles walnut and is in great demand for table tops and furniture because of its nonwarping character. It is extensively planted by the Chinese. (No. 44664.)

Without raising the question of the landscape value of the common *Casuarina equisetifolia*, which has been planted by millions along the roadways of southern Florida, the doubtful hardiness of that species as contrasted with at least one of the other species (*C. cunninghamiana*) has made it advisable to secure the other members of this genus, and No. 44909 (*C. stricta*) and No. 44532 (*C. cunninghamiana*) are recorded in this inventory. If they prove to be hardier than *C. equisetifolia*, a good deal will be gained.

There seems to be some advantage in the use of certain kinds of melons in the making of preserves, especially types which have rinds containing large amounts of pectose. The Mankataan melon of Natal, *Citrullus vulgaris* (No. 44842), which will keep six months and is used extensively in Cape Colony for preserving, is worth the attention of housekeepers.

So many valuable grasses have come from South Africa and Australia that a species on which sheep pasture at altitudes of 6,000 feet near Pretoria, *Panicum serratum* (No. 44518), and the meadow rice-grass of Australia and New Zealand, *Microlaena stipoides* (No. 44802), which is said to bear overstocking better than any other grass native there, are worth trying on the high-altitude pastures of the Pacific slope, where a ground cover which will hold moisture is so much needed.

We are so accustomed to connecting the flavor of onions with a round-bladed species of bulbous plant that Dr. Trabut's newly domesticated *Allium triquetrum*, with triangular leaves, strikes one as remarkable. The onion odor is scarcely perceptible in it, although as a vegetable it is very delicate indeed (No. 44793).

The demand for large-fruited varieties of olives for pickling purposes may make the Tafahi olive (No. 44709) from the Fayum Oasis of Egypt peculiarly interesting to olive growers, for it is 4.5 cm. long and 3 cm. in shorter diameter, according to Prof. S. C. Mason, who arranged for its introduction.

It is a curious fact that in Great Britain black currants are looked upon as a delicacy, while in America little or no attention is paid to this fruit, although it is peculiarly adapted to cultivation in the extreme North. Collections of black and red currants are represented in this inventory under Nos. 44475 to 44499, 44581 to 44587, 44638 to 44648, 44706, 44707, and 44904.

The Chinese grafted jujube has reached a stage in this country where it will soon go on a commercial basis, but the investigation of all the other forms of the jujube which are to be found in the world should go on, and the tropical species from Khartum, *Ziziphus mucronata* (No. 44748), may be of value.

The question whether it would ever be profitable to cultivate the species of Acacia which yield the gum arabic of commerce is one which can hardly be expected to be answered a priori. The fact that to-day the Brazilian sources of Para rubber have sunk into insignificance in comparison with the plantation rubber from the cultivated Para rubber trees in the East Indies should certainly make advisable an investigation of the possibilities of desert plantations of these gum-producing plants. For this purpose two of the African gum acacias have been introduced (Nos. 44922 and 44923).

The new problem of growing chestnuts in orchards, which the chestnut bark disease has brought up, has attracted attention to the smaller species of oriental chestnut trees, such as *Castanea mollissima*, and to the hybrids between our chinkapin and the Japanese chestnut. Is it not possible that a dwarf species of the related genus Castanopsis may have value in this breeding work? Seeds of this species, *Castanea mollissima* (No. 44448), from Nanking, have been sent in by Rev. Joseph Bailie, of Nanking, who has just had the distressing experience of being beaten nearly to death by Chinese bandits while at work to help the Chinese establish a better forest policy.

The introduction by Mr. H. M. Curran of a species of cactus, *Cephalocereus lanuginosus* (No. 44454), from Curaçao, which has attractive red fruits, brings up the whole question of the utilization of the fruits of the Opuntias in this country. With thousands of acres in California where the best fruit-bearing varieties will grow to perfection and with hundreds of people in the Eastern States who have been accustomed from their childhood in the Mediterranean region to eat the "fico d'India," it seems unfortunate that a method has not been devised for the removal of the small spicules which are

invariably scattered in pustules over these fruits. Such a discovery, it would seem, would raise a perfectly good, wholesome, and perhaps even medicinal fruit from a state of local consumption to one in which it could compete with other fruits in the world market. It has as remarkable keeping qualities as any fruit known. Specimens have been kept successfully in cold storage for over a year.

The botanical determinations of seeds introduced have been made and the botanical nomenclature revised by Mr. H. C. Skeels and the descriptive and botanical notes arranged by Mr. G. P. Van Eseltine, who has had general supervision of this inventory, as of all the publications of this office. The manuscript has been prepared by Mrs. Ethel M. Kelley.

DAVID FAIRCHILD,
Agricultural Explorer in Charge.

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION,
Washington, D. C., December 24, 1919.

INVENTORY.[1]

44446. OPUNTIA MONACANTHA (Willd.) Haw. Cactaceæ.

From Singapore, Straits Settlements. Cuttings presented by Mr. I. Henry Burkill, director, Botanic Gardens. Received April 2, 1917.

"*Opuntia monacantha* is the only species of its genus which has established itself wild here, and that only very sparingly." (*Burkill.*)

"An upright, branching cactus, native of Argentina, reaching a height of 6 feet or more, with rather thick, oblong, flat joints 5 to 12 inches long; areoles furnished with yellowish brown bristles; and one or two erect, yellow or brown spines up to 1½ inches long in each fascicle. The yellow flowers are about 3 inches wide, and the red, spiny, pear-shaped fruits are sometimes proliferous." (*J. N. Rose.*)

44447. OMPHALOPHTHALMA RUBRA Karst. Asclepiadaceæ.

From Curaçao, Dutch West Indies. Collected by Mr. H. M. Curran. Received April 2, 1917.

"*Mari poni poen.* Green fruit, cooked as a vegetable." (*Curran.*)

A climbing shrubby, hairy plant, native of the island of St. Martin, West Indies, with opposite long-petioled, heart-shaped leaves nearly 3 inches long and dark-purple, rather small flowers in the axils of the leaves. (Adapted from *Karsten, Florae Columbiae, vol 2, p. 119, pl. 163.*)

44448 and 44449.

From China. Presented by Rev. Joseph Bailie, University of Nanking, Nanking. Received April 2, 1917.

44448. CASTANEA MOLLISSIMA Blume. Fagaceæ. **Chestnut.**

"Chestnuts from the capital of Anhwei." (*Bailie.*)

44449. CASTANOPSIS sp. Fagaceæ. **Chestnut.**

"Dwarf chestnuts from the country near Anchin, Province of Anhwei." (*Bailie.*)

44450. LAGENARIA VULGARIS Seringe. Cucurbitaceæ. **Gourd.**

From San Juan Bautista, Tabasco, Mexico. Presented by Mr. Gabriel Itié, director, Agricultural Experiment Station. Received April 3, 1917.

"Known under the native name of *hux*. The very large fruit is used as a containing vessel." (*Itié.*)

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

44451 to 44468.

From Curaçao, Dutch West Indies. Collected by Mr. H. H. Curran. Received April 3, 1917. Quoted notes by Mr. Curran.

44451. ABELMOSCHUS ESCULENTUS (L.) Moench. Malvaceæ. **Okra.**
(*Hibiscus esculentus* L.)

"*Ciamko.* A malvaceous plant, the green seed pods of which are cooked as a vegetable and are very palatable, having a slight mucilaginous quality." (See S. P. I. No. 37806.)

44452. ACACIA VILLOSA (Swartz) Willd. Mimosaceæ.

"*Watapaana sjimaron.* Markets at Willemstad, March 9, 1917."

A thornless shrub, native to Curaçao, Dutch West Indies, with pinnate leaves composed of 10 to 15 pairs of leaflets, each about 5 cm. (2 inches) long, flower heads in a curtainlike inflorescence, and flat, dry, brown pods. The natives call it *Mata galienja* and *wild dividivi.* (Adapted from *Boldingh, Flora voor de Nederlandsch West Indische Eilanden, p. 206.*)

44453. ANNONA MURICATA L. Annonaceæ. **Soursop.**

"*Sorsaaka.* Edible fruit. March 9, 1917."

"A small, evergreen, tropical American tree, about the size of a peach tree, with leathery, ill-smelling, glossy leaves, large flowers with fleshy petals, and very large, fleshy, green fruits often as large as a child's head and weighing as much as 5 pounds, containing white, juicy, pleasantly subacid pulp. It is commonly cultivated in the Tropics of the Old World. A fine drink is made from the juice, and the pulp makes excellent jelly and preserves. It is easily propagated from seeds or by budding." (*W. E. Safford.*)

44454. CEPHALOCEREUS LANUGINOSUS (L.) Britt. and Rose. Cactaceæ.

"*Kadoesji.* Edible fruit. March 9, 1917."

"An upright, columnar, unbranched West Indian cactus, up to 6 cm. (2½ inches) in diameter, with eight or nine ribs, round areoles covered with brown wool which turns gray and finally disappears, and two kinds of spines borne in the areoles. The 8 to 10 radial spines are up to 2 cm. (four-fifths of an inch) in length, and the central spines, up to four in number, are reddish brown and about 3.5 cm. (1⅖ inches) long. The flowers are about 5 cm. (2 inches) long, funnel shaped, with green sepals and red-margined petals. The nearly globular, soft, fleshy red berry is about 3.5 cm. (1⅖ inches) in diameter, filled with shining black seeds. (Adapted from *Schumann, Gesamtbeschreibung der Kakteen, p. 183,* as *Pilocereus lanuginosus.*)

44455. COCCOLOBIS DIVERSIFOLIA Jacq. Polygonaceæ.

"*Kawaalia.* Edible fruit. March 9, 1917."

A small West Indian tree, 8 or 10 feet high, with greenish brown branches; bright-green, leathery, smooth, shiny leaves which are very variable in shape; white, inconspicuous flowers in spikes 4 to 6 inches long; and round, purple-fleshed drupes about the size of a small cherry. The natives eat the fruits, but the flavor is not very pleasant. (Adapted from *W. J. Hooker, Exotic Flora, vol. 2, pl. 102.*)

44451 to 44468—Continued.

44456. HAEMATOXYLUM BRASILETTO Karst. Cæsalpiniaceæ.

"*Brazieja.*" A small tree, native of the Dutch West Indies, with stout thorns on the outer branches, compound leaves composed of three or four pairs of notched leaflets up to 3.5 cm. (1⅜ inches) long, with a thorn at the foot of each leafstalk, short clusters of flowers, and flat pods. (Adapted from *Boldingh, Flora voor de Nederlandsch West Indische Eilanden, p. 212.*)

44457. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**
(*Sorghum vulgare* Pers.)

"*Maiz chikitoe hasen harina.*"

44458. MALPIGHIA PUNICIFOLIA L. Malpighiaceæ.

"*Sjimaroekoe.* Edible fruit, March 9, 1917."

A shrub, native to the Dutch West Indies, about 12 feet high, with smooth, oval leaves 4 cm. (1⅜ inches) long, flowers in the axils of the leaves, and edible stone fruits. In some of the islands this is called *cherry.* (Adapted from *Boldingh, Flora voor de Nederlandsch West Indische Eilanden, p. 239.*)

44459. PHASEOLUS LUNATUS L. Fabaceæ. **Lima bean.**

"Markets of Willemstad, March 9, 1917."

44460. PHASEOLUS VULGARIS L. Fabaceæ. **Common bean.**

"*Boonchi pintado.* Markets of Willemstad, March 9, 1917."

44461. RANDIA ACULEATA L. Rubiaceæ.

"*Leele.*" A dwarfish, gray-barked West Indian shrub with roundish, shining green leaves; white, solitary, sessile flowers; and globose fruits which yield a fast-blue dye, giving rise to the Jamaica name of *indigo-berry.* Propagation is by cuttings. (Adapted from *Curtis's Botanical Magazine, vol. 43, pl. 1841,* as *Gardenia randia.*)

44462. SESAMUM ORIENTALE L. Pedaliaceæ. **Sesame.**
(*S. indicum* L.)

"*Sjosjole.* Markets of Willemstad, March 9, 1917."

44463. PHASEOLUS SEMIERECTUS L. Fabaceæ.

"A leguminous plant, common in lowlands at St. Joris. April 9, 1917."

44464 to 44468. VIGNA SINENSIS (Torner) Savi. Fabaceæ. **Cowpea.**

44464. *Boonchi di Baliza.* Markets of Willemstad, March 10, 1917. Edible bean."

44465. "*Boonchi di color* No. 1. Markets of Willemstad, March 9, 1917."

44466. "*Boonchi di color* No. 2. Markets of Willemstad, March 9, 1917."

44467. "*Boonchi di color* No. 3. Markets of Willemstad, March 9, 1917."

44468. "*Boonchi di color* No. 4. Markets of Willemstad, March 9. 1917."

44469. AMARANTHUS PANICULATUS L. Amaranthaceæ. **Alegria.**

From San Juan Bautista, Tabasco, Mexico. Purchased from Mr. Gabriel Itié, director, Agricultural Experiment Station. Received April 3, 1917.

Alegria is produced in Tlajomulco, Zacoalco, and San Pedro Tlaquepaque, districts belonging to the State of Jalisco. This annual is sown in nurseries; in the month of December it is harvested and is used in the making of sweets. I was told the seeds in question are found with difficulty in the pueblos near Guadalajara, for the inhabitants do not put them to any practical application; and, if they are sometimes used, it is when they are mixed with dulce for children. They are surely very insipid. [These seeds are sold in Mexico City, and] they are also seen in the State of Michoacan, where they are used for the same purpose." (*Itié.*)

44470. FICUS PSEUDOPALMA Blanco. Moraceæ.

From the Philippine Islands. Presented by Dr. E. D. Merrill, acting director, Bureau of Science, Manila. Received April 5, 1917.

"A single fruit of *Ficus pseudopalma*, which apparently has fertile seeds. This fruit was recently sent to me from Corregidor. The species is a most striking ornamental and will probably thrive out of doors in southern Florida and in southern California; it is well worthy of cultivation in greenhouses. The stems are erect, unbranched, and usually about 3 cm. in diameter. The stem is tipped by a dense crown of very characteristic leaves which are sometimes nearly a meter in length. The fruits are borne in the leaf axils. On account of its palmlike aspect Blanco selected the name *pseudopalma;* the common Tagalog name is *niogniogan*, which literally means 'little coconut.'" (*Merrill.*)

44471 to 44473.

From Granada, Spain. Plants purchased from the Pedro Giraud Nurseries, through Mr. Percival Gassett, American consul, Malaga. Received April 7, 1917.

44471 and 44472. FICUS CARICA L. Moraceæ. **Fig.**

44471. "*Albanes*, the name by which the *Paharero* fig is here known." (*Gassett.*)

44472. "*Isabeles*, the most delicious fig, much sought after." (*Gassett.*)

44473. PYRUS COMMUNIS L. Malaceæ. **Pear.**

Peraleta. A dwarf variety of the common pear.

44474. CITRULLUS VULGARIS Schrad. Cucurbitaceæ. **Watermelon.**

From Lusambo, Belgian Kongo, Africa. Presented by Mr. E. B. Stilz. Received April 10, 1917.

"Seed of a native watermelon. It grows here like a weed; the vine is almost exactly like that of the cultivated watermelon, only not quite so fuzzy. The fruit also resembles a watermelon, being green and about the size of a man's head when ripe. The rind is very tough and the meat is white and stringy and about as fit to eat as that of a gourd. It has the watermelon smell, however. I do not know whether it is the ancestor or a degenerate descendant of our watermelon." (*Stilz.*)

44475 to 44499. RIBES spp. Grossulariaceæ. **Currant.**

From Angers, France. Plants purchased from the André Leroy Nurseries. Received April 11, 1917.

44475 and 44476. RIBES VULGARE Lam. **Garden currant.**

44475. No. 1. *Belle de St. Gilles.*

44476. No. 3. *De Boulogne blanc.* (Boulogne white.)

44477 to 44480. RIBES NIGRUM L. **Black currant.**

44477. No. 4. *Cassis à fruit noir.* (Black-fruited currant.)

44478. No. 6. *Cassis à fruit brun.* (Brown-fruited currant.)

44479. No. 5. *Cassis à feuilles dorées.* (Golden-leaved black currant.)

4480. No. 11. *Cassis Royal de Naples.* "*Neapolitan.* Medium-sized, spicy berries." (*Hesse's catalogue.*)

44481 to 44499. RIBES VULGARE Lam. **Garden currant.**

44481. No. 12. *Du Caucase.* "Caucasian. Bunches of medium length, currants very large, a prolific shrub. A good table fruit for the home garden." (*Späth's catalogue.*)

44482. No. 14. *Cerise blanche.* (White cherry.)

44483. No. 15. *Chenonceau rouge.* "A good table fruit with large berries." (*André Leroy's catalogue.*)

44484. No. 16. *Commun à fruit blanc.* (Common white fruited.)

44485. No. 17. *Commun à fruit rouge.* (Common red fruited.)

44486. No. 18. *Fay's New Prolific.* "Very long bunches with very large berries." (*André Leroy's catalogue.*)

44487. No. 19. *Fertile d'Angers.* (Angers prolific.)

44488. No. 20. Fertile de Bertin. "A heavy-bearing variety with clear red, medium-sized berries." (*Hesse's catalogue.*)

44489. No. 22. *Frauendorf.*

44490. No. 23. *Gloire des Sablons.*

44491. No. 24. *Grosse blanche transparente.* (Large transparent white.)

44492. No. 27. *De Hollande à longue grappe.* (Long-bunch Dutch.)

44493. No. 28. *Impériale blanche.* (Mperial white.)

44494. No. 29. *Impériale rouge.* (Imperial red.)

44495. No. 30. *Knight.* "*Knight's red,* with very large red berries." (*Hesse's catalogue.*)

44496. No. 31. *La Turinoise.*

44497. No. 35. *Versaillaise.*

44498. No. 33. *Rouge clair de Buddins.* (Bunddins' clear red.)

44499. No. 34. *De Verriéres.*

44500 to 44517. Fabaceæ.

From Yihsien, Shantung Province, China. Presented by Rev. R. G. Coonradt. Received April 10, 1917. Quoted notes by Mr. Coonradt.

44500. DOLICHOS LABLAB L. **Bonavist bean.**

"No. 9. Used for cooking."

44500 to 44517—Continued.

44501 to 44505. PHASEOLUS spp.

44501 and 44502. PHASEOLUS ANGULARIS (Willd.) W. F. Wight. **Adsuki bean.**

44501. "No. 13. Small red bean; used for soup."

44502. "No. 16. Small white bean; used for boiling."

44503 to 44505. PHASEOLUS AUREUS Roxb. **Mung bean.**

44503. "Hairy green bean; used for soup. Planted in June."

44504. "No. 7. Smooth green bean; used in soup. Planted in June."

44505. "No. 8. Smooth brown bean; used for soup. Planted in June."

44506. PISUM SATIVUM L. **Garden pea.**

"No. 1. *Wan;* large winter pea. Planted in November."

44507 to 44513. SOJA MAX (L.) Piper. **Soy bean.**
(*Glycine hispida* Maxim.)

44507. "No. 2. Large red bean; used for baking or boiling. Planted in the spring."

44508. "No. 3. Large black bean; used for baking and boiling. Planted in the spring."

44509. "No. 4. Large yellow bean; used for baking and boiling. Planted in the spring."

44510. "No. 5. Large blue bean; used for baking and boiling. Planted in the spring."

44511. "No. 11. Small yellow bean; used for oil curd and animal feed."

44512. "No. 12. Tea-colored bean; used for animal feed. Planted in June."

44513. "No. 17. Used for soup."

44514. STIZOLOBIUM PACHYLOBIUM Piper and Tracy.
"No. 9. Beans used for cooking."

44515. VIGNA SESQUIPEDALIS. (L.) Fruwirth. **Yard Long bean.**
"No. 10. Horned bean."

44516 and 44517. VIGNA SINENSIS (Torner) Savi. **Cowpea.**

44516. "No. 14. Large *Chiang* bean; used for soup and boiling."

44517. "No. 15. White *Chiang* bean; used for soup and boiling."

44518. PANICUM SERRATUM (Thunb.) Spreng. Poaceæ. **Grass.**

From the Union of South Africa. Presented by Mr. I. B. Pole Evans, chief, Division of Botany, Department of Agriculture, Pretoria. Received April 12, 1917.

"Collected at Kaalfontein, near Pretoria. This grass flourishes on our high veld (4,000 to 6,000 feet) in this neighborhood and is much relished by sheep and cattle." (*Evans.*)

44519. POUPARTIA AXILLARIS (Roxb.) King and Prain. Anacardiaceæ.

From Augusta, Ga. Plants purchased from P. J. Berckmans Co. Received April 13, 1917.

A rather common tree at low altitudes in the valleys of western China, growing to a height of 15 to 25 m. (50 to 80 feet) and having a trunk often 3 feet in diameter near the base. It has gray bark, massive branches, deciduous leaves, and inconspicuous flowers. The yellow, oval fruits, which are about an inch long, are eaten by the Chinese, who call the tree *Hsuan tsao*. Known also as *Spondias axillaris*. (Adapted from *Sargent, Plantae Wilsonianae, p. 172, 1914.*)

44520 to 44549.

From Ventimiglia, Italy. Presented by the superintendent, La Mortola Botanic Gardens. Received April 6, 1917.

44520. ALECTRYON SUBCINEREUM (A. Gray) Radlk. Sapindaceæ.

A shrub or small tree, native to New South Wales, Australia, with compound leaves composed of one to three pairs of shining, oblong or lance-shaped leaflets 2 to 4 inches long, very small flowers in short axillary panicles, and 2 to 3 lobed capsules which inclose globose seeds with fleshy arils. (Adapted from *Gray, U. S. Exploring Expedition, vol. 15, Botany, p. 258*, as *Cupania subcinerea.*)

44521. ALECTRYON TOMENTOSUM (F. Muell.) Radlk. Sapindaceæ.

An Australian tree, 20 to 30 feet high, with rusty velvety young branches, small flowers crowded in woolly panicles, and rather hard, depressed, indehiscent fruits. (Adapted from *Bentham, Flora Australiensis, vol. 1, p. 466.*)

44522. ALOE SUCCOTRINA Lam. Liliaceæ. **Aloe.**

A succulent herbaceous plant, native to Africa, usually simple but sometimes branched, with thick, linear or lance-shaped leaves with shiny margins and tips, disposed in the form of a rosette, either green or yellowish in color. The red flowers are borne in a spike. The juice is evaporated to obtain a drastic purgative known as *aloes*. This plant is cultivated in South America and many other subtropical places. (Adapted from *Loefgren, Notas sobre as Plantas Exoticas Introduzidas no Estado de S. Paulo, p. 27.*)

44523 to 44530. BERBERIS spp. Berberidaceæ. **Barberry.**

44523. BERBERIS ACTINACANTHA Mart.

An evergreen bush, native to the mountainous regions of Chile, with peculiar 5-parted spines, roundish oval, rigid, spiny-dentate leaves, and deep-yellow, sweet-scented flowers. In cultivation it reaches 3 to 4 feet in height and grows freely in a rich sandy loam. (Adapted from *Edward's Botanical Register, vol. 31, pl. 55.*)

44524. BERBERIS GLOBOSA Benth.

A spiny shrub, native to the Andes of Colombia, 6 to 8 feet high, with rigid, mucronate leaves a little more than an inch long and a quarter of an inch wide, yellow flowers a little larger than those of the common barberry, and globular fruits about the size of a small pea. (Adapted from *Bentham, Plantae Hartwegianae, p. 158.*)

44525. BERBERIS GUIMPELI Koch and Bouche.

A shrub, 5 to 7 feet in height, native to the Caucasus, with clustered obovate entire leaves, racemes of early-blooming yellow flowers, and attractive red berries appearing in autumn. It needs a sunny

44520 to 44549—Continued.

situation for best results. (Adapted from *Guimpel, Abbildung der fremden in Deutschland ausdauernden Holzarten, p. 79,* as *B. canadensis.*)

44526. BERBERIS ILICIFOLIA Forst.

A straggling bush, native to Tierra del Fuego, Argentina, about 8 feet in height, with yellow-brown young wood, angular stems, 3-parted often curved spines, dark-green hollylike leaves, flowers in axillary racemes, and deep steel-blue subglobose fruits. (Adapted from *Curtis's Botanical Magazine, vol. 73, pl. 4308.*)

44527. BERBERIS PRATTI C. Schneid.

A western Chinese shrub 6 to 10 feet high, with finely hairy grooved young twigs; slender, 3-parted spines up to two-thirds of an inch long; ovate leaves up to 1⅓ inches long in fascicles of four or five; yellow flowers in narrow panicles; and ovoid salmon-red fruits a quarter of an inch in length. It grows very freely and is quite hardy in cultivation at Kew, England. (Adapted from *Curtis's Botanical Magazine, vol. 140, pl. 8549.*)

44528. BERBERIS SARGENTIANA C. Schneid.

A black-berried barberry from western Hupeh, China, reaching a height of 7 feet. It is the only evergreen barberry which has proved entirely hardy at the Arnold Arboretum. (Adapted from *Sargent, Plantae Wilsonianae, vol. 1, p. 359.*)

For further description, see S. P. I. No. 42973.

44529. BERBERIS SUBCAULIALATA C. Schneid.

A thickly branched shrub from Tibet, up to 4½ feet high, with spines up to an inch in length, finely membranaceous, lance-shaped leaves about an inch long, and reddish yellow globular fruits a quarter of an inch in diameter. (Adapted from *Schneider, Illustriertes Handbuch der Laubholzkunde, vol. 2, p. 919.*)

44530. BERBERIS VIRESCENS Hook. f.

This Himalayan barberry is a spreading shrub with shining brown bark; ovate, pale-green, spiny toothed leaves in tufts; slender 3-parted thorns; small greenish yellow flowers in fascicles or short racemes; and oblong or constricted scarlet or black berries. (Adapted from *Curtis's Botanical Magazine, vol 116, pl. 7116.*)

44531. BUDDLEIA DAVIDII Franch. Loganiaceæ.

A tall shrub, native to the mountainous parts of northern China, with very variable foliage. The opposite dark-green leaves are 4 inches to a foot in length, oblong or narrowly lance shaped, and either coarsely serrate or entire. The clear lilac-colored flowers are crowded in dense heads 4 to 6 inches long, and the fruits are clavate capsules about a quarter of an inch long. (Adapted from *Curtis's Botanical Magazine, vol. 124, pl. 7609,* as *Buddleia variabilis.*)

44532. CASUARINA CUNNINGHAMIANA Miquel. Casuarinaceæ.

An Australian tree 30 to 40 feet high, with slender branches, male flowers in slender spikes, and globular fruiting cones not more than a third of an inch in diameter. The wood is dark colored, close grained, and prettily marked. (Adapted from *Bailey, Queensland Flora, pt. 5, p. 1491.*)

44520 to 44549—Continued.

44533. CLERODENDRUM TRICHOTOMUM FARGESII (Dode) Rehder. Verbenaceæ.

A Chinese shrub, 3.5 to 4 meters (10 to 15 feet) in height; with dark-green, oval, lance-shaped leaves, 10 to 15 cm. (4 to 6 inches) long; very fragrant light-pink flowers in axillary cymes; and dark-purple drupes, 4 to 5 mm. (one-fifth of an inch) in diameter, with very hard, black seeds. It is easily raised from seed in ordinary soil. (Adapted from *J. Pinelle, in Revue Horticole, vol. 83, p. 522,* as *Clerodendron fargesii.*)

44534. ARECASTRUM ROMANZOFFIANUM (Cham.) Becc. Phœnicaceæ. (*Cocos romanzoffiana* Cham.) **Palm.**

Var. *plumosa.* "A Brazilian palm, commonly cultivated in Florida and California as an ornamental, with an unarmed trunk about 30 feet high and a foot in diameter, bearing a crown of plumelike pinnate leaves 12 to 15 feet long. It has two spathes, the inner somewhat woody, splitting along one side and exposing the much-branching spadix which is crowned with the monœcious flowers. The fruit is a pale-orange drupe about the size of a large acorn, inclosing a bony seed which has three eyes near the base." (*C. B. Doyle.*)

44535. DIOSPYROS LOTUS L. Diospyraceæ.

A deciduous Chinese tree, usually less than 30 feet high in cultivation in temperate countries, but probably twice as high in warmer climates. It has oval, shining dark-green leaves 2 to 5 inches long, greenish red dicœcious flowers, the pistillate solitary and the staminate one to three in a cluster. The purplish or yellowish, orange-shaped fruits are half an inch to three-quarters of an inch across, but because of their astringent quality are unfit for food. On damp days the trees emit a curious heavy odor, probably due to an exhalation from the leaves. (Adapted from *Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 494.*)

Ordinarily used in China and Japan as a stock for the kaki, or Japanese persimmon.

44536. DODONAEA THUNBERGIANA Eckl. and Zeyh. Sapindaceæ.

A South African shrub, 5 to 10 feet high, with somewhat viscid, narrow leaves 1½ to 2½ inches long and a quarter of an inch wide, dense racemes of polygamous green flowers, and resinous, shining, winged capsules about half an inch long and wide. A decoction of the root is used as a purgative in fevers. (Adapted from *Harvey and Sonder, Flora Capensis, vol. 1, p. 242.*)

44537. LONICERA STANDISHII Carr. Caprifoliaceæ. **Honeysuckle.**

A charming, fragrant, early-flowering, deciduous, Chinese shrub, with pale yellowish brown branches; pale-green, oval to lance-shaped leaves 3 to 5 inches long; and white, sweet-scented flowers appearing in pairs, one-fifth to half an inch long. (Adapted from *Curtis's Botanical Magazine, vol. 94, pl. 5709.*)

44538. PRUNUS CONRADINAE Koehne. Amygdalaceæ. **Cherry.**

A graceful tree from central China, reaching a height of 25 feet, with oval or oblong, doubly serrate leaves 2 to 6 inches long; whitish or pink flowers about three-quarters of an inch long in two to four flowered umbels, and red ovoid fruits one-third to one-half an inch long. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 5, p. 2840.*)

44520 to 44549—Continued.

44539. PRUNUS TOMENTOSA Thunb. Amygdalaceæ. **Cherry.**

A broad, vigorous shrub from northern China. One of the earliest cherries to flower. The flowers are large, with the white petals more or less tinged with red toward the base, and the small, bright-red, slightly hairy fruits are of good flavor. It is now being cultivated in the northwestern part of the United States and in southwestern Canada where other cherries are not hardy. (Adapted from the *Arnold Arboretum Bulletin of Popular Information No. 19, April 25, 1912.*)

This fruiting shrub thrives under a very wide range of climatic conditions, from those of Georgia and southern California to those of Montana and the plains of Canada. Its attractive berries have been used successfully in the production of excellent preserves. Its productiveness, attractiveness, and hardiness make it worthy a place in any dooryard.

44540 to 44546. ROSA spp. Rosaceæ. **Rose.**

44540 to 44543. ROSA spp.

The names given in the following notes are not used as valid for the material that we have, since the seeds received do not agree with seeds of these species received directly from the Arnold Arboretum. The notes are published merely to enable us to hold the information together.

44540. Received as Wilson No. 666, *Rosa helenae.*

44541. Received as Wilson No. 666a, *Rosa rubus.*

44542. Received as Wilson No. 1125, *Rosa brunonii.*

44543. Received as Wilson No. 1128. This number, Mr. Rehder informs us, is *Sorbus esserteauiana*, and he suggests that the number should have been 1126, *Rosa davidii elongata.*

44544. ROSA BANKSIAE NORMALIS Regel.

A climbing bush, 6 m. (20 feet) or more tall, common in western Hupeh and eastern Szechwan, China, from the river level to 1,000 m. (3,250 feet) altitude. It often rambles over trees, and E. H. Wilson has seen trees 50 feet high completely festooned with this rose. The fragrant flowers are always pure white, and the fruits are dull red and abundant. The root bark is used locally for strengthening fishing nets and dyeing them brown. (Adapted from *Sargent, Plantae Wilsonianae, vol. 2, pt. 2, p. 317.*)

44545. ROSA MOYESII Hemsl. and Wils.

Forma *rosea* Rehder and Wilson. An upright bush, found in western Szechwan, China, up to 3,300 m. (11,000 feet) altitude growing to a height of 1 to 5 m. (3 to 16 feet), and distinguished from the typical species by its large leaves and large, pale-pink flowers. The large fruits are either dull red or scarlet. (Adapted from *Sargent, Plantae Wilsonianae, vol. 2, pt. 2, p. 325.*)

44546. ROSA RUBUS Lev. and Van.

A climbing shrub, common everywhere in western Hupeh and eastern Szechwan, China, from the river level to 1,300 m. (4,200 feet) altitude. It is readily distinguished from its near relative by the densely hairy shoots and leaves. It grows to a height of 2.5 to 4 m. (8 to 13 feet), with dull-red globose fruits. (Adapted from *Sargent, Plantae Wilsonianae, vol. 2, pt. 2, p. 308.*)

44520 to 44549—Continued.

44547. VIBURNUM KANSUENSE Batal. Caprifoliaceæ.

A tall Chinese shrub of loose and open habit, found at altitudes of 6,000 to 9,000 feet. It has oblong leaves, and its juicy, red berries can be used in making agreeable drinks. (Adapted from *note of Frank N. Meyer, May 11, 1915.*)

See also S. P. I. No. 40692 for further description.

44548. VIBURNUM KANSUENSE Batal. Caprifoliaceæ.

A form differing from the preceding number in habit and size.

44549. AMPELOPSIS ACONITIFOLIA Bunge. Vitaceæ.

A very handsome northern Chinese vine with finely divided foliage. The leaves are five parted and 2 to 3 inches long; the inconspicuous flowers appear in summer, and the small orange berries mature in autumn. It should be planted where only a light covering is desired and is hardy in the northern United States. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 1, p. 278.*)

44550 to 44553. AMYGDALUS PERSICA L. Amygdalaceæ. **Peach.**

(*Prunus persica* Stokes.)

From Chefoo, China. Presented by Mr. Lester Maynard, American consul general. Received April 5, 1917. Quoted notes by Mr. Maynard.

44550. "No. 4. *Ch'iu t'ao tzŭ* (autumn peach); grown at Fushanhsien. This is considered one of the best varieties; a freestone, green skin, white flesh, average weight 7½ ounces to 1 pound; ripens in August."

44551. "No. 5. *Hsieh t'ao* (blood peach); grown at Fushanhsien. The largest peach grown in this district; average weight, 7½ ounces to 1 pound; a freestone; skin and flesh red, flesh hard and dry, very little juice, taste sour; ripens in August."

44552. "No. 6. *Ch'ing p'i lan* (green skin blue); grown at Laiyang. One of the best peaches grown in Shantung, being both sweet and juicy; about the size of *Ch'iu t'ao tzŭ* [S. P. I. No. 44550], average weight, 7½ ounces to 1 pound, freestone, green skin, white flesh; ripens in September."

44553. "No. 7. *Tung t'ao* (winter peach); grown at Fushanhsien. Considered the best quality of peach grown in this district; about the size of *Ch'ing p'i lan* [S. P. I. No. 44552], average weight, 7½ ounces to 1 pound; freestone, green skin, white flesh; ripens in November."

44554. TAMARIX APHYLLA (L.) Karst. Tamaricaceæ. **Tamarisk.**

(*T. articulata* Vahl.)

From Algiers, Algeria. Cuttings presented by Dr. L. Trabut. Received April 12, 1917.

"A tamarisk from the Sahara; a beautiful tree which is very ornamental and produces a gall very much used in the south by the natives for tanning. This gall contains 45 per cent of pyrogallic tannin. It is produced by an acarian, *Eriophyes tlaiae* Trab. I have been able to reproduce it easily on our *Tamarix articulata*. I estimate that an annual harvest of 20 quintals is possible from 1 hectare." (*Trabut.*)

44555 and 44556.

From Tolga, via Cairns, Queensland, Australia. Presented by Mr. J. A. Hamilton. Received April 12, 1917.

44555. CUCURBITA sp. Cucurbitaceæ. **Melon.**

"Chinese pie or jam melon; very productive; the point in its favor is that the seeds are all in one cavity and not embedded in the flesh as in the other preserving melons." (*Hamilton.*)

44556. PASSIFLORA SUBEROSA L. Passifloraceæ.

"Wild passion vine; the flowers are pretty, but I can not say whether the fruit is edible or not." (*Hamilton.*)

44557 to 44561.

From Jerusalem, Palestine. Presented by Mr. E. F. Beaumont, The American Colony Stores, through Mr. Abram I. Elkus, American consul. Received April 17, 1917.

44557. LAWSONIA INERMIS L. Lythraceæ. **Henna.**

A handsome shrub, probably native to northern Africa, western and southern Asia, but widely cultivated in tropical countries. The flowers are white, pink, or cinnabar red and are very fragrant. From the leaves is produced the henna or alhenna of the Arabs (cyprus of the ancients), a yellow dye which is used in Egypt and elsewhere by women to color their nails, by men to dye their beards, and for similar purposes. It is the camphire of the authorized version of the Bible. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 4, p. 1830.*)

44558. MEDICAGO CILIARIS (L.) All. Fabaceæ. **Bur clover.**

An annual Asiatic plant, growing on the coast and up to 800 m. above sea level, with squarish leaflets; yellow flowers about one-third of an inch long, in few-flowered clusters or solitary; and hairy coiled pods, with six to eight rather loose coils having two rows of awl-shaped prickles on the thick flat margin. (Adapted from *Post, Flora of Syria, Palestine, and Sinai, p. 230.*)

44559. MEDICAGO SCUTELLATA (L.) Mill. Fabaceæ. **Bur clover.**

An annual Asiatic herb, 12 to 20 inches high, with rather large oval or oblong, acutely denticulate leaflets, orange flowers, one-sixteenth of an inch long in small clusters or solitary, and smooth, coiled pods, nearly half an inch in diameter, composed of five to six coils. (Adapted from *Post, Flora of Syria, Palestine, and Sinai, p. 227.*)

44560. PISUM FULVUM Sibth. and Smith. Fabaceæ. **Pea.**

A slender-stemmed annual, common in rocky places around the eastern Mediterranean countries, about 5 dm. tall, with oval to round, dentate leaflets up to 2 cm. long, rusty yellow flowers, pods 4 cm. long, and velvety black, round peas about 4 mm. in diameter. (Adapted from *Post, Flora of Syria, Palestine, and Sinai, p. 296.*)

44561. PISTACIA TEREBINTHUS L. Anacardiaceæ. **Terebinth.**

A medium-sized tree, native to the Mediterranean countries, 12 to 15 m. high, with compound shining leaves having 7 to 11 oblong, caducous leaflets which when bruised give off a strong terebinth odor, hence the name of the plant. The small purple flowers occur in axillary panicles on the previous year's growth; and the fruit is a little, dry, purple drupe which becomes brown when fully mature, is slightly acid and edible. It produces a transparent gum which is used as a chewing gum. The leaves are used as a fodder by the Arabs. (Adapted from *M. Bangol, Bulletin de la Société d'Horticulture de Tunisie, vol. 14, p. 153.*)

44562. GOSSYPIUM sp. Malvaceæ. **Cotton.**

From Kribi, Kamerun, West Africa. Presented by Rev. H. W. Grieg, Presbyterian Church Mission. Received April 12, 1917.

Seeds sent in response to a request for a native cotton reported to be used by the Bulus in weaving cloth.

44563. BALANITES AEGYPTIACA (L.) Delile. Zygophyllaceæ.

From Cairo, Egypt. Presented by Mr. F. G. Walsingham, Gizeh Branch, Ministry of Agriculture. Received April 14, 1917.

A tropical African tree, 3 to 5 meters high, with straight, rigid branches; woolly, papery, ovate leaves; green flowers in 3 to 5 flowered cymes; and edible drupes 3 cm. long, with a bitter-sweet flavor. The natives make an intoxicating drink from these fruits, which are also eaten raw with a laxative effect. The seeds yield an oil known as oil of betu, which is used as a liniment, for food, and, to some extent, as a medicine. The wood is hard and close grained, and the bark of the young trees yields a very strong fiber. One of the ingredients of the celebrated spikenard perfume is supposed to have been furnished by this tree. (Adapted from *Post, Flora of Syria, Palestine, and Sinai, p. 199*, and from *Kew Bulletin of Miscellaneous Information, Additional Series IX, p. 138.*)

44564. ZEA MAYS L. Poaceæ. **Corn.**

From Rosario, Argentina. Presented by Mr. William Dawson, jr., American consul. Received April 16, 1917.

"A Rosario landowner who has made extensive experiments with corn recently reported to the Rosario Bolsa de Comercio with respect to the advisability of sowing bitter corn (maiz amargo) which is indorsed in some quarters as locust proof. His recommendations are strongly against this variety. While the locust, unless hard pressed, will not eat the leaves if it finds the plant in flower or grain, it will eat bitter corn as well as any other form. The growth of bitter corn is very slow and requires 9 to 10 months, and even more. With its enormous leaves it exhausts the soil, and after the harvest the hard green stalks make it very difficult to clear the ground, especially in Argentina, where farm labor is costly. Finally, its yield is very small and from 25 to 50 per cent of that which any other common variety of corn will give under similar conditions, to say nothing of the yields obtained from selected seed.

"The landowner mentioned, who makes a specialty of selected seed, states that bitter corn is the only variety that he does not sell. He considers it useful only in the Chaco where 'land is as plentiful as locusts,' and there is little objection to exhausting the soil. Furthermore, in the Chaco the distance between farms is too great to permit an organized defensive campaign against locusts, which under ordinary circumstances respect the leaves of bitter corn." (*Dawson*, in *Commerce Reports, January 4, 1917, p. 36.*)

44565. MYRISTICA FRAGRANS Houtt. Myristicaceæ. **Nutmeg.**

From Grenada, British West Indies. Presented by Mr. L. F. de Backer, New York City. Received April 16, 1917.

An East Indian tree, 20 to 25 feet high, with smooth grayish brown bark; oval, dark-green, sharp-pointed leaves 3 to 6 inches long, slightly aromatic when bruised; pale yellowish diœcious flowers in axillary racemes; and nearly spherical, pearlike drupes. The flesh of these drupes is yellowish and full of astringent juice, and discloses the oval, hard-shelled, rugged, dark-brown nut. This contains the nutmeg of commerce, an oval, pale-brown seed which soon becomes shriveled and wrinkled. (Adapted from *Curtis's Botanical Magazine, pls. 2756 and 2757*, as *Myristica officinalis.*)

44566 and 44567. AMARANTHUS GANGETICUS L. Amaranthaceæ. **Amaranth.**

From China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received April 14, 1917.

44566. "(No. 2383a. Peking, China, February 17, 1917.) A red Amaranthus, used locally as a vegetable, like spinach, when young. Sometimes the seed is sown in a moist, dark, and warm place, and the young, red-colored seedlings are eaten as a rare delicacy at feasts. The seed itself is apparently never used in the north of China as a grain food. Chinese name *Hung hsien ts'ai* (red hsien vegetable). (*Meyer.*)

44567. "(No. 2384a. Peking, China, February 17, 1917.) A green Amaranthus, used locally as a vegetable, like spinach, when young. Sometimes the seed is sown in a moist, dark, and warm place, and the young seedlings are eaten as a rare delicacy at feasts. Chinese name *Ch'ing hsien ts'ai* (green hsien vegetable). (*Meyer.*)

44568. ANNONA CHERIMOLA Mill. Annonaceæ. **Cherimoya.**

From Nice, France. Presented by Dr. A. Robertson Proschowsky. Received April 13, 1917.

A horticultural variety with large fruits, sent under the name of *Annona macrocarpa* Hort.

44569 to 44579.

From Yokohama, Japan. Purchased from the Yokohama Nursery Co. Received April 17, 1917.

44569. APIOS FORTUNEI Maxim. Fabaceæ.

Hodo-imo. Tubers of a perennial leguminous climbing plant, native to Japan, sometimes 10 feet long, with compound leaves having three to five leaflets, panicles of greenish yellow flowers, and pods about 2½ inches long. The round, bulletlike tubers are boiled and eaten, and a kind of starch is manufactured from them. (Adapted from *Useful Plants of Japan, Agricultural Society of Japan, Tokyo, p. 69.*)

44570. CHENOPODIUM ACUMINATUM Willd. Chenopodiaceæ.

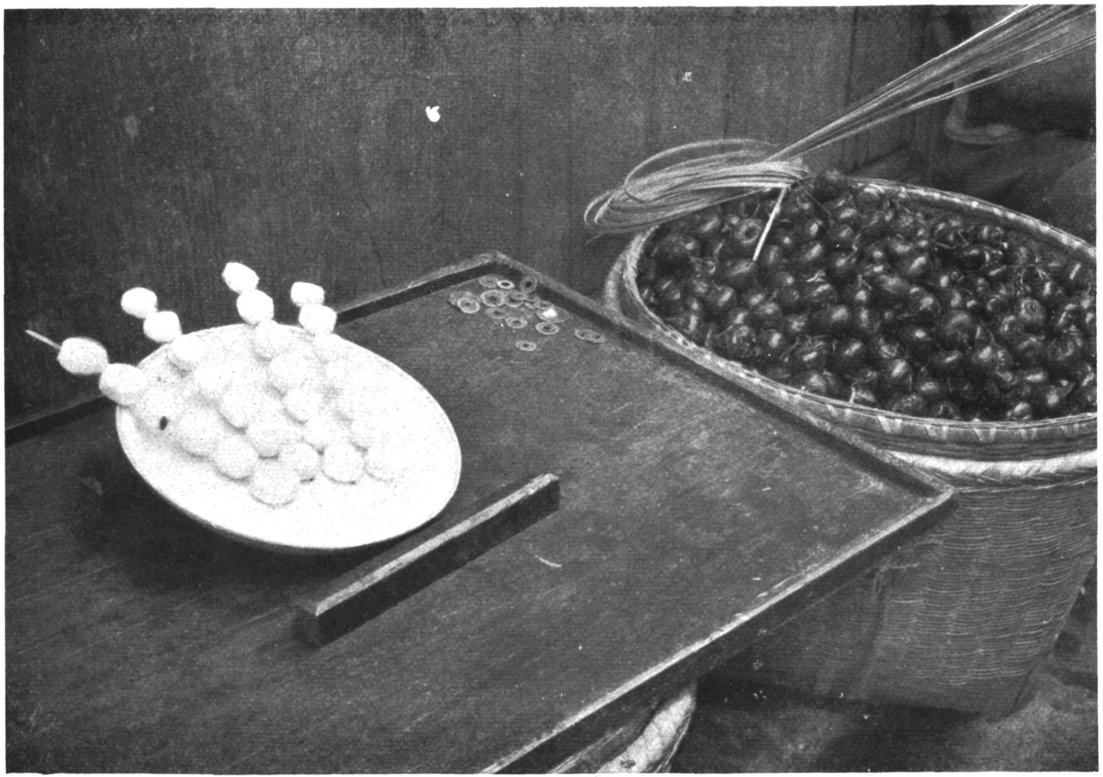
Akaza. Seed of an annual Japanese herbaceous plant, growing wild everywhere, and attaining a height of 4 to 5 feet. The large, old stems are used for canes. There are several horticultural varieties, all being used for the same purpose. (Adapted from *Useful Plants of Japan, Agricultural Society of Japan, Tokyo, p. 15.*)

44571. COIX LACRYMA-JOBI L. Poaceæ. **Job's-tears.**

Seeds received under the name *Coix agrestis* Lour., which is now considered a synonym of the above. Loureiro describes it as differing from the common form by its simple stems, smooth leaves, and nearly globular seeds. Obtained for the work of the Office of Forage-Crop Investigations.

44572. DIANTHUS JAPONICUS Thunb. Silenaceæ. **Pink.**

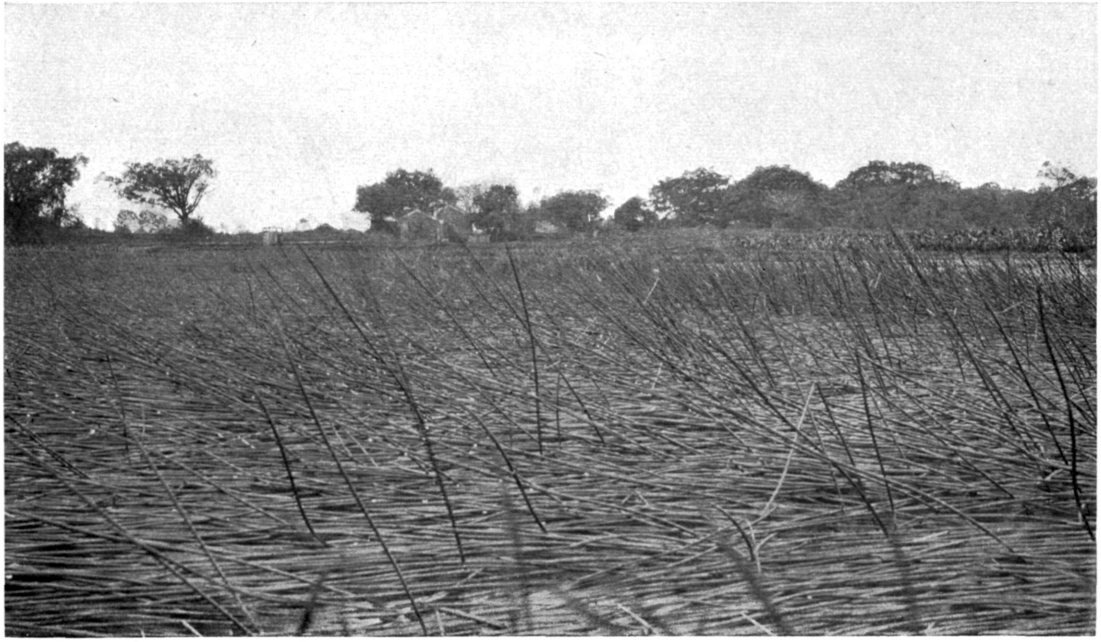
Plants of a glabrous perennial, native of Japan and Manchuria, with simple stems about 20 inches tall, ovate, lance-shaped, sharp-pointed leaves twisted at the base, and red flowers six to eight in a head. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 1000.*)



BEECHIS AS THEY ARE SOLD IN THE CHINESE MARKETS.

(*Eleocharis tuberosa* (Roxb.) Schult., S. P. I. No. 44573.)

These beechis, water nuts, or water chestnuts, as the underground bulblike rootstocks of this sedge are variously called, form the most tender and palatable part of the Chinese chop suey and have a flavor suggestive of coconuts. They are sold either as gathered (as shown at the right) or peeled and strung on bamboo sticks (at the left). In the latter form they cost 1 to 3 cents (Mex.) per stick. While they are usually eaten raw, they are sometimes steamed. When grated they are said to form an excellent substitute for sweet corn. (Photographed by F. N. Meyer, Changsha, Hunan Province, China, May 16, 1917; P12398FS.)



A BEECHI POND NEAR CANTON.

(*Eleocharis tuberosa* (Roxb.) Schult., S. P. I. No. 44573.)

The culture of the beechi in South China forms an important plant industry, which is peculiar in that it utilizes shallow ponds made for the purpose. The bulblike rootstocks are planted close together on the bottom of the pond and a few inches of water turned on them, and as their slender grasslike stems grow the water is deepened. After six months or so the water is drained off and the rootstocks are dug from the mud. The possibility of utilizing this plant on certain of our undrained lands in the extreme South should make its preliminary trial worth while. (Photographed by David Fairchild, Canton, China, December, 1901; negative No. 0.504.)

44569 to 44579—Continued.

44573. ELEOCHARIS TUBEROSA (Roxb.) Schult. Cyperaceæ. **Beechi.**

These beechi tubers are mostly eaten raw, but are also sliced and shredded in soups and in meat and fish dishes. Foreigners in China grate them and serve them boiled as a winter vegetable, in which state they very much resemble sweet corn in looks and taste. The plants need a hot summer to mature and are grown on a muck or clayey soil with several inches of standing water on top, in very much the same manner as wet-land rice. (See S. P. I. No. 41680.)

For illustrations of beechi tubers and growing plants, see Plates I and II.

44574 and 44575. ERIOBOTRYA JAPONICA (Thunb.) Lindl. Malaceæ. **Loquat.**

44574. *Motogi-biwa.* (Trees.) **44575.** *Haragami-biwa.* (Trees.)

44576. FICUS PYRIFOLIA Burm. Moraceæ. **Fig.**

The name *Ficus pyrifolia* is of doubtful application. These plants may be *F. benjamina*, *F. erecta*, *F. fontanesii*, or *F. rubra*. (See *Bailey, Standard Cyclopedia of Horticulture, vol. 3, p. 1233.*)

44577. MALUS SYLVESTRIS Miller. Malaceæ. **Apple.**
(*Pyrus malus* L.)

Nakanaruko. Trees of "a variety of apple known in Japan as the *Iwai* or *Nakanaruko*. This variety is supposed to have come from this country, but it has also been said that it is of German origin. It has become a leading fall variety in Japan." (*J. K. Shaw, pomologist, Massachusetts Agricultural College.*)

44578. PYRUS sp. (?) Malaceæ. **Pear.**

44579. ZINZIBER MIOGA Roscoe. Zinziberaceæ.

Roots of a perennial Japanese herb about 3 feet high, both wild and cultivated, with nearly linear, smooth, membranaceous leaves up to 15 inches long; white flowers in spikes 2 to 3½ inches long; and ovoid capsules. In summer and autumn the flowers, with the bracts, are eaten either raw or boiled; they have a slight acid taste and an aromatic odor. (Adapted from *Useful Plants of Japan, Agricultural Society of Japan, Tokyo, p. 30*, and from *Bailey, Standard Cyclopedia of Horticulture, vol. 6, p. 3544.*)

44580. SOLANUM TUBEROSUM L. Solanaceæ. **Potato.**

From Bogota, Colombia. Tubers presented by Mr. Jorge Ancizar. Received April 19, 1917.

Papa criolla. Tubers shaped like the common potato, but only about an inch in shortest diameter. "The Creole potatoes come out in three months and are delicious fried with their skins." (*Ancizar.*)

44581 to 44587. RIBES spp. Grossulariaceæ. **Currant.**

From Ottawa, Canada. Plants presented by Mr. W. T. Macoun, Dominion Horticulturist, Central Experimental Farm. Received April 20, 1917.

44581. RIBES VULGARE Lam. **Garden currant.**

Cumberland. A strong, moderately spreading grower and one of the most productive currants. The bright scarlet fruits are acid, medium sized, of fairly good quality, and occur in bunches of average length, usually only about half filled. The season is medium. (Adapted from *Macoun, Bulletin 56, Central Experimental Farm, Ottawa, Canada, p. 11.*)

44581 to 44587—Continued.

44582. RIBES VULGARE Lam. **Garden currant.**

Large white. A strong, upright, early, productive currant, with pale-yellow, medium to large, briskly subacid fruits in medium to large, half-filled bunches. This currant is better than most in quality. (Adapted from *Macoun, Bulletin 56, Central Experimental Farm, Ottawa, Canada, p. 14.*)

44583 to 44587. RIBES NIGRUM L. **Black currant.**

44583. *Buddenborg.* A strong-growing, moderately productive, late black currant, with large to very large, thick-skinned, subacid fruits of good quality and flavor and ripening fairly evenly. One of the largest fruiting varieties and one of the best in quality. (Adapted from *Macoun, Bulletin 56, Central Experimental Farm, Ottawa, Canada, p. 16.*)

44584. *Magnus.* A strong-growing and very productive black currant, with large, rather thick skinned, subacid fruits of good flavor and quality, in medium-sized clusters. It is promising because of its productiveness, large size, and good quality. (Adapted from *Macoun, Bulletin 56, Central Experimental Farm, Ottawa, Canada, p. 18.*)

44585. *Eclipse.* A rather strong growing, early, productive black currant, with medium to large, rather thick skinned, fairly tender, subacid fruits of good quality. (Adapted from *Macoun, Bulletin 56, Central Experimental Farm, Ottawa, Canada, p. 18.*)

44586. *Eagle.* A strong-growing, productive black currant, with mostly large, moderately thick skinned, briskly subacid fruits of medium quality. It ripens somewhat unevenly and is not as good in quality as some others. (Adapted from *Macoun, Bulletin 56, Central Experimental Farm, Ottawa, Canada, p. 18.*)

44587. *Collins' Prolific.* A strong-growing, productive Canadian black currant with mostly large, thick-skinned, acid fruits of medium quality, in large bunches. It ripens late and rather unevenly, but is one of the best commercial varieties on the market. (Adapted from *Macoun, Bulletin 56, Central Experimental Farm, Ottawa, Canada, p. 17.*)

44588. DIOSCOREA sp. Dioscoreaceæ. **Yam.**

From Ogbomosho, Nigeria, West Africa. Tuber presented by Dr. George Green. Received April 23, 1917.

The natives plant yams following a good shower in the summer or dry season (November to March). Such a storm usually comes about the end of January. The yams are cut crosswise into sections about 3 inches thick, and these sections are cut longitudinally. Only one piece is planted, about 4 inches deep, in each of the hills or heaps, which are about 3 feet in diameter, 2 feet in height, and 4 feet apart. A tuft of grass is placed on top of the hill to protect the planted yam from the sun, and soil is thrown on to prevent the wind blowing the grass away. The vines are supported by stout sticks or often by broken cornstalks. Yams require about six months to mature, those planted in January being ready for digging in July. Yams may be left in the ground for a week or two after the vines have died down. (Adapted from *note by Dr. Green.*)

44589 and 44590.

From Siena, Italy. Presented by Dr. Agilulfus Preda, director, Botanic Garden, University of Siena. Received April 23, 1917.

44589. CORNUS CAPITATA Wall. Cornaceæ. Bentham's cornel.

A deciduous or partially evergreen tree, native to the Himalayas and China, 30 to 40 or more feet high, of bushy habit, with opposite, leathery leaves 2 to 5 inches long and minute, inconspicuous flowers crowded in hemispherical masses about half an inch wide. The beauty of the inflorescence is in the four or six creamy-white or sulphur-yellow bracts which are about 2 inches long. The fruit forms a fleshy, strawberry-shaped crimson head a little more than an inch wide. The beauty of the flower bracts and of the fruits makes this an excellent ornamental. (Adapted from *Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 387,* and *Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 855.*)

"This species is now fruiting at several places in California, notably in the Golden Gate Park, at Niles, and at Palo Alto." (*Fairchild.*)

See S. P. I. No. 42597 for previous introduction.

44590. PTEROCARYA FRAXINIFOLIA (Lam.) Spach. Juglandaceæ.
(*P. caucasica* Meyer.)

A large, spreading, ornamental tree, native to western Asia, growing to a height of 60 feet, with compound leaves 8 to 15 inches long, composed of 11 to 25 serrate leaflets; monœcious flowers in catkins; and small, 1-seeded, winged nuts. It is hardy as far north as Massachusetts, but needs some protection when young. Although it thrives best in rich, moist soil, it will grow well in drier localities. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 5, p. 2583.*)

44591 to 44595. STYRAX spp. Styracaceæ. Storax.

From Orleans, France. Plants purchased from Messrs. Léon Chenault & Sons. Received April 23, 1917.

44591. STYRAX CALIFORNICUM Torr.

An upright, branching shrub, usually about 6 feet high, with broad oval leaves from 1 to 2½ inches long; whitish flowers in mostly 3-flowered racemes; and 1-seeded fruits. It is native to the Sacramento Valley in northern California and is the most northern species of the genus. It bears a strong resemblance to *Styrax officinale* of southern Europe, from which it differs by its fewer flowered racemes and thickened pedicels. (Adapted from *John Torrey,* in *Smithsonian Contributions to Knowledge, vol. 6, p. 4.*)

44592. STYRAX DASYANTHUM Perkins.

A deciduous shrub or small tree, native to central China, with broadly oval or obovate pointed leaves 2 to 4 inches in length, and white flowers one-half to three-quarters of an inch long, produced in July in slender terminal racemes. It has proved hardy in the vicinity of London, England. (Adapted from *Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 557.*)

44593. STYRAX OFFICINALE L.

An ornamental shrub or small tree, with broadly oval or ovate leaves 1 to 3 inches long; white, fragrant flowers appearing in June in short, terminal, few-flowered clusters; and roundish fruits; a native of Greece and Asia Minor at altitudes up to 3,600 feet. The fragrant resin known

44591 to 44595—Continued.

as storax is obtained from this shrub by bruising the stem. Hardy in the southern United States. (Adapted from *Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, pp. 559, 560,* and from *Bailey, Standard Cyclopedia of Horticulture, vol. 6, p. 3280.*)

44594. STYRAX VEITCHIORUM Hemsl. and Wils.

A small tree, 12 to 15 feet high, with lanceolate, taper-pointed, thin, downy leaves, 3 to 5 inches long; and slender panicles of white flowers nearly an inch across, produced in groups at the ends of shoots from the uppermost leaf axis. Native to central China. It is hardy at Veitch's Nursery, Coombe Wood, England. (Adapted from *Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 560.*)

44595. STYRAX WILSONII Rehder.

A very ornamental deciduous shrub, native to western China, 6 to 10 feet high, twiggy and much branched, with ovate, green leaves half an inch to an inch long, usually entire, but sometimes with the ends three lobed or sparsely toothed. The solitary, nodding flowers are pure glistening white, five-eighths to three-quarters of an inch wide, produced in June on short stalks from the leaf axils. The shrub is remarkable in that it begins to flower when only a few inches high and 2 or 3 years old. It is probably hardy as far north as Philadelphia. (Adapted from *Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 560,* and from *Bailey, Standard Cyclopedia of Horticulture, vol. 6, p. 3279.*)

44596. PROSOPIS CHILENSIS (Molina) Stuntz. Mimosaceæ. **Algaroba.**
(*P. juliflora* DC.)

From Oran, Salta, Argentina. Presented by Mr. S. W. Damon. Received April 19, 1917.

"Late-fruiting black and white *Algarobas* from the district at the junction of the Provinces of Salta, Catamarca, and Tucuman." (*Damon.*)

See S. P. I. Nos. 44434 and 44435 for previous introduction and description of the black and white varieties of the *Algaroba.* This introduction is a mixture of the two.

44597 to 44599. SOJA MAX (L.) Piper. Fabaceæ. **Soy bean.**
(*Glycine hispida* Maxim.)

From Japan. Presented by Rev. Christopher Noss, Wakamatsu, Iwashiro, Japan. Received April 23, 1917.

"Under date of November 24, 1916, you asked that I should obtain for you a quantity of the *Hato-koroshi-daizu* soy bean for experimental planting. I inquired at Kawamata, the town where I first found this variety, and asked our Japanese pastor to make a thorough search. No one could be found who knew anything about a bean called *Hato-koroshi-daizu* or who could exactly match the sample. Finally the pastor sent me 6 quarts of a variety which, he said, seemed to be about the same. This variety is called *Uba-no-kantsu-bushi* (nurse's mastication), referring to its flattened shape, as though mashed between the teeth of a nurse for a little child. (Japanese mothers and nurses are accustomed to masticate food that is hard before feeding it to their little ones.)

"I appealed to another of my Japanese workers, who is a graduate in agriculture and has served the Government as an agricultural expert. He undertook

to find the bean for me and made one special trip to look it up. He, too, reported that he could not find *Hato-koroshi-daizu*, and that the variety which seemed to be identical with it was in his district called *Shiroishi* (white stone, the name of a noted river in northern Japan). Of this variety he sent me about 4 quarts, which he said was all that he could find.

"I wrote to the chief agricultural school in my province and to the leading seedsman of Sapporo, the place from which we generally buy seeds for use in the north, and could find no trace of *Hato-koroshi-daizu*.

"I judge that the bean must have come from the south." (*Noss.*)

44597. From Wakamatsu.
44598. From Odaka.
44599. From Kawamata.

44600 to 44606. SACCHARUM OFFICINARUM L. Poaceæ. **Sugar cane.**

From Port of Spain, Trinidad, British West Indies. Cuttings presented by Mr. J. de Verteuil, Superintendent of Field Experiments, Department of Agriculture. Received April 27, 1917.

Introduced for the Sugar Experiment Station, New Orleans, La.

44600. *Badilla (New Guinea No. 15).*
44601. *B–3922.*
44602. *B–4934.*
44603. *B–6308.*
44604. *B–6450.*
44605. *B–6835.*
44606. *Ba. 6032.*

44607 to 44609. CORYLUS AVELLANA L. Betulaceæ. **Filbert.**

From Angers, France. Plants purchased from Mr. Charles Détriché. Received April 11, 1917.

44607. *Geante des Halles.*
44608. *Barcelona.*
44609. *Prolifique à coque serrée.*

For illustrations showing a fruiting branch and a growing tree of the Barcelona filbert, see Plates III and IV.

44610. MAMMEA AMERICANA L. Clusiaceæ. **Mamey.**

From New Orleans, La. Obtained in the market by Mr. C. V. Piper, of the Department of Agriculture. Received April 20, 1917.

A large and unusually handsome West Indian tree of erect, compact habit, with glossy, dark-green, leathery leaves, fragrant white flowers, and globose russet fruits 3 to 6 inches in diameter. The tree is widely cultivated for its edible fruits, which are eaten raw or cooked, the flavor suggesting that of the apricot. They have a thick leathery rind and firm yellow flesh inclosing several large seeds.

44611 to 44622. SACCHARUM OFFICINARUM L. Poaceæ. **Sugar cane.**

From the Philippine Islands. Presented by Mr. Adn. Hernandez, director, Bureau of Agriculture, Manila. Received April 25, 1917.

The following varieties were grown at the Alabang Stock Farm Station, Alabang, Rizal, P. I., and were imported for experimental purposes for the sugar experiment station, New Orleans, La.

44611 to 44622—Continued.

"*Hawaii No. 20* and *Louisiana Striped* are the most extensively cultivated varieties of sugar cane in the Philippines. The yield per hectare (2.47 acres) in cane and the sugar content of these varieties is about 100 metric tons and 13 per cent, as compared with the yield of the best Philippine variety (*Negros Purple*), 80 metric tons per hectare and a sugar content of 14 per cent." (*Wester, Food Plants of the Philippines.*)

44611. *Chenois.*

44612. *Hawaii 20.*

44613. *Hawaii 20.*

44614. *Hawaii 20* × *Hawaii 309.*

44615. *Hawaii 27* × *Hawaii 309.*

44616. *Java 247.*

44617. *Lahaina.* "Long straight leaves of light color; rapid grower, deep rooting; hard rind when mature; superior richness of juice; firm, compact fiber, making the trash easy to handle." (*Deerr and Eckart, Bulletin 26, Hawaiian Sugar-Planters' Association Experiment Station.*)

44618. *Lahaina* × *Yellow Caledonia.*

44619. *Louisiana Striped.*

44620. *Louisiana Striped* × *Lahaina.*

44621. *New Guinea 15*, or *Badilla.*

44622. *Yellow Caledonia.*

44623 and 44624. CHAYOTA EDULIS Jacq. Cucurbitaceæ. (*Sechium edule* Swartz.) **Chayote.**

From Sydney, New South Wales, Australia. Fruits presented by Mr. George Valder, director, Department of Agriculture. Received June 30, 1917.

"The two varieties grown in New South Wales." (*Valder.*)

44623. White variety.

44624. Green variety.

44625 to 44628. PERSEA AMERICANA Mill. Lauraceæ. **Avocado.** (*P. gratissima* Gaertn. f.)

From Guatemala. Bud wood collected by Mr. Wilson Popenoe, agricultural explorer. Received April to June, 1917.

44625. "(Nos. 111, 121, 139. Avocado No. 18.) *Panchoy.*[2] "This is a very thick skinned fruit of unusually good quality. It is rather above medium size, weighing 15 to 18 ounces, and is of pleasing form—broadly obovoid. Perhaps its most striking characteristic is its unusually thick skin; but its quality deserves even more notice, for in this respect it is one of the very best in the collection. The seed is small.

"The parent tree is growing in the finca La Polvora in Antigua, Guatemala. The altitude is approximately 5,100 feet. The ground beneath the tree is planted in coffee bushes, which are now about 8 feet high. The soil is rich sandy loam, friable, black, and fertile. The tree is about 45 feet high, with a straight trunk 18 inches

[2] This and other varietal names for Mr. Popenoe's Guatemalan avocados are arbitrarily selected from appropriate words in the Maya language, the language of one of the most remarkable races of Central America, whose ruins and agricultural practices show it to have been peculiarly an agricultural race. It seems entirely fitting that to this race should be given the credit for first appreciating this distinct type of avocado, and no better way could be found than that of attaching to these varieties Maya names which some day may be as commonly used as *Bartlett* pear or *Baldwin* apple are used to-day in sections of this country. Furthermore, the names will indicate the Guatemalan origin of these plants as English names could not.

A FRUITING BRANCH OF THE BARCELONA FILBERT.

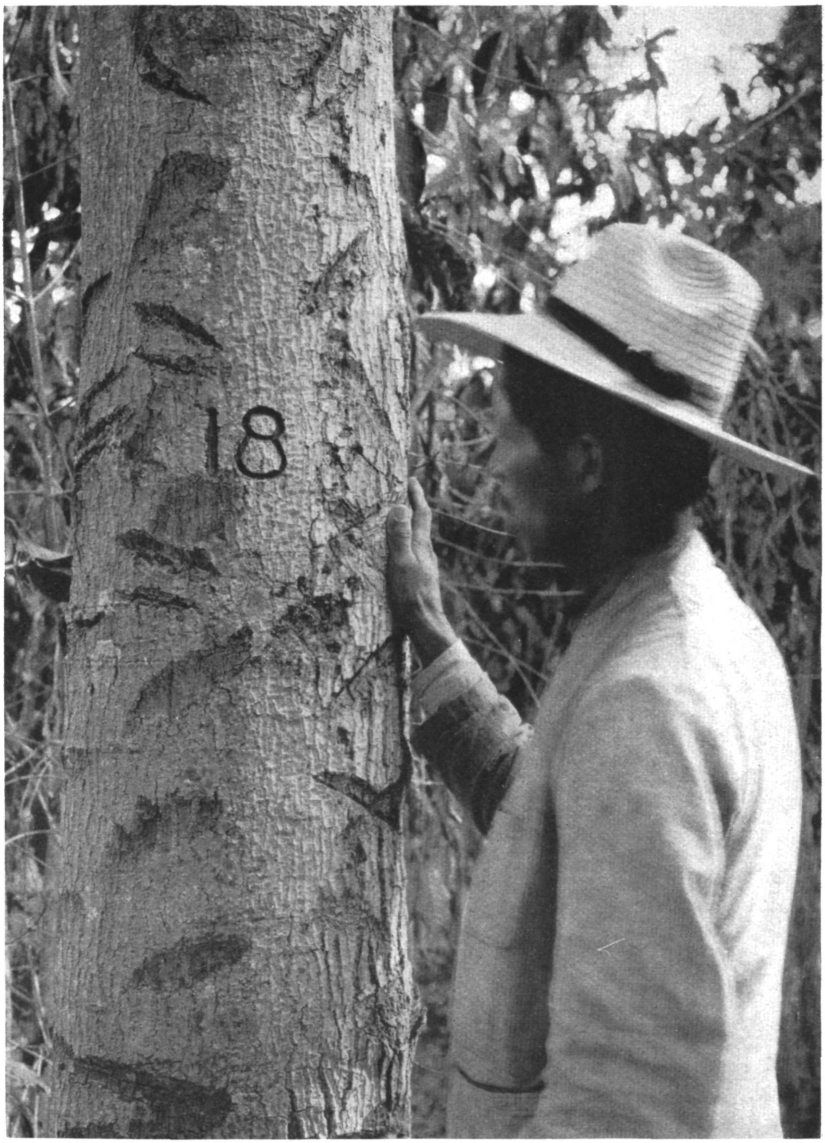
(*Corylus avellana* L., S. P. I. No. 44608.)

In the State of Washington thus far the Barcelona filbert seems to have led in productivity. The branch shown was cut from a young plant growing at the Yarrow Plant-Introduction Field Station, Rockville, Md. In one orchard of the Du Chilly and Barcelona varieties, near Vancouver, Wash., 80 trees of the Barcelona bore as many nuts as 240 of the Du Chilly, showing the importance of testing all the European varieties in America. Prof. A. A. Quarnberg, of Vancouver, Wash., has just returned from an inspection of the filbert orchards of Europe and has introduced several new varieties. (Photographed by R. C. Traver, Photographic Laboratory, August 8, 1917; P20790FS.)

A YOUNG TREE OF THE BARCELONA FILBERT.

(*Corylus avellana* L., S. P. I. No. 44608.)

Felix Gillette, of Nevada City, Calif., was a pioneer in the introduction of the filbert into the Pacific coast region. His collection of varieties, to which the Bureau of Plant Industry contributed, was maintained for some time after his death. From it, Prof. A. A. Quarnberg, of Vancouver, Wash., obtained some of the first plants of his filbert collection, which is now the most extensive one in this country. The increasing interest in filbert growing in the State of Washington makes this historical photograph of the beginning of the industry worth publishing. (Photographed by David Fairchild, at Nevada City, Calif., 1904; P1493FS.)



NUMBERING A SELECTED AVOCADO TO AVOID ERRORS IN CUTTING BUD WOOD.

(*Persea americana* Mill., S. P. I. No. 44625.)

This tree is the Panchoy seedling, Mr. Popenoe's selection No. 18. It is one of the excellent varieties found in Guatemala. Mr. Popenoe employed the method of cutting a number in the bark to mark his selected seedling trees. This enabled him to cut several lots of bud wood at different times from the same tree in the forest. (Photographed by Wilson Popenoe in the finca La Polvora, Antigua, Guatemala, May 3, 1917; P17215FS.)

A GUATEMALAN GIRL HOLDING A CLUSTER OF TUMIN AVOCADOS.

(*Persea americana* Mill., S. P. I. No. 44627.)

This variety, the Tumin, is now being propagated in Florida and California from bud wood obtained by Mr. Popenoe from the tree which yielded the fruits shown here. The Tumin avocado is unusually productive, its fruits growing in clusters of two to six. These fruits resemble closely in form the Trapp variety, weigh about a pound, and have a smooth, glossy, purple-black skin. They are of good quality. (Photographed by Wilson Popenoe, Antigua, Guatemala, February 24, 1917; P17112FS.)

44625 to 44628—Continued.

thick at the base, giving off its first branch 18 feet from the ground. The crown is not very broad, but open and sparsely branched, some of the limbs showing a tendency to droop. The age of the tree is not definitely known, but it is probably 15 to 20 years. The character of bud wood produced by the tree is fairly satisfactory; the growths are short, but the buds are well formed and show no tendency to drop.

"Lacking a definite test in the United States, it must be assumed that the variety is about average in hardiness. The climate of Antigua is not sufficiently cold to demonstrate the hardiness of a variety.

"The flowering season is February and March. The fruit ripens rather early for this region, the first ones commencing to drop in February, while a few hang on until April or May. The season may be called January to April. This rather early season of ripening is of especial importance to California, and the variety should be given a careful trial in that State. The productiveness of the variety is satisfactory. The crop which ripened in the spring of 1917 was good, but few fruits were set from the blooms of 1917. This is nothing unusual, since the Guatemalan race of avocado does not as a rule bear heavily every year.

"The fruit is broadly obovoid, 1 pound in weight, round and yellowish green on the surface, with a skin almost as thick as a coconut shell, but easily cut. The flesh is almost as yellow as butter, clean and free from discoloration, and of very rich flavor, while the seed is comparatively small and tight in the cavity. The variety has every appearance of being an excellent one.

"The fruit may be formally described as follows: Form obovoid, slightly oblique at the apex; size above medium to large, weight 15 to 18 ounces, length 4½ inches, greatest breadth 3½ inches; base rounded or obscurely pointed; stem stout, 4 inches long, inserted obliquely without depression; apex obliquely flattened, depressed around the stigmatic point; surface heavily pebbled to rough, green to yellowish green in color, with numerous small, rounded, yellowish dots; skin thick, about one-eighth of an inch throughout, not thicker toward the apex than near the base, as in many avocados, woody, very brittle; flesh firm, smooth, rich yellow in color, tinged with green near the skin, fiber or discoloration entirely lacking, the flavor very rich and pleasant; quality excellent; seed medium sized or rather small, roundish conic in form, weighing 2 ounces, tight in the cavity, with both seed coats adhering closely." (*Popenoe.*)

For an illustration of the Panchoy avocado, see Plate V.

See also Exploring Guatemala for Desirable New Avocados, Annual Report of the California Avocado Association, 1917, p. 127, fig. 23; reprint, 1918, p. 25, fig. 23; and The Avocado in Guatemala, U. S. Department of Agriculture Bulletin No. 743, p. 54, pl. 17.

44626. "(Nos. 112, 119, 141. Avocado No. 21.) *Benik.* This is a very handsome fruit of fine quality. When cut in halves the contrast of its purplish maroon skin with its rich yellow flesh is very attractive, the purple of the skin intensifying the yellow of the flesh. The tree is a good bearer, and the variety seems well worthy of a trial in the United States.

"The parent tree is growing in the finca La Polvora in Antigua, Guatemala. It has recently been girdled, with the intention of killing

44625 to 44628—Continued.

it to make room for more coffee bushes, so that it will probably not be in existence a year hence. The altitude here is about 5,100 feet. The tree stands among coffee bushes, many of which grow beneath its branches. The soil is a loose sandy loam, deep and fertile. The tree is about 35 feet high, the trunk 18 inches in diameter at the base, and the first branches 12 feet from the ground. The crown is round, dense, of good form, but high above the ground. The age of the tree is not known, but it would appear to be at least 20 years. The growth is vigorous and shapely, though the branchlets are rather short. The bud wood furnished by the tree is quite satisfactory, the eyes being well developed and not losing their outer bud scales or falling early. The bud sticks, however, are short.

"The hardiness of the variety must be considered about average until the facts can be ascertained by a test in the United States. Antigua is not cold enough to show up the hardiness of an avocado of the Guatemalan race.

"The tree flowers in late February and March. It ripened a fairly good crop of fruit in 1917 from the 1916 blooms, and set a very heavy crop to ripen in 1918. Its productiveness, therefore, seems to be above the average. The season of ripening is from February, when the fruits change from green to purple and thus indicate their maturity, to May, when the last fruits fall to the ground. It is a midseason sort, commencing to ripen a trifle earlier, perhaps, than the average.

"The fruit is broadly obovoid to pear shaped, about 20 ounces in weight, with a rough surface of rich purplish maroon color. It presents a very attractive appearance. The skin is rather thin and somewhat pliable, but coarsely granular in texture. The flesh is rich cream yellow in color, free from discoloration, and of very rich, pleasant flavor. The seed is medium sized and tight in the cavity.

"A formal description of the fruit is as follows: Form broad pyriform to obovoid; size very large, weight 20 ounces, length 5 inches, greatest breadth 3¾ inches; base pointed, the stem inserted obliquely without depression; apex rounded, slightly depressed immediately around the stigmatic point; surface pebbled to rather rough, deep purplish maroon in color, almost glossy, with few inconspicuous, light-colored dots; skin rather thin for this race, about one-sixteenth of an inch throughout, fairly pliable and peeling from the flesh when fully ripe, the purplish maroon color of the surface extending clear through the skin; flesh rich cream yellow in color, changing to pale green close to the skin, firm, of rich flavor; quality excellent; seed medium sized, weighing about 3 ounces, roundish conical, tight in the cavity, with both seed coats adhering closely." (*Popenoe.*)

See also Exploring Guatemala for Desirable New Avocados, Annual Report of the California Avocado Association, 1917, p. 129, fig. 25; reprint, 1918, p. 25, fig. 25; and The Avocado in Guatemala, U. S. Department of Agriculture Bulletin No. 743, p. 57, pl. 18.

44627. "(Nos. 113, 120, 140, 163, 225. Avocado No. 20.) *Tumin.* This variety is remarkable for its unusual productiveness, the fruits often being borne in clusters of two to five, a characteristic which is quite rare in the Guatemala race. The fruit is almost identical with the Florida *Trapp* in form; it weighs almost a pound, and is of handsome appearance, with a smooth, glossy skin of purple-black color. The

44625 to 44628—Continued.

flesh is of excellent appearance and flavor. The seed is medium sized. Taken all around, this seems a very promising variety, especially for Florida, where many of the Guatemalan avocados do not bear heavily.

"The parent tree is growing in the finca La Polvora in Antigua, Guatemala. The altitude is approximately 5,100 feet. On all sides of the tree, and crowding it somewhat, are large coffee bushes. The soil is a rich, sandy loam of volcanic origin, deep and friable. The tree is probably 6 or 7 years old. It is 20 feet in height, very slender in habit, the trunk 6 inches through at the base, branching at 8 feet from the ground. The crown is slender, sparsely branched, with very little fruiting wood. Its growth seems to be reasonably vigorous, the young branchlets being stout, though very short. The wood is rather brittle. The bud wood furnished by this tree is rather poor, owing to the shortness of the growths and the fact that the buds are too closely crowded together. The eyes, however, are well formed and show no tendency to drop and leave a blind bud. It may be found that the tree will require training when young to keep it stocky and of good form.

"The hardiness of the variety can not be ascertained at present, since the climate of Antigua is not cold. It may be assumed, until a test is made in the United States, that it is about as hardy as the average of the Guatemalan race.

"The tree did not flower in 1917, owing, quite likely, to the heavy crop which it ripened from the 1916 blooms. Probably under better cultural conditions and by thinning heavy crops greater regularity in bearing can be induced; in Guatemala, where no cultural attention is given to the trees, it is common for them to bear very heavily one season and fail to bear the next. Judging by the appearance of the spring flush of growth, which always accompanies the flowers, the variety will flower here in March. The fruits ripen from March to May. Although the tree has very little fruiting wood, it produced 125 fruits in 1917, which can be considered a very heavy crop. Several of the branches, in fact, were broken by the weight of the fruits they were carrying.

"The form of the fruit, as already mentioned, is practically the same as that of the *Trapp*—oblate or roundish oblate. The average weight is 12 to 16 ounces, but it may be expected that the weight of this and all other varieties in the collection will be slightly greater under good culture in the United States than it is in Guatemala, where the trees receive no attention. The skin is rather thin and smooth on the surface. The color is a deep purple, almost black. Unlike most Guatemalan avocados, the surface possesses a decided glossiness. The flesh is rich yellow in color, free from discoloration or fiber, and of very rich flavor. The seed varies from small to slightly large. In this connection it may be noted that the seeds of round or oblate avocados frequently are found to vary considerably in size, even among the fruits of a single tree. In this particular variety the average is not large, but occasional fruits were found in which the seed was a trifle too large. In others it is comparatively small. It is always tight in the cavity.

"The following is a formal description of the fruit: Form roundish oblate or oblate; size medium to above medium; weight 12 to 15 ounces, length 3¼ inches; greatest breadth 3⅜ to 3⅝ inches; base rounded,

44625 to 44628—Continued.

the very short, stout stem inserted without depression and almost squarely; apex flattened, not depressed; fruits borne singly or in clusters of two to six; surface almost smooth or very lightly pebbled, deep purple in color, glossy, with very numerous minute yellowish dots; skin thin for this race, one-sixteenth of an inch at apex and slightly less toward the base of the fruit, pliable, peeling readily; flesh firm, smooth, rich cream yellow changing to pale green near the skin, free from fiber or discoloration, and of rich, pleasant flavor; quality excellent; seed roundish oblate, variable in size, weighing 1¾ to 3, commonly 2, ounces, tight in the cavity, with both seed coats adhering closely to the cotyledons." (*Popenoe.*)

See also Exploring Guatemala for Desirable New Avocados, Annual Report of the California Avocado Association, 1917, p. 128, fig. 24; reprint, 1918, p. 25, fig. 24; and The Avocado in Guatemala, U. S. Department of Agriculture Bulletin No. 743, p. 55.

For an illustration of fruits of the Tumin avocado, see Plate VI.

44628. "(No. 114. Avocado No. 19.) *Hunapuh.* From the finca La Polvora in Antigua, Guatemala. Altitude approximately 5,100 feet.

"A fruit of large size and attractive appearance, with a comparatively small seed. The quality, while fairly good, did not seem to be up to the standard of those included in the Guatemalan collection, hence the variety is not recommended for general distribution with the rest. However, on the possibility that it may prove to be of better flavor when grown under more favorable conditions, bud wood has been sent in for trial at the Plant Introduction Garden, Miami, Fla., and perhaps at one or two places in California.

"Form obovoid to ovoid; size extremely large, weight 1½ to 1¾ pounds, length 5 to 5¼ inches, greatest breadth 4 inches; base rounded, the very short, stout stem inserted without depression, slightly oblique; apex rounded, very slightly depressed close to the stigmatic point; surface almost smooth to lightly pebbled, dull purple in color, with numerous minute yellowish dots; skin thick, one-eighth of an inch toward the apex of the fruit, slightly less near the base, coarsely granular, brittle; flesh firm, creamy yellow in color, changing to pale green near the skin, free from fiber and with very slight discoloration, the flavor pleasant but not very rich; quality fair to good; seed oblong conic, rather small, weighing 2 ounces, tight in the seed cavity, with both seed coats adhering closely; season early to midseason or rather late, February to June." (*Popenoe.*)

44629 to 44637. AMYGDALUS PERSICA L. Amygdalaceæ. **Peach.**
(*Prunus persica* Stokes.)

From Genoa, Italy. Obtained through Mr. David F. Wilber, American consul general. Received April 26, 1917.

Seeds of the following varieties of peaches were obtained in response to a request from Mr. W. F. Wight, of the Office of Horticultural and Pomological Investigations, for botanical study and breeding experiments.

44629. *Bascina di Polcevera* (from Cesino). August.

44630. *Bascina di Polcevera* (from Livellato). August.

44631. *Gialla di Cesino* (Cesino Yellow). August.

44629 to 44637—Continued.

44632. *Gialla Grigui* (Yellow Grigui from S. Cipriano). August.

44633. *Grigui* (from S. Cipriano.) Early.

44634. *Rossa Bascina Tardiva* (Late Bascina from Maneseno, S. Cipriano, Vallee Calda).

44635. *Rossa Combi di Comago* (Red Combi from Comago). Early.

44636. *Rossa Tardiva Grigui* (Late Red Grigui from S. Cipriano).

44637. *Trionfo Primaticcia* (Early Triumph). "Light yellow pulp, fruit maturing in June. Tree large and prolific." (*Fratelli Ingegnoli, Catalogo Generale, 1914, p. 79.*)

44638 to 44648. RIBES spp. Grossulariaceæ.

From Saonara (Padua), Italy. Plants purchased from Fratelli Sgaravatti. Received April 26, 1917.

44638 to 44640. RIBES NIGRUM L. **Black currant.**

44638. *Cassis Gialla.* "Medium-sized fruit, yellowish brown." (*Sgaravatti catalog.*)

44639. *Neapolitana* (*Bang Up*). A strong-growing, moderately productive black currant, with rather large fruits in medium-sized bunches. The flavor is briskly subacid, and the quality a little above the average. (Adapted from *Macoun, Bulletin 56, Central Experiment Station, Ottawa, Canada.*)

44640. *Regina Vittoria.* (*Victoria.*) A rather vigorous, moderately productive, rather late black currant, with large or very large thick-skinned subacid fruits in large bunches. The quality is good, but the fruit ripens somewhat unevenly. (Adapted from *Macoun, Bulletin 56, Central Experiment Station, Ottawa, Canada.*)

44641 to 44648. RIBES VULGARE Lam. **Garden currant.**

44641. *Bella di Versaglia rossa* (red). "Long bunches, fruit large." (*Sgaravatti catalog, October, 1908.*)

44642. *Bella di Versaglia bianca* (white). "Long bunches, fruits large." (*Sgaravatti catalog, October, 1908.*)

44643. *Carnea.* "Red, lax." (*Sgaravatti catalog, October, 1908.*)

44644. *Ciliegia a frutto rosso* (red-fruited cherry).

44645. *D'Ollana bianca* (White Dutch). A moderately productive, fairly vigorous, white currant with uneven, pleasantly acid fruits in large, well-filled bunches. (Adapted from *Macoun, Bulletin 56, Central Experiment Station, Ottawa, Canada.*)

44646. *D'Ollana rossa* (Red Dutch). A vigorous, spreading, very productive red currant with small to medium-sized acid fruits in large bunches. (Adapted from *Macoun, Bulletin 56, Central Experiment Station, Ottawa, Canada.*)

44647. *Grossa bianca de Werder* (Werder's large white).

44648. *Grossa perla rossa* (large pearl red).

44649 to 44657. AMYGDALUS PERSICA L. Amygdalaceæ. Peach.

(*Prunus persica* Stokes.)

From Palermo, Italy. Obtained through Mr. Samuel H. Shank, American consul. Received April 25, 1917.

These peach varieties were sent in response to a request for peach seeds for the botanical studies and breeding experiments of the Office of Horticultural and Pomological Investigations.

44649. *Fragolara.* From the Macchiarelle estates. Early.

44650. *Fragolara selvatica.* From garden at Bagheria.

44651. *Manilina.* From Passo di Rigano, near Morano. Early.

44652. *Manilina.* From garden of Rossi Ignacio. Early.

44653. *Pesca agostina* (August peach). From garden at Trabia. Good quality. Native name *Servaggia tardia* (late servaggia).

44654. *Pesca Martorana.* From garden at Trabia. Good quality.

44655. *Pesca Martorana.* From garden at Ficorotti, near Macchiarelle.

44656. *Rossa Martorana* (red Martorana). From gardens at Macchiarelle and Ficorotti.

44657. *Settembrino* (September). From Scillata. Collected by Prof. Accarati.

44658 and 44659. ROLLINIA MUCOSA (Jacq.) Baill. Annonaceæ. Biribá.

From Para, Brazil. Presented by Dr. J. Simão da Costa. Received April 26, 1917.

Two separate packages. "I can not assert that they are different varieties, but the outward appearance of the fruits from which they were extracted was so different that I thought I would send them separately." (*Da Costa.*)

A small tree, with oblong, pointed leaves and compound, fleshy fruits with glabrous tubercled skins and edible, viscous pulp of rather poor flavor; it resembles the common custard-apple, *Annona reticulata*, in habit. Native of the island of Martinique, French West Indies. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 5, p. 2975.*)

44658. No. 1. **44659.** No. 2.

44660 to 44670.

From Nanking, China. Presented by Prof. Joseph Bailie, of the University of Nanking. Received April 27, 1917.

44660. ACER BUERGERIANUM Miquel. Aceraceæ. Maple.
(*A. trifidum* Hook. and Arn., not Thunb.)

"Collected in open land, Nanking, December, 1916. Chinese name *Ya fêng* (forked maple)." (*Bailie.*)

A large tree, with glabrous branches, 3-lobed, bright-green, papery leaves with entire margins; inconspicuous greenish flowers appearing at the same time as the leaves; and glabrous fruits up to 2 cm. (four-fifths of an inch) in length. (Adapted from *Koidzumi, Journal of the College of Science, Imperial University of Tokyo, vol. 32, pt. 1, p. 29, pl. 17.*)

44660 to 44670—Continued.

44661. ALEURITES FORDII Hemsl. Euphorbiaceæ. **Tung-oil tree.**

Collected on a mountain, Chekiang, November 14 to 30, 1916. Chinese name *Yu t'ung*." (*Bailie.*)

"A rapid-growing, broad-leaved deciduous tree which attains a height of 25 to 35 feet. It is said to be comparatively short lived. Clusters of pinkish white flowers are produced just as the leaves begin to come out in the spring and are followed by green or reddish fruits somewhat larger than the fruit of the black walnut. The fruits contain the large nutlike oily seeds from which tung oil, a valuable drying oil, is expressed. The oil constitutes about 24 per cent (by weight) of the seeds, or about 40 per cent of the kernels from which the shells have been removed. The tree appears to be particularly well adapted to the sandy clay soils and climate of northwestern Florida and the adjacent regions of Alabama and Georgia." (*R. A. Young.*)

44662. QUERCUS sp. Fagaceæ. **Oak.**

"From Anhwei, November 14 to 30, 1916. Collected by students of Nanking University." (*Bailie.*)

44663. CASTANOPSIS SCLEROPHYLLA (Lindl.) Schottky. Fagaceæ.
(*Quercus sclerophylla* Lindl.)

"From grave land on a mountain, Chekiang, November 14 to 30, 1916. Obtained from natives by students of the university. Chinese name *K'u chu tzŭ* (bitter acorn)." (*Bailie.*)

An evergreen tree 25 to 65 feet tall, growing in the woods of Hupeh and Chekiang, China, at altitudes up to 1,500 m. (5,000 feet). It is a handsome tree with nearly smooth, dark-gray bark and a densely branched flattened crown. The natives gather the nuts and crush them, making an edible paste resembling bean curd in appearance and the chinkapin in flavor. (Adapted from *Sargent, Plantae Wilsonianae, vol. 3, p. 201.*)

44664. CATALPA BUNGEI Meyer. Bignoniaceæ.

"From open land, Chekiang, China, November 14 to 30, 1916. Chinese name *Tzŭ*." (*Bailie.*)

A quick-growing Chinese tree, up to 100 feet in height, with a trunk 10 to 15 feet in circumference a few feet above the ground. The wood, which is strong, light, durable, and nonwarping, resembles walnut to a large extent and is in much demand for fine furniture. The tree might be cultivated in the semiarid sections of the United States where the winters are not too severe. It prefers a porous soil and is easily propagated from suckers which spring up from the roots that are near the surface of the ground. (Adapted from a *note of Frank N. Meyer* under *S. P. I. No. 38254.*)

44665. BELIS LANCEOLATA (Lamb.) Sweet. Pinaceæ.
(*Cunninghamia sinensis* R. Br.)

"Collected on a mountain, Chekiang, November 14 to 30, 1916. Chinese name *Shan shu* (pine tree)." (*Bailie.*)

"This handsome tree is found all over the temperate parts of China from sea level up to 2,000 m. altitude, but does not occur where the winters are severe. It is abundant in Fukien, Hunan, Hupeh, and more especially in western Szechwan, where it is partial to red sandstone and forms pure forests. The trunk is mastlike; and the branches are

44660 to 44670—Continued.

numerous, slender, short, and horizontally spreading, giving a lax pyramidal appearance to the tree. The leaves, usually dark green above, are frequently more or less glaucescent. After trees are felled sprouts spring from the old stumps and develop into new trees. This peculiarity explains why this tree is still common in regions near densely populated areas.

"Cunninghamia is the *Shan shu* of the Chinese and is esteemed the most useful of all their timber trees. The wood is fragrant, soft, and easily worked; and it is extensively employed in all branches of carpentry, in general construction work, for pillars and planking, and as masts for native boats. It is also the principal coffin wood of central and western China, the fragrant properties being considered to act as a preservative. In parts of western Szechwan, notably in the Chienchang Valley, and in the valley of the Tung River a few days' journey west of Fulin, whole forests of this tree were engulfed by an earthquake two or three centuries ago. The wood of these trees is to-day mined and furnishes the most valuable of all coffin material. From these logs, known as *Hsiang-mu* (fragrant wood) or *Yin-chén-mu* (long-buried wood), planks of huge size can be cut, and a coffin made of them sells for a thousand to fifteen hundred ounces of silver. This buried wood is pale brown, close in texture, but easily worked and pleasantly fragrant. Trees of this conifer equaling in size those buried giants can not be found in China to-day except as rare and isolated specimens associated with temples or shrines." (*Sargent, Plantae Wilsonianae, vol. 2, p. 51.*)

44666. LIQUIDAMBAR FORMOSANA Hance. Hamamelidaceæ.

"From open land, Checkiang, November 14 to 30, 1916. Chinese name *Fêng hsiang* (fragrant maple)." (*Bailie.*)

A handsome tree 20 to 40 m. (65 to 130 feet) in height, with a straight trunk, a much-branched head, and, frequently, buttressed roots. The leaves turn to a chestnut brown or red in the autumn and are retained late into the winter. In juvenile plants the leaves are five lobed, while in the adult trees the leaves are only three lobed and are smaller. In Kiangsi the wood is used for making tea chests. This is one of the most widely distributed trees in China, being particularly abundant in western Hupeh. It is cultivated in Japan. (Adapted from *Sargent, Plantae Wilsonianae, vol. 1, p. 421.*)

44667. PLATYCARYA STROBILACEA Sieb. and Zucc. Juglandaceæ.

"Collected on a mountain, Anhwei, November 14 to 30, 1916, by students of the university. Chinese name *Hua kuo shu.*" (*Bailie.*)

A bush, small tree, or rarely a tree up to 65 feet in height, with thick, dark, and deeply furrowed bark. The branches are moderately thick and form a rounded or flattened head. The leaves, which are 8 to 12 inches long, are composed of 9 to 17 sessile, doubly serrate leaflets; the fruiting cones are oval, brown, and up to 1½ inches in length. In Hupeh, China, a black dye for cotton is prepared from the fruit. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 5, p. 2708,* and from *Sargent, Plantae Wilsonianae, vol. 3, p. 180.*)

44668. QUERCUS sp. Fagaceæ. **Oak.**

"From Kiangsi, November, 1916. Collected by Miss Holt." (*Bailie.*)

As many Chinese oaks have proved hardy and desirable trees in the United States, this may also prove of value.

44660 to 44670—Continued.

44669. QUERCUS VARIABILIS Blume. Fagaceæ. **Oak.**

"Bought from natives, Anhwei, November 14 to 30, 1916. Chinese name *Ma li* (hemp chestnut)." (*Bailie.*)

A large tree, up to 25 m. (80 feet) in height, in mixed woods or forming pure stands at altitudes of 800 to 1,600 m. (2,600 to 5,200 feet) in central and western China. It has handsome, pale-gray, deeply furrowed bark, dark-green, crenately serrate leaves with bristlelike teeth, and almost sessile roundish acorns. This oak has proved hardy in Massachusetts and western New York. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 5, p. 2885,* and from *Sargent, Plantae Wilsonianae, vol. 3, p. 219,* where it is doubtfully referred to *Q. variabilis.*)

44670. TRACHYCARPUS EXCELSUS (Thunb.) Wendl. Phœnicaceæ. **Palm.**

"From open land in a vegetable garden, Chekiang, November 14 to 30, 1916. Obtained by forestry students of the university. Chinese name *Tsung lü* (tree whose bark furnishes clothes for poor people)." (*Bailie.*)

A tall, robust, unarmed palm, clothed by the old leaf sheaths, with large, fan-shaped, finely cut leaves which eventually become 4 or 5 feet wide. The flowers are small, clustered two to four on tubercles in the leaf axils, and the fruits are roundish drupes. This ornamental palm is native to China, but is cultivated in many places in Asia and will grow in the open in the southern United States as far north as Georgia. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 6, p. 3362,* and from *Flore des Serres et des Jardins de l'Europe, vol. 22, p. 207.*)

44671 to 44673. ANNONA (CHERIMOLA × SQUAMOSA) × RETICULATA. Annonaceæ. **Cuatemoya.**

From Lamao, Philippine Islands. Cuttings presented by Mr. P. J. Wester, horticulturist in charge of the Lamao Experiment Station. Received May 7, 1917.

The following hybrids were obtained by the pollination of an atemoya (*A. cherimola* × *squamosa*) by a custard-apple (*A. reticulata*). The fruit is well shaped but rather small, about the size of a sugar-apple, with a yellowish green, almost glabrous surface, very thick, tough skin, and white, tender, melting, juicy, subacid, aromatic flesh of excellent flavor. (Adapted from *Wester, Philippine Agricultural Review, February, 1914.*)

44671. No. 3685–1.

44672. No. 3685–2.

44673. No. 3685–16.

44674 and 44675. PYRUS spp. Malaceæ. **Pear.**

From Ningpo, China. Cuttings obtained by Rev. L. C. Hylbert, American Baptist Mission, through Rev. G. W. Sheppard, English Methodist Mission. Received May 3, 1917.

These cuttings were sent in response to a request for propagating material of certain pear trees from the island of Chusan which produce immense fruit. Mr. Hylbert reports that "the cuttings were secured from a gentleman's garden and are said to be beyond price."

44674. No. 1.

44675. No. 2.

44676. ILEX PARAGUARIENSIS St. Hil. Aquifoliaceæ. **Yerba maté.**

From Oran, Salta, Argentina. Presented by Mr. S. W. Damon. Received June 30, 1917.

"Var. *alba de Llamas.* For planting these seeds, deep, porous, well-sifted earth should be prepared. The surface of the soil should be perfectly level. Sow in lines fairly well spaced, covering with half an inch of finely powdered earth containing much humus. Keep the planting with not less than 18 per cent or more than 32 per cent moisture. When the first young growth is noted protect it from the direct rays of the sun. Seeds will take from 6 to 12 months to germinate. The young plants need a damp soil and atmosphere and much protection from the direct rays of the sun, as they are very delicate until 2 years old. The plant requires a mean annual temperature of about 72° F. These seeds came from what is considered the best plantation in the world." (*Damon.*)

44677 and 44678.

From Yunnanfu, Yunnan Province, China. Purchased from Mr. Frank Pilson. Received June 25, 1917.

44677. DOCYNIA DELAVAYI (Franch.) C. Schneid. Malaceæ.

"*To-i.* Wild pear." (*Pilson.*)

An ornamental, evergreen, spiny tree, up to 30 feet in height, with glossy, ovate-lanceolate leaves, 2 to 4 inches long, and umbels of white flowers which appear in the spring. The fruit is an ovoid pome about an inch long. The tree is a native of southwestern China and has recently been introduced into the subtropical regions of the United States. The fruits are more or less acid and are used for cooking. They could possibly be improved by selection and hybridization. The tree is propagated by seeds and might possibly be grafted on apple stock. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 1063.*)

44678. QUERCUS sp. Fagaceæ. **Oak.**

"I sent back to Szemao to get acorns of *Quercus rex.* Talifu is 14 days from here by sedan chair and Szemao 20, so that I found it necessary to enlist the aid of friends in securing these seeds." (*Pilson.*)

Received as *Quercus rex*, but the material does not agree with that of this species previously received.

44679 to 44681. PERSEA AMERICANA Mill. Lauraceæ. **Avocado.**
(*P. gratissima* Gaertn. f.)

From Guatemala. Bud wood collected by Mr. Wilson Popenoe, agricultural explorer. Received April to June, 1917.

44679. "(Nos. 98, 158, 177. Avocado No. 22.) *Kekehi.* A remarkable little fruit, valuable not only for its earliness but also for its productiveness and good quality. It commences to ripen in December, at least two months before most of the other avocados in the same region. Though small in size, the seed is proportionately small, leaving a good amount of flesh of excellent quality. It has a very long ripening season, which suggests its use as a variety for the home garden.

"The parent tree is growing in a sitio belonging to Santiago Mendoza, in the town of Purula, Department of Baja Vera Paz, Guatemala. The altitude is approximately 5,150 feet. The soil is a heavy clay loam. The tree stands on a slope, in the midst of a small patch of maize (Indian corn). It is about 35 feet in height, with a trunk 2 feet

44679 to 44681—Continued.

thick at the base, branching about 10 feet from the ground. The crown is broad and spreading, but sparsely branched. To judge from the size of the tree it must be at least 30 or 40 years old. It seems to be a vigorous grower, the branchlets being stout, well formed, and of good length. The bud wood furnished by this tree is quite satisfactory, having well-developed eyes which do not show a tendency to drop and leave a blind bud. The tree is uncared for and has much dead wood in it.

"While Purula is scarcely higher than Antigua, it has a colder climate. It is not, however, sufficiently cold to test the hardiness of avocado trees of the Guatemalan race.

"The tree has not been seen in bloom, but probably flowers about February. In good seasons it carries an enormous crop of fruit. This would be expected of a small-fruited variety. The first fruits turn color about the first of December and can then be picked. The height of the season, however, is not until February, at which time the fruits are fully mature. If allowed to remain on the tree, many of them hang until April or May.

"The fruit is pear shaped or obovoid, small, weighing not over 6 ounces (it will probably weigh more when grown under cultivation in California and Florida), somewhat rough on the surface, and maroon colored. The skin is thick and woody. The flesh is yellow, sometimes slightly discolored with fiber streaks, but with no objectionable fiber. The flavor is rich and pleasant. The seed is medium sized in comparison with the size of the fruit. In comparison with the seeds of most other 6-ounce fruits it would be called small.

"The variety may be formally described as follows: Form broadly obovoid to pyriform; size small, weight 5 to 6 ounces, length 3¼ to 3½ inches, greatest breadth 2⅜ to 2¾ inches; base tapering, the moderately stout stem, which is 5½ inches long, being inserted slightly obliquely without depression; apex rounded or almost imperceptibly flattened; surface rough, deep dull purple-maroon or purple in color, with rather few small russet dots; skin thick, one-sixteenth of an inch at base, nearly one-eighth of an inch toward the apex of the fruit, coarsely granular and woody in texture; flesh rich cream yellow, changing to pale green near the skin, sometimes marked with fiber traces but without any tough fibers, melting and buttery in texture, of very rich and agreeable flavor; quality very good; seed roundish oblate, small to medium in size, weighing less than 1 ounce, tight in the seed cavity, with both seed coats adhering closely." (*Popenoe.*)

See also Exploring Guatemala for Desirable New Avocados, Annual Report of the California Avocado Association, 1917, p. 130, fig. 26; reprint, 1918, p. 25, fig. 26; and The Avocado in Guatemala, U. S. Department of Agriculture Bulletin No. 743, p. 58, pl. 19.

44680. "(Nos. 99, 159, 178. Avocado No. 23.) *Mayapan.* This variety possesses several excellent commercial characteristics—round form, desirable size (nearly 1 pound), attractive purple color, thick, firm skin, and flesh of excellent quality. In this latter respect it is one of the very best varieties in the collection. The seed is not large and the tree is very productive. It seems a very promising avocado.

"The parent tree is growing in a sitio owned by Arcadio Saguirre, but now occupied by Eusebio Guzman, in the town of Purula, Depart-

44679 to 44681—Continued.

ment of Baja Vera Paz, Guatemala. The altitude of this town is approximately 5,150 feet. The soil is a heavy clay loam, black, very fertile, and retentive of moisture. The tree stands at the rear of a small garden, close to a hedge of chichicaste (*Loasa speciosa*). It is slender, apparently not more than 15 to 20 years old, about 40 feet high, with a trunk 1 foot thick at the base. The crown is slender, but well branched, with an abundance of fruiting wood. The young growths are quite vigorous and shapely, indicating that the variety will probably be a good grower. The bud wood from the parent tree is satisfactory, the branchlets being of good length, round, smooth, with the eyes well placed, strong, and not inclined to fall early. If the young trees show a tendency to grow tall and slender, they can easily be kept in hand by judicious pruning.

"The climate of Purula is colder than that of Antigua, though the altitude is about the same. It is not sufficiently cold, however, to test the hardiness of avocados of the Guatemalan race. It must be assumed that this variety is of average hardiness until it can be put to a test in the United States.

"The flowering season of the parent tree is in March and early April. It blooms profusely and sets a heavy crop of fruit. The crop produced in 1917 from the 1916 blooms was very heavy, and another equally heavy crop was set from the 1917 blooms. The productiveness of the variety gives promise of being well above the average. The ripening season commences about the middle of March and extends to the first of July. It can probably be considered midseason or slightly later than midseason.

"The fruits are of attractive round form, nearly a pound in weight, with a slightly rough surface of purple color. The skin is much thicker than the average, but not very brittle. The flesh is rich yellow in color, absolutely free from discoloration of any sort, dry and oily, cutting like soft cheese. The flavor is exceptionally rich and nutty. The seed is rather small and is tight in the cavity. The size of the fruit conforms admirably to hotel and restaurant requirements, where it is desired to serve a half fruit as a portion, and the quality is so unusually good that it would seem that this variety is of exceptional promise.

"Following is a formal description of the fruit: From spherical to roundish obovoid, sometimes slightly oblique; size medium to above medium, weight 13 to 16 ounces, length 3¾ to 4 inches, greatest breadth 3½ to 3¾ inches; base rounded or obscurely pointed, the stem rather slender, 7 inches long, inserted obliquely, without depression; apex rounded or slightly flattened obliquely; surface decidedly rough, greenish purple to dull purple in color, with numerous large greenish yellow dots; skin very thick, varying from as much as three-sixteenths of an inch near the stem, where it is thickest, to somewhat more than one-sixteenth of an inch near the apex, coarsely granular in texture, woody, but separating readily from the flesh at the right stage of ripeness; flesh rich cream yellow in color, without fiber discoloration, firm, meaty, of rich and pleasant flavor; quality excellent; seed oblate-spherical to spherical in form, medium sized, weighing 1⅛ to 2 ounces, tight in the cavity, with both seed coats adhering closely to the smooth cotyledons." (*Popenoe.*)

44679 to 44681—Continued.

See also Exploring Guatemala for Desirable New Avocados, Annual Report of the California Avocado Association, 1917, p. 131, fig. 27; reprint, 1918, p. 25, fig. 27; and The Avocado in Guatemala, U. S. Department of Agriculture Bulletin No. 743, p. 59, pl. 20.

44681. "(Nos. 100, 160. Avocado No. 25.) *Kayab.* This is a variety of excellent quality and desirable shape. It resembles the Florida *Trapp* and the *Chisoy* (S. P. I. No. 43935) of this collection in form and size. Some of the specimens examined had large seeds, but the best ones had seeds which could be termed medium sized or almost small in comparison with the size of the fruit. In small specimens of any variety the seed commonly appears large. This variety was not studied as thoroughly as some of the others, but it is considered well worthy of a trial in the United States.

"The parent tree is growing in the cafetal of Francisco Muus called 'Chiquitop' (Tres Chorros in Spanish), in the edge of the town of San Cristobal, Department of Alta Vera Paz, Guatemala. The altitude is about 4,600 feet. The soil is heavy reddish clay, which is very tenacious when wet. The tree stands among coffee bushes 6 to 8 feet high. It is about 40 feet in height, with the trunk 18 inches thick at the base, branching 12 feet from the ground. The crown is broad and spreading, well branched and dense. The branchlets are rather short, but of good appearance, being well formed and stout. The bud wood is good, but it is difficult to get long bud sticks from the parent tree. The eyes are well developed and do not drop early.

"Varieties growing at this altitude in Guatemala are not subjected to severe frosts; hence, there is no way of telling whether they are hardier than the average until they are tested in the United States.

"The tree probably flowers in late February and March. It is said to fruit heavily, but at the time it was examined in 1917 only a few fruits were left on it. The ripening season is from February to May, which is about the main season for avocados at San Cristobal.

"The fruit is round, about a pound in weight, yellowish green in color, with a moderately thick skin. The flesh is yellow, clear, dry, of very rich flavor, and free from any discoloration. The seed is medium sized in large specimens, being rather large in some of the smaller specimens examined. In many instances the seed is placed to one side of the center of the fruit.

"A formal description of the fruit follows: Form obliquely spherical, sometimes slightly narrowed toward the base; size medium to very large; weight 14 to 20 ounces, length 3¾ to 4 inches, breadth 3⅝ to 4 inches; base slightly flattened, oblique, the stem inserted obliquely without depression; apex obliquely flattened; surface pebbled, most conspicuously so around the base of the fruit, deep green to yellowish green in color, almost glossy with numerous small russet or yellowish dots; skin moderately thick, one-sixteenth to one-eighth of an inch, hard and woody; flesh cream yellow in color, without fiber or discoloration, firm, dry, of very rich flavor; quality excellent; seed medium sized, weighing about 2 ounces, sometimes excentric, tight in the seed cavity, with both seed coats adhering closely to the cotyledons." (*Popenoe.*)

See also Exploring Guatemala for Desirable New Avocados, Annual Report of the California Avocado Association, 1917, p. 132, fig. 28; reprint, 1918, p. 25, fig. 28; and The Avocado in Guatemala, U. S. Department of Agriculture Bulletin No. 743, p. 60.

44682. PERSEA SCHIEDEANA Nees. Lauraceæ. **Coyó.**

From Guatemala. Bud wood collected by Mr. Wilson Popenoe, agricultural explorer. Received April 26, 1917.

"In the mountains of northern and eastern Guatemala there grows a fruit closely resembling the avocado yet sufficiently different in foliage and flower to indicate that it is a distinct species. In eastern Guatemala, around Zacapa, Gualan, Chiquimula, and El Rancho, it is called *shucte, chucte,* or sometimes *chaucte,* while in the northern part of the Republic, immediately across the great Sierra de las Minas, it is known under the names *coyó* and *coyocté.* These latter names have been thought by some to indicate two distinct fruits, perhaps distinct species, but an examination of several trees in the Alta Vera Paz shows that they are in reality the same. Apparently the Indians call the cultivated fruit (for it is often grown in their gardens and around their huts) *coyó,* and the wild tree, which is abundant in the mountains, *coyocté.* The suffix *té* in the Kekchi language is said to mean tree; coyocté would therefore mean nothing more than coyó tree.

"In some sections of the Alta Vera Paz the coyó is fully as common as the avocado and seems to be held by the Indians in practically the same high esteem. An American coffee planter who lives in this region tells me that he considers the coyó even superior to the avocado in flavor, and after testing it I am inclined to agree with him.

"The coyó must be considered, then, an unusually interesting new fruit, but it has certain defects which make it seem, on the whole, inferior to the avocado. It has, for example, a large seed in most cases, and the flesh is sometimes disagreeably fibrous. But it is quite variable, like its relative the avocado, and some coyós are much superior to others.

"The coyó tree looks, at first glance, much like an avocado tree and usually reaches about the same size. It is distinguishable from the avocado by the character of its leaves which, upon close examination, differ from those of the avocado in form, are larger, and have more or less brownish pubescence on the lower surface, especially along the midrib. The flowers, when seen from a distance, look like those of the avocado.

"The fruits are remarkably similar in general appearance to avocados of the West Indian race, such as are grown in Florida. Like avocados, they vary greatly in form. Most commonly they are pyriform, with a well-defined neck, but they are sometimes obovoid, sometimes broadly pyriform, and sometimes long and slender. They are also quite variable in size, but the majority seem to be from three-quarters of a pound to 1½ pounds in weight. I have heard of coyós weighing 2 to 3 pounds. The surface is about as smooth as that of a West Indian avocado and often of similar color, yellowish green, but sometimes it is purplish or bronze. The skin is thicker than that of any of the avocados except those of the Guatemalan race; it is not hard, however, as in the latter, but leathery and pliable. Frequently it adheres to the flesh, which is of a peculiar brownish white color, gives off a milklike juice when squeezed, and is of fine, oily texture like the flesh of an avocado. Usually there are numerous fibers running through the flesh, although some coyós are said to be practically free from fiber. The flavor is strongly suggestive of the avocado, being of the same rich, nutty character, but is nevertheless distinct; it has a richness and nuttiness of its own, which suggest to me the flavor of a ripe coconut. The seed is larger in comparison to the size of the fruit than it is in the best of our budded varieties of the avocado, but it is no larger than in many seedling avocados. In general appearance it resembles an avocado seed, but the cotyledons when cut are a dull rose pink instead of whitish. The

flesh often adheres closely to the seed, making it difficult to prepare the coyó for eating. I have seen some fruits, however, in which the two halves could be separated, leaving a cavity in which seasoning can be placed.

"The coyó is used by the Indians of Guatemala in the same manner as the avocado, which is to say that it is eaten out of hand, without the addition of seasoning of any sort, and frequently to the accompaniment of tortillas—thin, round cakes made from Indian corn, which are a staple article of diet throughout this part of Central America. I have not yet experimented to see how the coyó tastes when prepared in salads or seasoned with vinegar, salt, and pepper, but I have found it excellent when diced and eaten in bouillon, as is often done with the avocado by Guatemalans of the upper classes. To me its flavor is decidedly agreeable, and a good coyó, free from fiber and with a seed not too large in proportion to the size of the fruit, would impress me as a worthy rival of the avocado.

"The tree grows under a variety of conditions. In the valley of the Motagua River, near Zacapa and El Rancho, it is found near the banks of streams. The air in these regions is exceedingly hot and dry during a large part of the year, and the hillsides are covered with typical desert vegetation—cacti, euphorbias, thorny leguminous shrubs, and small trees. Contrasted with these conditions, the upper Polochic Valley, in Alta Vera Paz, where the coyó is exceedingly abundant, is a very moist region with rainfall, as the inhabitants state, 'thirteen months in the year.' In this part of Guatemala I have seen coyós at altitudes well above 5,000 feet. Like the Guatemalan race of avocado, it is very abundant from 4,000 to 5,000 feet, but unlike the latter it seems also to do very well at lower altitudes and is found around Zacapa at altitudes of 500 feet above the sea, where the Guatemalan race of avocados is usually replaced by the West Indian.

"To judge from its behavior in Guatemala, the coyó ought to be successful in both California and Florida. During the coming summer I hope to make a search for superior trees and to obtain bud wood for introduction into the United States. The season of ripening is from June to August in the lowlands and from August to October or even November in the highlands. There are thousands of trees in Alta Vera Paz, and it should certainly be possible to find among them a few superior ones well worthy of propagation.

"In the coyó we have a fruit new to North American horticulture, yet one which is grown by the Indians of northern Guatemala as extensively as the avocado and apparently looked upon by them as almost its equal. When good varieties have been obtained and propagated by budding, it seems reasonable to expect that the coyó will find a place in the orchards of the United States throughout approximately the same belt in which the avocado is grown." (*Popenoe.*)

For an illustration of the coyó fruits, see Plate VII.

See also The Avocado in Guatemala, U. S. Department of Agriculture Bulletin No. 743, p. 37.

44683 and 44684.

From Guatemala. Cuttings collected by Mr. Wilson Popenoe, agricultural explorer. Received April 26, 1917.

44683. POLYGALA FLORIBUNDA Benth. Polygalaceæ. **Chupak.**

"(No. 102. From Chitzuhai, near Tactic, Alta Vera Paz. April 17, 1917.) A handsome flowering shrub found in the gardens of the Indians in the settlement called Chitzuhai, about 5 miles north of the town of

44683 and 44684—Continued.

Tactic, in the Department of Alta Vera Paz. Since the altitude is about 6,000 feet, the plant should be slightly hardy, and may succeed in California as well as in Florida. It reaches a height of about 8 feet; its leaves are narrow and about 3 inches long; the flowers are borne in long spikes and are individually about half an inch in diameter and bright purple in color. The plant is used by the Indians in place of soap; the leaves when macerated in water making green suds." (*Popenoe.*)

44684. RONDELETIA RUFESCENS Robinson. Rubiaceæ.

"(No. 103. From Chitzuhai, near Tactic, Alta Vera Paz. April 17, 1917.) A handsome pink-flowered shrub from the mountains north of Tactic, near the settlement of Chitzuhai, Alta Vera Paz, at an altitude of more than 6,000 feet. This plant grows among second-growth timber, where there is an abundance of sunlight. It is slender in habit, reaching a height of 8 feet or more, and bears large corymbs of small, exceedingly fragrant flowers of a delicate shell-pink color. It seems well worthy of a trial in California and Florida." (*Popenoe.*)

44685. ASTILBE TAQUETI Vilm. Saxifragaceæ.

From Paris, France. Plants purchased from Vilmorin-Andrieux & Co. Received May 16, 1917.

A very robust perennial herb, 2 to 2½ feet in height, with tripinnate, finely and doubly dentate leaves, and panicles of reddish purple flowers borne on stout flowering stems in July. The flowering stems are covered with long red hairs which are especially abundant on young growth. The plant may be propagated from the abundant seeds, but if placed near closely related species there would be danger of hybridization. (Adapted from *Revue Horticole, December 16, 1916.*)

44686 to 44688.

From China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received at the Plant Introduction Garden, Chico, Calif., April 21, 1917. Quoted notes by Mr. Meyer.

44686. AMYGDALUS DAVIDIANA (Carr.) Zabel. Amygdalaceæ. **Peach.**
(*Prunus davidiana* Franch.)

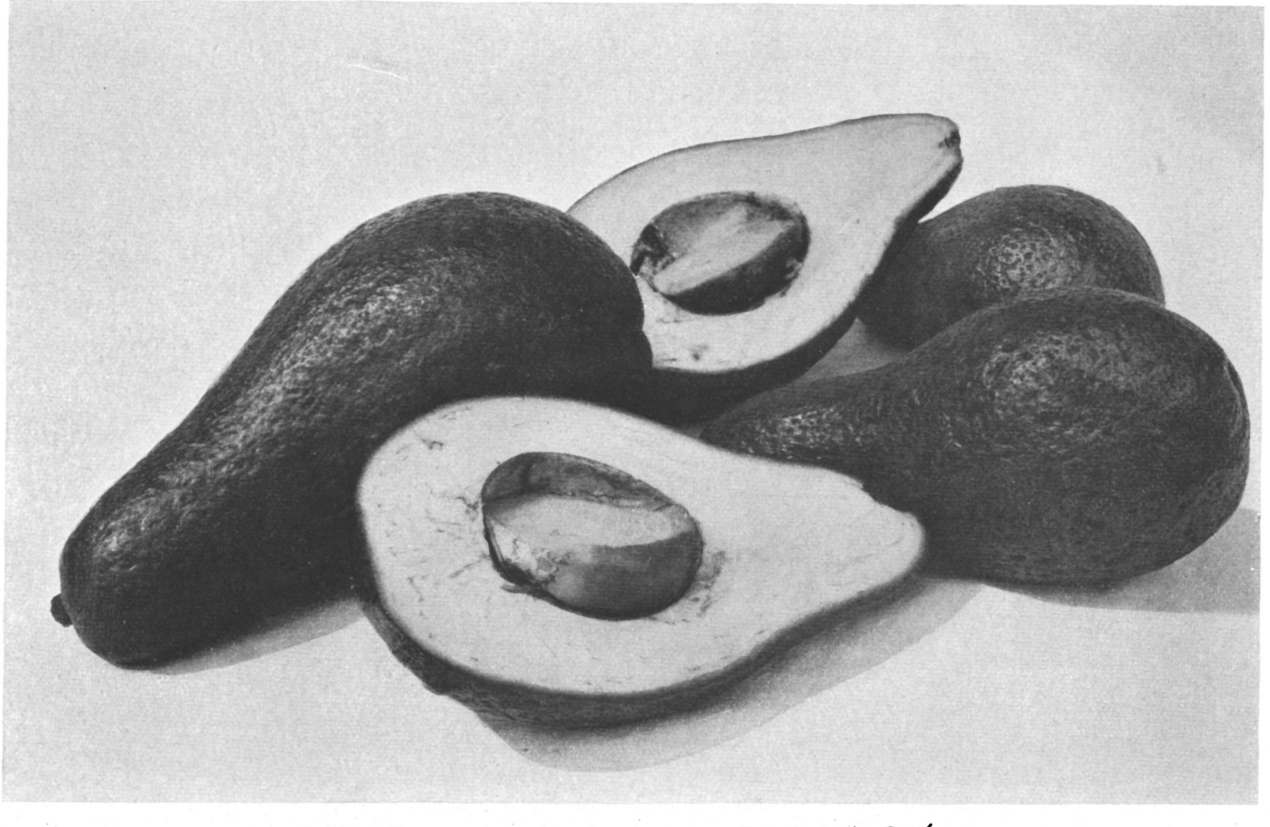
"(No. 2328a. Peking, China, December 15, 1916.) Stones of the *davidiana* peach gathered in Chihli Province by various Chinese collectors and purchased from them. To be grown as stock for various stone fruits in the semiarid regions in the United States."

44687. ZIZIPHUS JUJUBA Mill. Rhamnaceæ. **Jujube.**
(*Z. sativa* Gaertn.)

"(No. 2329a. Peking, China, December 16, 1916.) Small dried jujube fruits, selected for good kernels, purchased in the open market at Peking. To be grown for stocks for improved varieties."

44688. DIOSPYROS LOTUS L. Diospyraceæ. **Persimmon.**

"(No. 2331a. Peking, China, December 16, 1916.) Dry *ghoorma* fruits full of seeds, purchased in the open market at Peking. To be distributed among growers of oriental persimmons in semiarid sections of the United States as a drought and alkali resistant stock. Chinese name *Hei tsao* (black jujube), which is a misnomer."



A NEW RELATIVE OF THE AVOCADO, THE GUATEMALAN COYÓ.

(*Persea schiedeana* Nees., S. P. I. No. 44682.)

The coyó, according to Mr. Popenoe, is fully as delicious as the avocado and escaped the search for new fruits until he discovered it at Tactic and sent in cuttings and seeds in 1917. The variety pictured above is said to be very choice. As the tree is tender its cultivation will probably be limited to the tropical zone. Its unusual qualities should recommend it strongly to tropical horticulturists. (Photographed by Wilson Popenoe, Tactic, Guatemala, October 7, 1917; P17363FS.)

THE YAM BEAN AS A COVER CROP.

(*Cacara erosa* (L.) Kuntze, S. P. I. No. 44839.)

This yam bean is grown quite generally in the Tropics for its tender turniplike roots, which are so sweet and full of water as to be palatable when eaten raw; it is also cooked. The roots grow to the size of a large pumpkin if left in the ground for several years, but the young roots only are really edible. In southern Florida, Mr. Edward Simmonds suggested its use as a cover crop in the citrus orchards, and Mr. George B. Cellon has demonstrated its usefulness for this purpose. A single seed is planted in the quadrangle between four trees and without extending its roots far from the spot where the seed is planted it covers the ground with a mulch which resembles that made by the velvet bean, but without climbing over the trees. Prof. Charles V. Piper is on the right; Mr. Cellon on the left. (Photographed by David Fairchild at George B. Cellon's place, Miami, Fla., March 25, 1919; P24309FS.)

44689 and 44690. Poaceæ. Grasses.

From Oran, Salta, Argentina. Presented by Mr. S. W. Damon. Received April 20, 1917.

"Large, reedlike, tufted perennial grasses which grow to a height of 8 or 9 feet, forming immense clumps, in the more barren sandy portions of the region where the provinces of Tucuman, Catamarca, and Salta join. They grow in almost pure sand, more or less alkaline, in districts where no rain falls for months at a time, and are readily eaten by cattle and horses. They might prove to be good ornamentals and useful forage crops for the semiarid portions of the southwestern United States."

44689. CORTADERIA RUDIUSCULA Stapf. **44690.** SPOROBOLUS sp.

44691 to 44698.

From Kew, England. Presented by Sir David Prain, director, Royal Botanic Gardens. Received April 26, 1917.

Introduced for the work of the Office of Forage-Crop Investigations.

44691 to 44695. LATHYRUS spp. Fabaceæ.

44691. LATHYRUS sp.

These seeds were received under the name of *L. undulatus*, but they do not agree with the seeds of that species in the office seed collection.

44692. LATHYRUS CIRRHOSUS Seringe.

A glabrous, climbing annual, 4 to 10 dm. (16 to 40 inches) long, with a woody, straight-winged stem; leaves composed of two to three pairs of nearly oblong leaflets, terminated by branching tendrils; purple or pinkish flowers in three to eight flowered loose racemes; and smooth, tawny pods about 2½ inches long, native to the barren slopes of the Pyrenees. (Adapted from *X. Philippe, Flore des Pyrénées, p. 261.*)

44693. LATHYRUS LAXIFLORUS (Desf.) Kuntze.

An erect herbaceous plant, native of the island of Crete, with a simple, slender, angled, hairy stem about a foot tall; alternate hairy leaves composed of two oval pointed leaflets, without tendrils; lax racemes of three to five bluish violet flowers; and hairy pods about an inch long. It is said to have a twisted root 1 foot long and 4 inches thick, with white flesh and long fibers. (Adapted from *M. Desfontaines*, in *Annales du Muséum d'Histoire Naturelle, vol. 12, p. 57, 1908*, as *Orobus laxiflorus.*)

Index Kewensis refers this to *Lathyrus hirsutus* L., but Ascherson and Graebner consider it a distinct species.

44694. LATHYRUS PISIFORMIS L.

A stout clambering perennial, up to 3½ feet in length, with narrow or broad-winged stem; compound leaves with three to five pairs of nearly ovate leaflets, terminated by rather slender tendrils; dense racemes of small violet flowers; and dark-brown pods about 2 inches long. It is native to central Europe and central and southern Asia. (Adapted from *Ascherson and Graebner, Synopsis der Mitteleuropäischen Flora, vol. 6, p. 1034.*)

44691 to 44698—Continued.

44695. LATHYRUS SYLVESTRIS L. **Flat pea.**

A straggling or climbing European perennial, 3 to 5 feet in length, with a stout, winged stem and a creeping rootstock. It has thick, linear-lanceolate leaflets, rose-colored flowers half an inch long with the wings purple at the summit, and lance-shaped pods 2 to 3 inches long. As an ornamental it is inferior to other perennials, but it grows well on poor, sandy soil, will stand severe frosts and droughts, and is useful as a forage plant and for plowing under in a green state as a fertilizer. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 4, p. 1825.*)

Received as *Lathyrus variegatus* Gilib., which is now referred to *L. sylvestris.*

44696. PHALARIS BULBOSA Juslen. Poaceæ. **Canary grass.**

A perennial tufted grass, with shiny leaves about two-fifths of an inch wide and roots penetrating the soil to a depth of nearly 3 feet; it is native to the Mediterranean countries. It is now cultivated in New South Wales, Australia, where it appears to be an excellent permanent winter grass for coastal and tableland districts. Owing to its deep roots it can endure a considerable amount of drought. Seeds are borne very sparsely on short stems thrown up from the center of the crown. (Adapted from *Ascherson and Graebner, Synopsis der Mitteleuropäischen Flora, vol. 2, p. 17,* and from the *Agricultural Gazette of New South Wales, November 2, 1916.*)

Received as *Phalaris tuberosa* L., but Juslenius's name is earlier.

44697. PHALARIS PARADOXA L. Poaceæ. **Canary grass.**

An erect annual grass, 2¼ feet high, often branched from the lower joints, with rough leaves 3 to 7½ inches long and one-sixteenth of an inch wide, and flower panicles appearing as though gnawed below. It is native to the Mediterranean countries and has been introduced into California. (Adapted from *W. L. Jepson, Flora of Western Middle California, p. 35.*)

44698. PHLEUM ARENARIUM L. Poaceæ. **Grass.**

An annual, tufted, erect, or ascending grass, up to a foot in height, with smooth leaves about an inch long and one-sixteenth of an inch wide. It is native to Europe and the northern coast of Africa. (Adapted from *Ascherson and Graebner, Synopsis der Mitteleuropäischen Flora, vol. 2, p. 149.*)

44699. × RIBES ROBUSTUM Jancz. Grossulariaceæ. **Gooseberry.**

From Kew, England. Cuttings presented by Sir David Prain, director, Royal Botanic Gardens. Received April 26, 1917.

This hybrid (*R. niveum* × *hirtellum*) is intermediate between the parents. It is a spiny, vigorous shrub, with white or pinkish flowers and black fruits. It was originally received at Kew from the gardener of the King of Denmark, but is of unknown origin. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 5, p. 2964.*)

44700. GLADIOLUS OCHROLEUCUS Baker. Iridaceæ. **Gladiolus.**

From South Africa. Collected in Basutoland and presented by Mr. L. Peringuey, director, South African Museum, Cape Town. Received April 26, 1917.

A South African gladiolus with medium-sized globose corms; a stem up to 3 feet tall, including the inflorescence; and four to six rigid, sword-shaped, strongly ribbed leaves, up to a foot in length, arranged in a basal rosette. The eight to twelve plain creamy yellow flowers occur in lax spikes 6 to 9 inches long, the individual flowers being nearly 2 inches in length. (Adapted from *W. T. Thiselton-Dyer, Flora Capensis, vol. 6, p. 151.*)

44701 and 44702.

From Bogota, Colombia. Presented by Mr. M. T. Dawe, director, Estación Agronomica Tropical de Juan de Dios Carrasquilla, San Lorenzo, Tolima, Colombia. Received April 28, 1917.

44701. DRIMYS GRANATENSIS Mutis. Magnoliaceæ.

"*Casa de anta.* (No. 134. Andes of Bogota.) This is the species of Drimys found on the Andes of Bogota." (*Dawe.*)

A white-flowered evergreen shrub 5 to 12 feet in height, with few branches and oval-oblong leathery leaves with rounded ends. The few-flowered umbels appear near the ends of the branches, and the obovate fruit is berrylike, a quarter of an inch long, with succulent flesh inclosing the numerous seeds. From the crushed leaves a tonic is prepared. The bark is the basis of an aromatic tonic, and the dried fruits are used as a spice. (Adapted from *M. A. de Saint-Hilaire, Plantes Usuelles des Brasiliens, pls. 26–28, 1824.*)

44702. TERNSTROEMIA MERIDIONALIS Mutis. Theaceæ.

"(No. 135. Andes of Bogota.) A shrub whose seeds afford a scarlet dye." (*Dawe.*)

An ornamental evergreen shrub with leathery leaves, whitish flowers, and indehiscent fruits containing large seeds. (Adapted from *Lindley, Treasury of Botany, vol. 2, p. 1132.*)

44703 and 44704. HYOSCYAMUS NIGER L. Solanaceæ. **Henbane.**

From the Office of Drug, Poisonous, and Oil Plant Investigations. To be grown for that office. Received April 18, 1917.

A coarse, clammy, ill-smelling herbaceous plant, up to about 2½ feet in height, with irregularly lobed leaves 3 to 7 inches long, greenish yellow, purple-veined flowers; and circumscissile capsules. The leaves and flowering tops are of medicinal value. It is annual, biennial, or perennial. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 3, p. 1629.*)

44703. Seeds from wild plants. **44704.** An annual variety.

44705. CINNAMOMUM CAMPHORA (L.) Nees and Eberm. Lauraceæ. **Camphor tree.**

From China. Presented by Prof. Joseph Bailie, of the University of Nanking. Received April 27, 1917.

"Collected in open land, Chekiang, November 14 to 30, 1916. Chinese name *Hsiang chang* (fragrant camphor)." (*Bailie.*)

A moderate-sized, much-branched tree with an enlarged base, up to 40 feet in height. It has alternate, ovate-elliptic leaves which are pinkish on the young growths, and small, yellow flowers. The fruits are drupes about the size of a large pea. It is native to China and Japan, but is cultivated in Florida, the Gulf States, and southern California. From the wood is extracted the commercial camphor. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 773.*)

Introduced for comparison with the camphor trees already growing in the South.

44706 and 44707. RIBES VULGARE Lam. Grossulariaceæ. Garden currant.

From Lowdham, Nottingham, England. Plants purchased from J. R. Pearson & Sons. Received April 30, 1917. Notes adapted from catalogue of J. R. Pearson & Sons.

44706. *Knight's Sweet Red.* A very prolific currant with large fruits in evenly ripening bunches. It is less acid than other red currants.

44707. *Wentworth Leviathan.* A vigorous, prolific variety with very large white fruits.

44708 and 44709.

From Cairo, Egypt. Plants presented by Mr. Thomas W. Brown, director, horticultural division, Gizeh Branch, Ministry of Agriculture. Received May 1, 1917. Quoted notes by Prof. S. C. Mason, of the Bureau of Plant Industry.

44708. FICUS SYCOMORUS L. Moraceæ. Sycamore fig.

Var. *Roumi.* "The variety *Roumi* is the large-fruited sort, cultivated for its fruits, as distinguished from the *Kalabi*, or 'dog figs,' having small and worthless fruits. In different parts of Egypt *Balady*, *Sultany*, and *Arabi* are varietal terms synonymous with *Roumi.*"

44709. OLEA EUROPAEA L. Oleaceæ. Olive.

"*Tafahi.* From the omda of the village of Fedimine Mr. Brown secured the promise of some rooted sprouts of the Fayum olive varieties for me. These he afterwards obtained and grew in the gardens at Gizeh. The above specimen is one of them.

"The *Tafahi*, or apple olive, is held in the highest repute of the three varieties grown in Fayum, the industry centering around the village of Fedimine. Though reputed as only moderately productive, its large size and fine appearance cause it to be in great demand throughout the Egyptian delta. As the flesh is very soft and buttery when fully ripe it is marketed about November 1, when it begins to color. From the largest ripe fruit found at Fedimine November 20, I made the following description: Fruit deep purplish black with lilac bloom, 4.5 cm. long, 3 cm. broad, broadly ovate with blunt apex terminating in a short, acute tip. There is a rather deep cavity around the stalk, and some fruits show a slight fold. The flesh is about 1 cm. in thickness; the pit is large and rough, with deep longitudinal furrows, about 2 cm. long and 1 cm. broad,

44708 and 44709—Continued.

broadly rounded at the base, obtusely pointed at the apex. The fresh olives are packed in leaves in crates (holding about 3 pecks each) made from the ribs of the date leaf and are pickled by the people of the valley according to their fancy. Pickled *Tafahi* olives were seen by the writer both at Fedimine and in Cairo.

"At present no oil is manufactured from the Fayum olives, but in one of the villages were seen stones of ancient oil mills of beautiful red Aswan granite and no doubt of Roman origin. Their purpose was unknown to the present inhabitants. From this it may be conjectured that the present olive trees of Fayum, as well as those of Dakhleh Oasis, have come down from the time of the Roman occupation during the first century A. D."

44710. PHASEOLUS VULGARIS L. Fabaceæ. **Common bean.**

From Bahia, Brazil. Presented by Dr. V. A. Argollo Ferrão. Received May 4, 1917.

Mulatinho (little mulatto). A Brazilian bush variety of the common kidney bean, cultivated in the coastal States, especially in Sao Paulo, where it matures in 60 days, thus allowing two crops a year. The beans contain a large amount (36 per cent) of starch and are used for human food in much the same manner as the kidney bean. (Adapted from *Journal of Commerce, New York, January 27, 1917.*)

44711. CARAPA GUIANENSIS Aubl. Meliaceæ. **Crabwood tree.**

From Trinidad, British West Indies. Obtained from Mr. R. O. Williams, curator, St. Clair Experiment Station. Received May 4, 1917.

A tall tree, with compound leaves 1½ feet long, small axillary flowers, and thick-shelled, russet-brown fruits about 3 inches in diameter, containing two to six chestnutlike seeds. The native name in Guiana is *andiroba* (bitter oil), referring to the oil expressed from the seeds. This oil is used by the natives, who rub it into their skin to protect themselves from noxious insects; it is also made into a varnish or lacquer for iron objects, protecting these from rust. From the bark and leaves a decoction is prepared which is a remedy for skin disease; the bark contains an alkaloid termed *carapina*. The tree should be tried as an ornamental in southern Florida and southern California. (Adapted from *J. B. Rodrigues, Hortus Fluminensis, p. 73,* and *note of Dorsett, Shamel, and Popenoe,* under S. P. I. No. 36715.)

Introduced for trial as an insecticide.

44712. CANNABIS SATIVA L. Moraceæ. **Hemp.**

From Manchuria. Presented by Mr. M. Toyonaga, director, Central Experiment Station, Keijo, Chosen (Korea). Received May 4, 1917.

In Manchuria, where this plant is grown for the oil, the seeds are crushed and steamed, and subjected to great pressure, yielding the oil which the Chinese call *ma tzŭ yu* (hemp-seed oil). (Adapted from *A. Hosie, Manchuria, p. 188, 1901.*)

Introduced for the Office of Drug, Poisonous, and Oil Plant Investigations.

44713 to 44720. MALUS SYLVESTRIS Miller. Malaceæ. **Apple.**
(*Pyrus malus* L.)

From Ottawa, Ontario, Canada. Cuttings presented by Mr. W. T. Macoun, Dominion horticulturist. Received May 4, 1917. Quoted notes from the Reports of the Horticulturist, Experimental Farms, Ottawa, Canada, 1906 to 1915, which should be referred to for a full account of the development of the remarkable collection of seedlings at the Experimental Farms, Ottawa.

44713. "*Anson* (*Winter St. Lawrence* seedling). Fruit of medium size, roundish, slightly ribbed; cavity of medium depth and width; stem short, stout; basin deep, narrow, wrinkled; calyx closed; skin moderately thick, tough, pale yellow to almost white, thinly splashed and streaked with carmine; the dots obscure; flesh white, fine grained, tender, juicy; core and seeds of medium size; flavor subacid, pleasant, Fameuselike; quality good to very good; season October, probably through November.

"Resembles *Winter St. Lawrence* a little in flavor. Distinctly of the *Fameuse* group. Quite promising, season coming just before *McIntosh* and *Fameuse*."

44714. "*Battle* (*Wealthy* seedling). Fruit above medium to large in size, roundish conic; cavity deep, of medium width; stem short to medium, stout; basin of medium width and depth, almost smooth; calyx closed or partly open; skin moderately thick, tough, pale greenish yellow, well splashed and washed with bright purplish red; the dots few, yellow, distinct; flesh white, tinged with red, firm, crisp, breaking, tender, rather coarse, juicy; flavor briskly subacid, aromatic, raspberrylike; core medium; quality good; season late August to early September; ripens before *Duchess*.

"Handsome in appearance. Resembles *Wealthy* somewhat in outward appearance and flavor. Should make an excellent cooking apple, and is good for dessert."

44715. "*Drumbo* (*Winter St. Lawrence* seedling). Fruit above medium to large in size, conical; cavity deep, of medium width, russeted; stem short, stout; basin deep, medium width, slightly wrinkled; calyx open or partly open; skin thick, moderately tender, pale yellow, well washed and splashed with dark crimson; the dots few, gray, conspicuous; seeds medium size, acute; flesh white, rather coarse, tender, juicy; core medium; flavor subacid, pleasant; quality good; season, late November to February or later. Resembles *Winter St. Lawrence* very much in outward appearance, flesh, and flavor. Evidently a better keeper than *Winter St. Lawrence*."

44716. "*Galetta* (*Wealthy* seedling). Fruit above medium in size, roundish, flattened at both ends; cavity deep, open, slightly russeted; stem short, stout; basin deep, open, wrinkled; calyx closed or partly open; skin thick, moderately tough, pale yellow, washed and splashed with red, with a suggestion of pink, mostly on the sunny side, the dots obscure; flesh white, crisp, tender, juicy; core medium; flavor subacid, pleasant; quality good; season late August to early September. Promising. Of good quality. A good eating apple. Resembles *Wealthy* somewhat in outward appearance."

44713 to 44720—Continued.

44717. "*Jethro* (*Wealthy* seedling). Fruit above medium size, oblate to roundish, conic; cavity medium depth and width; stem short, stout; basin deep, medium width, wrinkled; calyx open; skin moderately thick, moderately tough, pale yellow, washed and splashed with orange, red, and carmine, green about cavity; the dots numerous, yellow, distinct; flesh yellowish, crisp, tender; core medium size, open; seeds medium size, acute; flavor juicy, briskly subacid, pleasant; quality good; season late September to December. Resembles *Wealthy* very much in flesh and flavor."

44718. "*Luke* (*Wealthy* seedling). Fruit above medium to large; oblate to roundish conic; cavity narrow, medium depth, russeted; stem short, moderately stout; basin open, medium depth, almost smooth; calyx open or partly open; skin thick, moderately tough, pale greenish yellow washed with deep red, mostly on sunny side, dots obscure; flesh dull white or yellowish, rather coarse, tender, moderately juicy; core small; flavor subacid, pleasant; quality good; season October and November, probably to middle or late December.

"Resembles *Wealthy* considerably in outward appearance, character of flesh, and flavor. A better keeper than *Wealthy*."

44719. "*Melvin* (*Wealthy* seedling). Fruit of medium size; roundish; cavity deep, of medium width, sometimes lipped; slightly russeted; stem medium to long, slender to moderately stout; basin medium depth and width, smooth, calyx open or partly open; skin thin, tough, pale yellow, well splashed and washed with rather dull red, but attractive, the dots few, pale, distinct; flesh yellow with traces of red near skin, very tender, melting; core medium; flavor briskly subacid, spicy, good; quality good; season middle to end of August.

"Considerably like *Sops of Wine* in outward appearance and quality, but juicier and of much better quality. Also resembles *Wealthy* somewhat in outward appearance and in its aromatic flavor."

44720. "*Rupert* (*Russian* seedling). Fruit above medium in size, oblate; cavity medium depth and width, russeted; stem short, stout; basin medium depth and width, wrinkled; calyx closed; skin thick, tough, pale greenish yellow, sometimes with a faint pink blush, the dots numerous, green, indistinct; flesh white, juicy, tender; core medium; flavor pleasant, briskly subacid, almost acid; quality above medium to good; season early August. As early or earlier than *Tetofsky* and much better in quality. Better in quality than *Yellow Transparent*. Inclined to water-core."

44721. PHASEOLUS LUNATUS L. Fabaceæ. **Lima bean.**

From Concepcion, Paraguay. Presented by Mr. T. R. Gwynn. Received May 7, 1917.

Lynconia. "I named the butter beans *Lynconia* in honor of the estancia in the Province of Buenos Aires from which they originally came. It is a remarkable bean which has been yielding fruit since the middle of last October and is still bearing heavily (March 23)." (*Gwynn.*)

44722 to 44728. GLADIOLUS spp. Iridaceæ. **Gladiolus.**

From Johannesburg, Union of South Africa. Presented by Mr. J. Burtt Davy, Agricultural Supply Association. Received May 7, 1917.

44722. GLADIOLUS ALATUS L.

A South African gladiolus with an upright stem 6 to 8 inches in height and with three to four leathery, linear or sword-shaped, stiff leaves, the outermost being twice as long as the others. The five to ten reddish yellow flowers have a fragrance like that of sweetbrier. (Adapted from *Curtis's Botanical Magazine, vol. 15, pl. 586.*)

44723. GLADIOLUS ANGUSTUS L.

A plant with an ascending stem up to 2 feet in height, and narrow, upright leaves with prominent midribs. The white, scentless flowers grow in a lax, one-sided spike. It is native to the Cape of Good Hope. (Adapted from *Curtis's Botanical Magazine, vol. 17, pl. 602.*)

44724. GLADIOLUS BLANDUS Ait.

A South African plant with sword-shaped leaves somewhat shorter than the stem, which is from 6 inches to 2 feet in height and bears three to ten white or reddish tinged scentless flowers. There are many very ornamental horticultural varieties which are easily propagated from seeds and offsets. (Adapted from *Curtis's Botanical Magazine, vol. 17, pl. 625.*)

44725. GLADIOLUS CUSPIDATUS Jacq.

An erect bulbous plant, 2 to 3 feet high, with sword-shaped leaves usually shorter than the stem, and four to eight white or pinkish flowers in a lax, one-sided spike. It is native to the Cape of Good Hope, where it flowers in May and June. (Adapted from *Curtis's Botanical Magazine, vol. 15, pl. 582.*)

44726. GLADIOLUS RECURVUS L.

An ornamental plant, 1 to 3 feet tall, with three linear leaves having prominent midribs. The two to five yellowish purple flowers have a strong violet odor and are produced during April in a lax spike. It is a native of the Cape of Good Hope. (Adapted from *Curtis's Botanical Magazine, vol. 15, pl. 578.*)

44727. GLADIOLUS TRISTIS L.

Avondbloem. A South African plant with two or three linear leaves which are four winged toward the top, due to the comparative size of the midrib, which equals the blades in width. The yellowish flowers, sometimes lightly streaked with purple, give off a very strong fragrance at night, but are practically scentless during the day. (Adapted from *Curtis's Botanical Magazine, vol. 27, pl. 1098.*)

44728. GLADIOLUS UNDULATUS Jacq.

A bulbous plant, with a stem a foot in height, including the spike and several sword-shaped leaves about a foot long. The four to six flowers are milk white marked with red and are produced in a very lax spike. It is native to South Africa. (Adapted from *W. T. Thiselton-Dyer, Flora Capensis, vol. 6, p. 155.*)

44729 and 44730. LACTUCA SATIVA L. Cichoriaceæ. **Lettuce.**

Seeds grown by Mr. George W. Oliver, of the Bureau of Plant Industry, United States Department of Agriculture, Washington, D. C., from two forms selected by Dr. B. T. Galloway several years ago. Received May 28, 1917.

"Both varieties are identical in growth and are strictly hothouse lettuces. Under good conditions in a cool house they have very large heads from 8 to 10 inches in diameter. Everyone who has sampled them says that they are by far the best forcing lettuces." (*Oliver.*)

44729. "No. 39. White seeded. Parents *Golden Queen* × *Grand Rapids.*"

44730. "No. 39. Black seeded. Parents *Golden Queen* × *Grand Rapids.*"

44731 to 44739. RAPHANUS SATIVUS L. Brassicaceæ. **Radish.**

From Yokohama, Japan. Purchased from the Yokohama Nursery Co. Received May 7, 1917.

44731. *Bottle.* A large bottle-shaped radish, called *Tokuri* in Japanese. It is about a foot long. (Adapted from *Useful Plants of Japan, p. 21.*)

44732. *Long String.* A radish with a root over 3 feet long and only 2 or 3 inches in circumference. Very suitable for pickling. (Adapted from *Catalogue of the Yokohama Nursery Co., 1916–17, p. 77.*)

44733. *Nerima Long* (*Mikado*). A variety with large, long, cylindrical roots.

44734. *All Season.* "Called *Tokishiraza* in Japan. It is a very large, long, deep-rooted, snow-white radish which does not extend above the soil; it is always tender and crisp and has a delicious flavor." (*Aggeler & Musser Seed Co., catalogue, 1917, p. 56.*)

44735. *Miyashige.* A variety found chiefly in Miyashige, Province of Owari, Japan, with a conical root about 1½ feet in length and 3½ inches in diameter. It is very sweet and should be boiled, dried, or pickled. (Adapted from *Useful Plants of Japan, p. 21.*)

44736. *Ninengo.* A variety with white, thin, hard roots. It is a biennial, and the seeds are sown at the end of spring. (Adapted from *Useful Plants of Japan, p. 22.*)

44737. *Six Weeks.* No description is available for this variety.

44738. *Sakurajima Mammoth.* The largest variety of radish known, cultivated chiefly at Sakurajima, Osumi, Japan. It is nearly globular, about 3 feet in circumference in the largest forms, and weighs 20 to 30 pounds. It is eaten raw, boiled, dried, or preserved in salt, and has a sweet, wholesome taste. (Adapted from *Useful Plants of Japan, p. 20.*

44739. *Shogoin.* A variety obtained from seed of variety *Horio* sown in Shogoin, Province of Yamashiro, Japan. It is about a foot long, 6 to 7 inches in circumference, and is of excellent flavor. (Adapted from *Useful Plants of Japan, p. 22.*)

44740. JASMINUM MULTIPARTITUM Hochst. Oleaceæ. **Jasmine.**

From Cape Town, Union of South Africa. Presented by Mr. L. Peringuey, director, South African Museum. Received May 7, 1917.

A climbing, much-branched, ornamental shrub up to 10 feet in height, with opposite, glabrous, ovate to lanceolate leaves nearly 3 inches in length; the solitary, terminal or axillary, fragrant white flowers are about 1½ inches long. It is native to Natal, South Africa. (Adapted from *J. Medley Wood, Natal Plants, vol. 4, pl. 328.*)

44741. ERAGROSTIS SUPERBA Peyr. Poaceæ. **Grass.**

From Johannesburg, Union of South Africa. Presented by Mr. J. Burtt Davy, Agricultural Supply Association. Received May 8, 1917.

Introduced for the Office of Forage-Crop Investigations.

"(March, 1917. Pretoria district.) One of the best native pasture grasses on the high veld, extending also to the bush veld, its range being from about 3,500 feet (or lower) to 5,500 feet or more. It is common in sandy soils in British Bechuanaland, where the rainfall is perhaps not more than 10 inches, coming in summer." (*Davy.*)

A perennial tufted grass with culms 2 to 3 feet in length and blades 2 to 8 inches long. It is native to South Africa, where it is widely distributed. (Adapted from *W. T. Thiselton-Dyer, Flora Capensis, vol. 7, p. 622.*)

44742 and 44743. PAPAVER SOMNIFERUM L. Papaveraceæ. **Poppy.**

From the Office of Drug, Poisonous, and Oil Plant Investigations. Seed to be grown for Dr. W. W. Stockberger, Physiologist in Charge. Received May 8, 1917.

An erect annual, with handsome varicolored flowers, which is cultivated in the Orient for opium manufacture. It was originally introduced into the United States for the use of its palatable seeds in confectionery and the preparation of morphia for medicinal purposes. The seeds yield a comestible oil. It is of comparatively easy culture.

44744 and 44745.

From Auckland, New Zealand. Presented by Mr. H. R. Wright. Received May 12, 1917.

44744. RHOPALOSTYLIS SAPIDA (Soland.) Wendl. and Drude. Phœnicaceæ. **Nikau palm.**

A graceful tree, sometimes 30 feet tall, with a ringed, green stem and leaves 14 feet in length, which are used by the Maoris in making their huts. The flowers and the flowering axis are both white. The fruit is a vivid red drupe about half an inch long and so hard that the settlers have used them for ammunition. The top of the stem is quite juicy and is sometimes eaten. (Adapted from *Laing and Blackwell, Plants of New Zealand, p. 84.*)

44745. CORYNOCARPUS LAEVIGATA Forst. Corynocarpaceæ. **Karaka.**

A handsome evergreen tree with glossy, laurellike, oblong leaves 3 to 7 inches long, erect panicles of small white flowers 4 inches in length, and oblong, orange-colored fruits an inch long. The outside of the fruit is extremely poisonous, but the kernel is edible and forms one of the staple foods of the Maoris, who cultivate the tree for its seeds. The wood has been much used by the natives of the Chatham Islands in the making of canoes. (Adapted from *Laing and Blackwell, Plants of New Zealand, p. 233.*)

44746. ENTEROLOBIUM CYCLOCARPUM (Jacq.) Griseb. Mimosaceæ.

From Coro, Venezuela. Presented by Mr. H. M. Curran. Received May 14, 1917.

A lofty, unarmed, leguminous tree with bipinnate leaves, heads of greenish flowers, and leathery, indehiscent, pulpy, curved pods forming complete circles

about 4 inches in diameter. These pods make very good food for cattle and hogs throughout tropical America where this tree is native. The wood is said to be durable and easily worked, and the bark is used for tanning and also as a soap by the Mexicans. The tree would probably make an excellent shade tree for the southern and southwestern United States. (Adapted from *Grisebach, Flora of the British West Indian Islands, p. 226,* and from *Contributions, U. S. National Herbarium, vol. 5, p. 228.*)

44747. BRASSICA sp. Brassicaceæ.

From Ningpo, China. Presented by Prof. Victor Hanson, Shanghai Baptist College, Shanghai. Received May 14, 1917.

Chinese name *yu ts'ai* (oil vegetable). Sent in reply to our request for the *yiu ts'ai,* said to be the best variety of Chinese cabbage grown at Shanghai. Probably either *Brassica chinensis* or *B. pekinensis.*

44748. ZIZIPHUS MUCRONATA Willd. Rhamnaceæ.

From Khartum, Sudan, Africa. Presented by the principal, Central Research Farm, Education Department, Sudan Government. Received May 14, 1917.

A tree 15 to 30 feet tall, with alternate, crenate, or serrate leaves up to 3 inches long, spinelike stipules, and small, greenish flowers in axillary cymes up to an inch in length. The numerous globose dark-red fruits, about half an inch in diameter, are edible and are believed to be the lotus mentioned by Mungo Park as being used for making into bread which tastes like gingerbread. A paste made of the leaves and a decoction of the root are used medicinally; the wood is tough and is used for yoke keys, and the seeds are used for making rosaries. It is native to tropical and southern Africa. Arabic name *Siddir* or *nabbak.* (Adapted from *T. R. Sim, Forests and Forest Flora of Cape Colony, p. 177,* and from *Kew Bulletin of Miscellaneous Information, Additional Series IX, pt. 1, p. 162, 1908.*)

44749 and 44750. SACCHARUM OFFICINARUM L. Poaceæ.

Sugar cane.

From St. Croix, Virgin Islands, West Indies. Cuttings presented by Dr. Longfield Smith, director of the experiment station. Received May 15, 1917.

Introduced for the sugar experiment station, New Orleans, La.

44749. *Santa Cruz 12/4.* "I think this would be suitable for Louisiana on account of its rapid growth, early maturing, and richness in saccharose." (*Smith.*)

44750. *Santa Cruz 12/11.* Received without notes.

44751 to 44765.

From Venezuela. Presented by Mr. H. M. Curran. Received May 12, 1917.

44751. ABELMOSCHUS ESCULENTUS (L.) Moench. Malvaceæ. **Okra.** (*Hibiscus esculentus* L.)

"(From Cumarebe, April, 1917.)" (*Curran.*)

44752. ACACIA sp. Mimosaceæ.

"(From Paraguana, April, 1917.) Small tree or low thorny shrub." (*Curran.*)

44751 to 44765—Continued.

44753. CANAVALI OBTUSIFOLIUM (Lam.) DC. Fabaceæ.

"(From Cerro de Santa Ana, Paraguana, April, 1917.) A common vine." (*Curran.*)

A West Indian leguminous vine with obovate or roundish blunt leaves, purplish flowers an inch in length, and oblong pods up to 6 inches long, containing ovoid, chestnut-colored seeds. (Adapted from *Grisebach, Flora of the British West Indian Islands, p. 197.*)

44754. CITRULLUS VULGARIS Schrad. Cucurbitaceæ. **Watermelon.**

" (From Cumarebe, April, 1917.)" (*Curran.*)

To be grown for comparison with other varieties.

44755. EUTERPE sp. Phœnicaceæ. **Palm.**

"(From Cerro de Santa Ana, Paraguana, April, 1917.) Ornamental; 30 feet high. Common on top of the mountain." (*Curran.*)

44756. GOSSYPIUM sp. Malvaceæ. **Cotton.**

"(From La Vela de Coro, April, 1917.) Wild cotton. Grows on arid lands near the sea." (*Curran.*)

44757. OMPHALOPHTHALMA RUBRA Karst. Asclepiadaceæ.

" (From Paraguana, April, 1917.) A common vine; used for food in Curaçao." (*Curran.*)

A climbing, shrubby, hairy milkweed with opposite, heart-shaped leaves nearly 3 inches long, and dark-purple, rather small flowers in the axils of the leaves. It is a native of the island of St. Martin, British West Indies. (Adapted from *H. Karsten, Florae Colombiae, vol. 2, p. 119, pl. 163.*)

44758 to 44761. PHASEOLUS LUNATUS L. Fabaceæ. **Lima bean.**

44758. (From Paraguana, April 8, 1917.) *Tapirama chicoa.*

" Small gray bean, with a yellow eye. An unusual marking for this species." (*D. N. Shoemaker.*)

44759. (From Miraca, Paraguana, April, 1917.) *Tapirama blanca.*

" Small white bean, very similar to beans received from Ceylon, Burma, and Java." (*D. N. Shoemaker.*)

44760. (From Paraguana, April, 1917.) *Tapirama colorado.*

" Small red bean, not like any variety of *Lima* in the American trade." (*D. N. Shoemaker.*)

44761. (From Miraca, Paraguana, April 8, 1917.) *Tapirama amarilla.*

" Small yellow bean; an unusual color for this species." (*D. N. Shoemaker.*)

44762. PHASEOLUS VULGARIS L. Fabaceæ. **Common bean.**

(From Paraguana, April 8, 1917.) *Tapirama pintada.*

" Small mottled beans similar in marking to *Jackson Wonder* and *Florida Butter.*" (*D. N. Shoemaker.*)

44763. SESAMUM ORIENTALE L. Pedaliaceæ. **Sesame.**
(*S. indicum* L.)

(From Paraguana, April, 1917.) *Tapirama ajonjoli.*

An erect annual plant, 2 to 3 feet high, with ovate-lanceolate leaves, rosy-white flowers, and ovoid-oblong capsules. It is a native of the East Indies and tropical Africa, but is cultivated in tropical America

44751 to 44765—Continued.

and the southern United States. The seeds are very rich in oil, which is expressed and used as a table oil and also medicinally. (Adapted from *Grisebach, Flora of the British West Indian Islands, p. 458,* and from *Macmillan, Handbook of Tropical Gardening and Planting, p. 538.*)

44764. CLERODENDRUM LIGUSTRINUM (Jacq.) R. Br. Verbenaceæ.

"(From Paraguana, April, 1917.) A common tree." (*Curran.*)

44765. VIGNA CYLINDRICA (Stickm.) Skeels. Fabaceæ. **Catjang.**

(From Miraca, Paraguana, April 8, 1917.) *Bonchita.*

An annual rambling vine with three rhomboid-ovate stalked leaflets, white or purplish flowers in twos or threes on long axillary peduncles, and small, erect pods 3 to 5 inches in length. It is probably native to southern Asia, but is now cultivated throughout the Tropics for the seeds and fodder. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 6, p. 3469.*)

44766 and 44767. DOLICHOS LABLAB L. Fabaceæ. **Bonavist bean.**

From Georgetown, British Guiana. Presented by Mr. John F. Waby. Received May 19, 1917. Quoted notes by Mr. Waby.

44766. "Var. *macrocarpus.* A natural hybrid of *Park Runner* and *Vilmorin's Stringless,* which undoubtedly will prove a welcome addition to our green vegetables. It bears the largest pod of any of the 'Lablab' class which has yet appeared, and on that account fewer pods will be needed to form a dish. It is prolific; the pods are longer than those of either of its parents and have the width of those of the 'Vilmorin' bean, which till now is the widest known.

"The new bean is a much stronger grower than either of its parents, so will need more room. The seeds should be planted 5 to 6 feet apart. The stakes or trellis for it to climb on should not be more than 5 to 6 feet high, for the convenience of picking for a green vegetable. Use in the same manner as French beans before the seeds are well formed; if allowed to mature, as bonavists generally are, the seeds can be shelled in the same manner, though I consider the young green pods are the most useful, as good green vegetables are scarce."

44767. "Var. *nankinensis.* Small white seeds.

44768. PISTACIA CHINENSIS Bunge. Anacardiaceæ. **Pistache.**

From China. Obtained by Mr. Edwin S. Cunningham, American consul general at Hankow, through Mr. Nelson T. Johnson, American consul at Changsha. Received April 19, 1917.

(Collected at Ninghwai, Hunan Province, November, 1916.) A beautiful Chinese tree with graceful pinnate leaves which are at first dark red, then glossy green, and finally, in autumn, becoming scarlet, purple, and yellow. Trees of previous introductions have done so well in many parts of our country that we can recommend this beautiful tree for park and avenue planting. Where the winters are not too severe it has withstood temperatures of —4° F. without injury, as at Washington, D. C. It is especially valuable for the Southern and Pacific Coast States when planted in a well-drained situation. Individual specimens sometimes live to be centuries old and attain great size.

44769. MACADAMIA TERNIFOLIA F. Muell. Proteaceæ. **Macadamia.**

From Sydney, Australia. Purchased from Messrs. Anderson & Co. Received May 14, 1917.

In its typical form this is a tall tree with dense foliage, the leaves being glabrous, shining, oblong or lanceolate, in whorls of three or four, and up to a foot in length. The white flowers are in racemes almost as long as the leaves. The nearly globular fruits, up to an inch in diameter, are thick shelled and contain one or two edible seeds half an inch or more in diameter; these seeds are white and crisp, with a flavor resembling that of the Brazil nut. This tree is cultivated to a small extent in southern California and southern Florida, and it has recently fruited in Cuba, where it appears to thrive. Its ornamental appearance alone makes it worthy of introduction into the warmest parts of the United States. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 4, p. 1938.*)

44770 to 44772.

From Allahabad, India. Presented by Mr. William Bembower, horticulturist, Ewing Christian College. Received May 17, 1917.

44770. ANNONA SQUAMOSA L. Annonaceæ. **Sugar-apple.**

"*Shirifa.* The common type found here." (*Bembower.*)

44771. DIOSPYROS sp. Diospyraceæ. **Persimmon.**

"This Diospyros is, I believe, a native of this region; I found it fruiting in December and January at Etah, in the United Provinces. The fruit is not eaten, but it promises to be a valuable stock for warmer regions or for breeding purposes." (*Bembower.*)

44772. DOLICHOS LABLAB L. Fabaceæ. **Bonavist bean.**

"A local bean, common in the United Provinces. A very prolific bearer, thriving in the driest seasons and producing long vines." (*Bembower.*)

A twining vine with broadly ovate leaflets, white or pinkish purple flowers, and broad flat pods 2 to 3 inches long. It is a native of India and has been cultivated since ancient times. In tropical and subtropical countries it is usually grown for human food, but in temperate regions it is more commonly known as an ornamental plant. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 1065,* and from *Bulletin No. 318, U. S. Department of Agriculture.*)

44773. NANNORRHOPS RITCHIEANA (Griffith) Wendl. Phœnicaceæ. **Mazri palm.**

From Seharunpur, India. Presented by Mr. A. C. Hartless, superintendent, Government Botanical Gardens. Received May 18, 1917.

A low gregarious shrub, usually stemless, but sometimes with a stem 10 to 20 feet in length. The leaves, which are 2 to 4 feet long and of a grayish green color, are beaten with mallets to remove the fiber, which is used in making mats, baskets, etc. The fruit is a nearly round, 1-seeded drupe. The reddish brown wool of the petioles is impregnated with saltpeter and used as a tinder for matchlocks. This palm is a native of Baluchistan and Mekran, where it ascends to 5,500 feet. In Europe it grows best in a well-drained sandy loam and is propagated by seeds and offsets. (Adapted from *E. Blatter, Journal Bombay Natural History Society, vol. 21, p. 72.*)

44774 to 44776.

From Guatemala. Collected by Mr. Wilson Popenoe, agricultural explorer. Received May 24, 1917. Quoted notes by Mr. Popenoe.

44774. ANNONA TESTUDINEA Safford. Annonaceæ.

Tortoise-shell custard-apple.

"(No. 123a. From the city of Guatemala, May 15, 1917.) The tortoise-shell custard-apple, from the town of El Rancho, in eastern Guatemala. It may not have been grown at this place, as it was purchased in the market, but it was probably grown somewhere in the immediate vicinity.

"This interesting anona belongs to the section Chelonocarpus, or hard-shell custard-apple group, established by Safford (Journal of the Washington Academy of Sciences, vol. 3, no. 4, Feb. 19, 1913). The tree, which has not been seen by me, is described as 12 to 15 meters high, with oblong or oblong-elliptic leaves, acuminate at the apex, and 25 to 35 cm. long.

"The fruit is more or less globose in form, about 4 inches in length, with a hard shell divided on the surface into polygonal areoles by slightly raised ridges. It strongly resembles the common custard-apple, being dull green and somewhat pruinose. The seeds, also, are quite different from those of the common custard-apple (*Annona reticulata*), being considerably larger and pointed at the apex. The flesh is white, soft, watery, free from the grittiness which is so objectionable in *A. reticulata*, sweet, and of pleasant flavor. The pulp does not adhere to the seeds in the ripe fruit.

"This species seems worthy of a trial in southern Florida. It will probably be too tender for cultivation in California, except in the most favored locations, such as Santa Barbara."

44775. PHYLLOCARPUS SEPTENTRIONALIS *Donn.* Smith. Cæsalpiniaceæ.

"(No. 124a. From El Progreso; sent from the city of Guatemala, May 15, 1917.) *Flor de mico* (monkey flower). A magnificent flowering tree found in sandy loam along watercourses near El Progreso, in eastern Guatemala, at altitudes of 1,500 to 2,000 feet. It is of broad, spreading habit, reaching a height of 40 to 50 feet, and is semideciduous at the time of flowering, which is in January and February.

"The leaves are compound, composed of three or four pairs of alternate leaflets oblong-elliptic to obovate in form, an inch to 1½ inches in length, rounded to acute at the apex, glabrous, and light green in color. During the flowering season the tree is a mass of crimson-scarlet flowers, which are produced in small clusters and are individually about an inch broad, with a tuft of crimson stamens up to 2 inches long. When in flower the tree may be compared to the royal poinciana, but the flowers are individually much smaller, and the color is deeper than in the poinciana. This tree should be given a trial in southern Florida, where it seems likely to succeed, and also in the most favored sections of southern California. As it grows along the banks of streams, it will probably demand a good deal of water."

44776. PERSEA SCHIEDEANA Nees. Lauraceæ. **Coyó.**

"(No. 125a. From the city of Guatemala, May 15, 1917.) *Coyó, shucte*, or *chucte*. Seeds from specimens purchased in Zacapa. It is still too early for this fruit to be abundant, but the first of the season are now commencing to appear in the lowlands around Zacapa. The ones from which these seeds were taken were slender pyriform, rather pointed at the apex, over 5 inches long, and about 10 ounces in weight.

44774 to 44776—Continued.

The skin was light green, thicker than in an avocado of the West Indian type, while the flesh was pale brown, almost free from fiber, and of very nutty flavor. The seed was large in comparison with the fruit."

See also S. P. I. No. 44682 for previous introduction and description.

44777 and 44778. GOSSYPIUM spp. Malvaceæ. **Cotton.**

From Cristobal, Canal Zone. Presented by Mr. S. P. Verner. Received April 20, 1917.

44777. Sample No. 1. **44778.** Sample No. 2.

44779 and 44780. PANDANUS spp. Pandanaceæ. **Screw pine.**

From Honolulu, Hawaii. Plants presented by Mr. Joseph F. Rock, botanist, College of Hawaii. Received May 29, 1917.

44779. PANDANUS TECTORIUS SINENSIS Warb.

A much-branched tree 20 feet or more high, with a flexuous trunk supported by aerial roots. The light-green leaves are linear-lanceolate, terminated by a long flagellum, and are furnished with marginal spines. The variety differs from the species in having smaller leaves and larger marginal spines. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 5, p. 2450*, and from *Warburg, in Engler, Pflanzenreich, vol. 4, pt. 9, p. 48.*)

44780. PANDANUS ROCKII Martelli.

"I brought back from Palmyra Island a number of seeds of *Pandanus rockii*. It grows in actual salt water below the low-tide mark." (*Rock.*)

A slender, erect tree, 8 to 10 m. (26 to 33 feet) in height, with bright-green leaves, large, wedge-shaped fruits 8 cm. (3 inches) long and 6 cm. (2⅜ inches) broad at the apex. It was originally collected on Holei Islet, Palmyra Island, in July, 1913. (Adapted from *Bulletin No. 4, College of Hawaii Publications, p. 42, 1916.*)

44781 to 44783. PERSEA AMERICANA Mill. Lauraceæ. **Avocado.**
(*P. gratissima* Gaertn. f.)

From Guatemala. Bud wood collected by Mr. Wilson Popenoe, agricultural explorer. Received May to June, 1917. Quoted notes by Mr. Popenoe.

44781. "(No. 117. Avocado No. 29. From the finca Santa Rosa, Antigua.) *Katun.* A small, handsome avocado from the finca Santa Rosa in Antigua, Guatemala (altitude 5,100 feet). The parent tree ripened an excellent crop of fruit in the spring of 1917. A few fruits of this variety which were examined had a slightly bitter taste. It is not known whether this is a characteristic of the variety or not, but it does not seem advisable to make a general distribution until this point can be determined.

"Technically the fruit may be described as follows: Form broadly obovoid, oval, or oblong-oval; size below medium to medium, weight 10 to 14 ounces, length 3½ to 4 inches, breadth 3 to 3½ inches; base rounded to bluntly pointed, the stem inserted somewhat obliquely without depression; apex obliquely flattened, though not markedly so, slightly depressed around the stigmatic point; surface nearly smooth to lightly pebbled, glossy purplish black in color, with numerous small to large yellowish dots; skin rather thin, one-sixteenth of an inch or slightly

44781 to 44783—Continued.

less; flesh rich yellow, almost golden yellow, pale green near the skin, free from fiber or discoloration, and of fairly rich flavor, with sometimes a trace of bitterness; quality doubtful; seed small to medium in size, spherical, not over 1 ounce in weight, tight in the cavity. Ripens midseason, March to May at Antigua."

44782. "(Nos. 118, 142, 228. Avocado No. 27.) *Cabnal.* A very productive variety whose fruits are of pleasing round form, good size, and rich flavor. It gives promise of being somewhat later in ripening than most other Antiguan varieties.

"The parent tree is growing in a sitio occupied by Atanasio Salazar in the outskirts of Antigua, Guatemala, a short distance beyond the first kilometer post on the Guatemala road. The altitude is approximately 5,100 feet. The tree stands beside a small stream, with several jocote trees (*Spondias mombin* L.) close around it. Its age is unknown, but it appears to be at least 25 years old, perhaps more. It stands about 30 feet high, the trunk, about 15 inches thick at the base, giving off its first branches 10 feet above the ground. The crown is rather broad, dense, and well branched. The young branches are erect, stout, stiff, and well formed, indicating that the tree is a vigorous grower. The wood is not unduly brittle. The bud wood is excellent, the branches being of good length with the buds well placed. The eyes are large, well developed, and show no tendency to fall and leave a blind bud.

"The climate of Antigua is not cold enough to test the hardiness of Guatemalan avocados, but it may reasonably be assumed that this variety is of average hardiness for the Guatemalan race.

"The flowering season is late February and March. The tree produced a heavy crop of fruit from the 1916 blooms and set an equally heavy crop in March, 1917, to be ripened in 1918. The bearing habits of this variety give promise of being excellent. The fruit ripens in March and April, but can be left on the trees until June or even later. The ripening period may be termed midseason to late.

"The fruit is round, weighing three-fourths of a pound to a pound, rather rough, and dark green or yellowish green externally, with a skin of moderate thickness. It is attractive in appearance and of convenient and desirable size and form. The flesh is cream yellow, very oily in texture, and of rich flavor. There is a peculiar nuttiness about the flavor which is not found in the other varieties of this collection. It may, perhaps, be said to suggest the coconut. The seed is variable in size, but on the average is rather small for a round fruit. It is tight in the cavity.

"A formal description of the fruit is as follows: Form spherical; size below medium to above medium; weight 10 to 16 ounces, length 3¾ to 3⅞ inches, breadth 3¼ to 3¾ inches; base rounded, the slender stem inserted slightly to one side without depression; apex flattened and slightly depressed around the stigmatic point; surface pebbled, usually rather heavily so, dull green in color, with a few small yellowish dots; skin thick, about one-eighth of an inch, coarsely granular toward the flesh, hard and woody; flesh rich cream yellow in color, with no fiber and only very slight discoloration, pale green near the skin, fairly dry, and of rich, nutty flavor; quality very good; seed rather round or

44781 to 44783—Continued.

oblate, medium sized, varying from 1 to 2 ounces in weight, tight in the cavity, with both seed coats adhering closely to the cotyledons."

See also Exploring Guatemala for Desirable New Avocados, Annual Report of the California Avocado Association, 1917, p. 134, fig. 30; reprint, 1918, p. 26, fig. 30; and The Avocado in Guatemala, U. S. Department of Agriculture Bulletin No. 743, p. 62, pl. 21.

44783. "(Nos. 122, 143. Avocado No. 28.) *Cantel.* The parent tree of this variety is just coming into bearing and produced but few fruits in 1917. While it is too early to know definitely what its bearing habits will be, the character of the fruit is so unusual as to make it worth while to test the variety in the United States. Most round avocados have a medium-sized or large seed. This one, however, has an unusually small seed, and if the variety proves desirable in other respects it will be well worth cultivating. In quality it is good.

"The parent tree is growing in the finca La Candelaria, in Antigua, Guatemala. The altitude is approximately 5,100 feet. The tree has been planted to shade coffee bushes and is still young, its age not being more than 5 or 6 years. It is tall and slender in habit, about 20 feet high, with a trunk 6 inches thick at the base. As is customary in fincas, the tree has not been allowed to branch low, the first branches being more than 6 feet from the ground. The growth looks unusually strong and healthy, the young branchlets being stout, long, stiff, and well formed. The bud wood is excellent, having the buds well placed and vigorous.

"Little can be determined regarding the flowering and fruiting habits of the tree at this early day. When it was first seen, early in May, 1917, it had only three fruits on it. It may have borne more this year, as the crop had already been harvested from many of the trees in the finca. The ripening season is probably March to May.

"The hardiness of the tree can not be determined until it is tested in the United States, as it is never very cold in Antigua.

"The fruit is round, about a pound in weight, green, with a moderately thick skin. The flesh is of good color and quality and in quantity much greater than in the average round avocado, since the seed is quite small.

"The variety may be described as follows: Form oblate; size medium, weight 16 ounces, length 3½ inches, breadth 3¾ inches; base slightly flattened, the long, slender stem inserted without depression almost in the longitudinal center of the fruit; apex flattened, slightly depressed around the stigmatic point; surface pebbled, deep yellow-green in color, with numerous minute yellowish dots; skin not very thick for this race, one-sixteenth of an inch or slightly more, hard, granular toward the flesh; flesh cream colored around the seed, becoming pale green close to the skin, very slightly discolored, with brownish fiber tracings, but with no fiber; flavor rich and pleasant; quality very good; seed very small for a round fruit, oblate, weighing less than 1 ounce, tight in the cavity, with both seed coats adhering closely to the cotyledons."

See also Exploring Guatemala for Desirable New Avocados, Annual Report of the California Avocado Association, 1917, p. 135, fig. 31; reprint, 1918, p. 26, fig. 31; and The Avocado in Guatemala, U. S. Department of Agriculture Bulletin No. 743, p. 63.

44784. CAMPOMANESIA FENZLIANA (Berg.) Glaziou. Myrtaceæ. **Guabiroba.**

From Lavras, Minas Geraes, Brazil. Presented by Mr. B. H. Hunnicutt, director, Escola Agricola de Lavras. Received May 18, 1917.

"A small Brazilian tree with foliage remarkably similar to that of some of the European oaks. It is usually 20 to 25 feet in height, though occasionally taller. The fruits greatly resemble small guavas, being orange-yellow, oblate in form, and up to an inch in diameter. The skin is thin and incloses a layer of granular, light yellow pulp which has a flavor somewhat stronger than that of the guava. The fruits are used principally for making jams and jellies. The tree should prove suitable for southern California and southern Florida." (Note of *Dorsett, Shamel, and Popenoe.*)

See also S. P. I. Nos. 37834 and 44086 for previous introductions.

44785. PERSEA AMERICANA Mill. Lauraceæ. **Avocado.**
(*P. gratissima* Gaertn. f.)

From Guatemala. Bud wood collected by Mr. Wilson Popenoe, agricultural explorer. Received June 8, 1917.

"(Nos. 132, 213. Avocado No. 12.) *Pankay.* This variety has been included in the set primarily for its probable hardiness. The parent tree is growing at an altitude of 8,500 feet, which is more than a thousand feet above the zone in which citrus trees are seen in Guatemala. Avocados are rarely found at this altitude. Several other avocado trees in the same town (Totonicapam) had been badly injured by a recent frost at the time *Pankay* was selected, but this variety had escaped practically untouched. How much may be due to situation or other circumstances, however, is not known, and not too much confidence should be placed in the superior hardiness of this variety until it has been thoroughly tested in Florida and California. Since, in addition to its probable hardiness, it is a fruit of very good quality, it can be strongly recommended for trial in the United States.

"The parent tree is growing in the patio of Jesusa v. de Camey, corner of Calle Cabanas and 10a Avenida Norte, Totonicapam. The altitude of this town is approximately 8,500 feet, perhaps a little higher. The situation is somewhat sheltered, since the tree stands in the patio of a house close to the north wall. Since the top of the tree, however, extends 10 feet or more above the roof of the house, the protection can not be of great importance, except from one point of view: The tree may have been effectively protected when young, being thus enabled to develop uninjured during the first few years of its growth, after which it was better able to withstand severe frosts. The age of the tree is said to be about 25 years; it stands 40 feet high, with a broadly oval, dense crown, the top of which has been cut out to avoid danger of its breaking in high wind and falling upon the tile roof of the house. The trunk is about 20 inches thick at the base, dividing 8 feet from the ground to form two main branches, which give off secondary branches at 20 feet from the ground. While the tree appears to be vigorous and hardy, it may be found somewhat difficult to propagate, as it does not make the best type of bud wood. The eyes are not plump, but somewhat slender, with the outer bud scales falling early, and the bud itself shows a tendency to fall at an early stage. The wood seems to be rather brittle.

"The flowering season is late April and May. The tree is quite productive, bearing its fruits often in clusters. It produced a good crop from the 1915 blooms and another good one from the 1916 blooms. Owing to the great eleva-

tion of Totonicapam and the consequent lack of heat, the fruits are very slow in reaching maturity. The season of ripening is from September until the end of the year, but the fruits which ripen at this time are those from the previous year's bloom—that is, flowers which appeared in May, 1916, developed fruits which were not fully ripe until September or October, 1917.

"The fruit is of medium size, of attractive pyriform shape, smooth, and green in color. The flesh is of good quality, free from fiber, and the seed is comparatively small. It can be considered a fruit of very good quality and desirable from other points of view than that of its probable hardiness.

"Following is a formal description of this variety: Form pyriform, rather slender, and slightly necked; size medium, weight 12 ounces, length 4¾ inches, greatest breadth 3 inches; base tapering, narrow, the stem inserted almost squarely without depression; stem 3½ inches long, stout; apex rounded, slightly depressed around the stigmatic point; surface smooth or nearly so, light green and almost glossy, with numerous yellow dots; skin moderately thick, about one-sixteenth of an inch, woody and brittle; flesh deep-cream color, changing to pale green near the skin, free from fiber, and of very rich flavor; quality excellent; seed rather small, conical, weighing about 1½ ounces, tight in the cavity, with both seed coats adhering closely." (*Popenoe.*)

See also Exploring Guatemala for Desirable New Avocados, Annual Report of the California Avocado Association, 1917, p. 125, fig. 21; reprint, 1918, p. 24, fig. 20; and The Avocado in Guatemala, U. S. Department of Agriculture Bulletin No. 743, p. 50.

44786. CRYPTOSTEGIA GRANDIFLORA R. Br. Asclepiadaceæ.

Palay rubber.

From Old Fort, New Providence, Bahamas. Presented by Mr. W. F. Doty, American consul, Nassau, Bahamas, who secured it from Dr. Charles S. Dolley. Received May 24, 1917.

A twining shrub, native of India, but cultivated in many places in the Tropics for the rubber obtained from the sap. It has opposite, elliptic leaves and terminal cymes of large reddish purple flowers which bloom all the year. The leaves and stems contain an abundance of latex which yields a quantity of rubber estimated at 2 per cent of the weight of the fresh plant. From the bast fiber of the inner bark a good quality of wrapping paper has been made. The seed coma furnishes a silky floss which can be made into an excellent felt. Propagation is by seeds. (Adapted from *C. S. Dolley, On the Occurrence of Palay Rubber in Mexico, India-Rubber Journal, May 20, 1911.*)

44787 to 44789.

From Ranchi, India. Presented by Mr. A. C. Dobbs, Deputy Director of Agriculture, Chota Nagpur Division. Received May 24, 1917.

44787. BRASSICA CAMPESTRIS SARSON Prain. Brassicaceæ. Sarson.

An erect annual of rigid habit, cultivated in many places in India for the seeds. There are two forms—one with erect pods and one with pendent pods, the former being the true *sarson* and the latter being found commonly only in northern Bengal and eastern Tirhut. The seed is sown in September, either broadcast or in parallel lines, usually with wheat or barley, and the plants are cut soon after the harvest of the associated crop. *Sarson* is very liable to be attacked by insects and

44787 to 44789—Continued.

blight and is quite susceptible to climatic vicissitudes. (Adapted from *Watt, Commercial Products of India, p. 176.*)

44788. BRASSICA NAPUS DICHOTOMA (Roxb.) Prain. Brassicaceæ. **Tori.**

An annual plant cultivated throughout India, especially in the lower provinces. There are two forms—one tall and rather late, the other shorter and very early. The seeds are usually brown and the same size as those of the *sarson* (*Brassica campestris sarson*). The oil content is very variable. (Adapted from *Watt, Commercial Products of India, p. 178.*)

44789. GUIZOTIA ABYSSINICA (L. f.) Cass. Asteraceæ.

An annual composite, native of tropical Africa, but cultivated in most of the provinces of India for the oil-producing seeds. The seed is sown from June to August and harvested in November and December. Light sandy soil is generally chosen, and the seed is drilled in rows 11 to 13 inches apart. The oil is pale yellow or orange, nearly odorless, and has a sweet taste. It is used for making paints, for lubrication, and for lighting purposes. (Adapted from *Watt, Commercial Products of India, p. 625.*)

44790 to 44792. PHYSALIS PERUVIANA L. Solanaceæ. **Poha.**

From Dundas, New South Wales, Australia. Presented by Mr. Herbert J. Rumsey. Received May 29, 1917. Quoted notes by Mr. Rumsey.

"The green and purple varieties and the crosses between them make a muddy looking jam with a peppery taste, distasteful to many; but the yellow variety makes jam of a clear amber color, which is almost free from the hot taste."

44790. "*Large Purple.* Grown from seed received recently from Livingston's. This appears to be the original type of the fruit."

44791. "*Phenomenal Large Green.* A type frequently in evidence among our seedlings."

44792. "*Phenomenal Large Yellow.* The result of our selection for six or seven years. The fruit from which this was saved is the type at which we are aiming."

44793 and 44794.

From Mustapha, Algiers, Algeria. Presented by Dr. L. Trabut. Received May 26, 1917.

44793. ALLIUM TRIQUETRUM L. Liliaceæ.

A bulbous plant with a 3-angled stem, common on the coast of Algeria. In its usual surroundings this plant is a rather dwarfed weed of dry texture, but it has been found that when it is transplanted to good garden soil with plenty of fresh water it produces, during the winter, large plants with white, tender, and succulent underground parts. If the green leaves are removed, the rest of the stem forms a delicate vegetable with no odor of garlic. (Adapted from *Trabut, Revue Horticole, July 1, 1913, p. 311.*)

44794. GOSSYPIUM sp. Malvaceæ. **Cotton.**

"This cotton is derived from a *Caravonica* hybrid crossed with *Mit Afifi.* For several years it has proved very prolific and fairly early. It

44793 and 44794—Continued.

has long, silky fiber of first-rate quality. It bears little or nothing the first year, but the following year is covered with bolls. It should be planted at the rate of three to five thousand plants for each 2 acres. It may remain in place four or five years. The seeds should be collected from the best plants, as this hybrid is still incompletely fixed. The plants should be started in a nursery and planted the second year." (*Trabut.*)

Caravonica is supposed to be a hybrid between kidney cotton, *Gossypium* sp., and *G. barbadense; Mit Afifi* is usually referred to *G. barbadense.*

44795 to 44800.

From Venezuela. Presented by Mr. Henry Pittier. Received May 29, 1917. Quoted notes by Mr. Pittier.

44795. AMYGDALUS PERSICA L. Amygdalaceæ. **Peach.**
(*Prunus persica* Stokes.)

"(No. 7112. From Caracas, March, 1917.) A small peach, with thin, acidulous flesh, sold in the market at Caracas; collected in the neighboring mountains."

44796. BROMELIA CHRYSANTHA Jacq. Bromeliaceæ.

"(No. 7111. From Caracas, March, 1917.) This has been called *Bromelia chrysantha*, but it may be simple *B. pinguin.* The fruit, which is sweet acidulate and quite agreeable to the taste when mature, is sold in the market."

44797 to 44799. GOSSYPIUM sp. Malvaceæ. **Cotton.**

Introduced for the Office of Crop Acclimatization and Adaptation Investigations.

44797. "(No. 7110. From Siquire Valley, Miranda, April, 1917.) A deciduous shrub of pyramidal habit, with 4-locked fruits. It grows among bushes on alluvial flats."

44798. "(No. 7094. From Caracas, March, 1917.) Cultivated in a garden."

44799. "(No. 7109. From Caracas, March, 1917.) A pyramidal perennial shrub, 2 to 3 meters (7 to 10 feet) high, growing around houses, bushes, etc."

44800. SOLANUM sp. Solanaceæ.

"(No. 5972. From Caracas.) An herbaceous trailing plant, bearing edible fruits; desirable for cultivation in cool, shady places in a mild climate."

44801. ANNONA (CHERIMOLA × SQUAMOSA) × RETICULATA. Annonaceæ. **Cuatemoya.**

From Lamao, Philippine Islands. Cuttings presented by Mr. P. J. Wester, horticulturist in charge of the Lamao Experiment Station. Received May 19, 1917.

"No. 3685–11."

See S. P. I. Nos. 44671 to 44673 for previous introductions and description.

44802. MICROLAENA STIPOIDES (Labill.) R. Br. Poaceæ. **Meadow rice-grass.**

From Sydney, New South Wales, Australia. Purchased from Messrs. Arthur Yates & Co. (Ltd). Received May 31, 1917.

These seeds were introduced for the Office of Forage-Crop Investigations.

A perennial, erect or ascending grass, 1 to 2 feet in height, with usually rather short and very acute leaves, narrow panicles 3 to 6 inches long, and 1-flowered spikelets. It keeps beautifully green throughout the year and will live in poor soil, provided it be damp. It bears overstocking better than any other native grass and maintains a close turf. It is native in Australia and also in New Zealand. (Adapted from *Bailey, Queensland Flora, pt. 6, p. 1872,* and from *Maiden, Useful Native Plants of Australia, p. 94.*)

44803. SOLANUM TUBEROSUM L. Solanaceæ. **Potato.**

From Allahabad, India. Presented by Mr. William Bembower, horticulturist, Ewing Christian College. Received May 31, 1917.

"Potato seed produced on the farm of the Agricultural Department of the Ewing Christian College, Allahabad. Gathered in March, 1917. The variety or varieties we have here are of inferior quality generally, and we find a little difficulty in carrying them over the hot season, but we are trying to improve the local kinds." (*Bembower.*)

44804 and 44805.

From Yihsien, Shantung, China. Presented by Rev. R. G. Coonradt. Received June 1, 1917.

44804. CANNABIS SATIVA L. Moraceæ. **Hemp.**

"The hemp is planted here in March, in rich, black soil, and often irrigated. From the fiber taken from the outside of the stalk our best rope is made." (*Coonradt.*)

For the use of the Office of Fiber Investigations.

44805. POLYGONUM TINCTORIUM Lour. Polygonaceæ.

"The 'blue plant' may be common in America. When mature, it is put through a process to obtain the dye with which all of our blue clothes are colored." (*Coonradt.*)

An annual herb commonly cultivated in dry fields in China and Japan, growing to a height of 1 to 2 feet. The leaves are variable in shape, ranging from long narrow to short and oval, and the pink flowers are borne in spikes. The dried leaves are made into "indigo balls," from which the dye is obtained. (Adapted from *Useful Plants of Japan, p. 101.*)

44806. CANAVALI GLADIATUM (Jacq.) DC. Fabaceæ. **Sword bean.**

From Cairo, Egypt. Presented by Mr. F. G. Walsingham, horticultural division, Gizeh Branch, Ministry of Agriculture. Received June 1, 1917.

A robust, woody, perennial climbing plant, with leaves composed of three roundish leaflets, 2 to 6 inches long, and axillary racemes of dark-purple flowers. The scimitar-shaped pods are about a foot long and contain numerous red or white seeds which resemble large beans. The young pods are sliced and boiled for table use and are also pickled. Propagation is by seeds. (Adapted from *Lindley, Treasury of Botany, vol. 1, p. 212,* and from *Macmillan, Handbook of Tropical Gardening and Planting, p. 207.*)

44807. ORYZA SATIVA L. Poaceæ. **Rice.**

From Chosen (Korea). Presented by Miss Katherine Wambold, Yunmotkol, Keijo, through Mrs. M. W. Spaulding, Washington, D. C. Received June 1, 1917.

"*Pepsi* or *pay.* Planted in water; when about a month old it is transplanted to deeper water; then, later, weeding is done, fertilizing having been done before the seed is planted. It is a difficult crop to raise." (*Wambold.*)

44808 to 44814.

From Chile. Presented by Mr. G. F. Arms, Coquimbo, Chile. Received June 2, 1917. Quoted notes by Mr. Arms.

44808 to 44813. FRAGARIA CHILOENSIS (L.) Duchesne. Rosaceæ. **Strawberry.**

Introduced for the Office of Horticultural and Pomological Investigations.

44808. "Wild strawberries from near Temuco, Chile; secured by Mr. George T. Smith."

44809. "Conical strawberries from Mr. W. D. Carhart, Concepcion, Chile."

44810. "*Montañescas* (?). Common large berries, with deep-set seeds, from Mr. W. D. Carhart, Concepcion, Chile."

44811. "Red, shining seeds. From Tome, near Concepcion. Secured by Mr. W. D. Carhart."

44812. "*Montañescas.* Deep-set seeds; from Mr. W. D. Carhart."

44813. "Cultivated strawberries, with large seeds well on the surface of the berry. From 'Granideros,' the farm of Mr. Celio Rioseco, at Collepulli, south of Concepcion, Chile."

44814. MESEMBRYANTHEMUM CHILENSE Molina. Aizoaceæ. **Doca.**

"*Doca,* or *frutillas del mar* (strawberries of the sea). Collected on the sea beach near Serena, Chile."

A glabrous, succulent plant about a meter (3¼ ft.) in length, with opposite, triangular, green leaves from 4 to 7 cm. (1⅝ to 3 in.) long, solitary purplish flowers, and fleshy fruits. It grows flat in the sand on the seacoast from Coquimbo to Rio Bueno, Chile. The fruit is edible, having an agreeable taste, but if eaten in abundance has a purgative effect. (Adapted from *A. Murillo, Plantes Medicinales du Chili, p. 99.*)

44815. CUCUMIS MELO L. Cucurbitaceæ. **Muskmelon.**

From Turkestan. Collected and presented by Mr. Philip M. Lydig, New York City. Received June 4, 1917.

"These melons are delicious six months after being taken from the vine." (*Lydig.*)

44816. CÆSALPINIA MELANOCARPA Griseb. Cæsalpiniaceæ.

From Paraguay. Presented by Mr. C. F. Mead, Asuncion, Paraguay. Received June 4, 1917.

"*Guayacan.* From Chaco Paraguayo, near Asuncion, Paraguay. A very handsome and useful timber tree, though for the most part useless in Chaco through being unsound. In many respects it corresponds to teak. The bark has medicinal properties. It may do well in the southern United States." (*Mead.*)

44817. VOANDZEIA SUBTERRANEA (L.) Thouars. Fabaceæ.

From Umkomaas, Natal, Union of South Africa. Presented by Rev. H. D. Goodenough. Received June 5, 1917.

"*Woandzu.* The natives plant these when the first rains come, on new ground, preferably a sandy loam. They look very much like peanuts, but in cooking they are boiled in their shells." (*Goodenough.*)

A yellow-flowered annual with upright, long-stalked compound leaves composed of three leaflets. Like the common peanut, the flower stalks bend down to the earth after flowering, and the pods are ripened underneath the ground. In the requisite cultural conditions the plant much resembles the common peanut. (Adapted from *Macmillan, Handbook of Tropical Gardening and Planting, p. 232.*)

44818 to 44822.

From Guatemala. Collected by Mr. Wilson Popenoe, agricultural explorer. Received May 4, 1917. Quoted notes by Mr. Popenoe.

44818. CLEOME sp. Capparidaceæ.

"(No. 104a. From Purula, Department of Baja Vera Paz.) Seeds of *alcochofli*, an herbaceous plant found in the mountains at an altitude of about 6,000 feet. It sends up slender stems to a height of about 6 feet, producing large numbers of delicate pale blue and white flowers. The leaves and stems, when crushed, have a pungent odor."

44819. DAHLIA EXCELSA Benth. Asteraceæ. **Dahlia.**

"(No. 105. From Purula, Department of Baja Vera Paz.) Cuttings of a double pink variety of the common tree dahlia. It is pale lilac, the same color as the typical form, but unlike the latter, which has large single flowers, this variety has double flowers resembling in form some of the common garden dahlias of the North. The plant grows to a height of 15 feet, or even more, and blooms during a long period. It is cultivated in the gardens of the Indians, but is not common. In the Pokom dialect it is called *shikhor;* in Kekchi *tzoloh.*"

44820. PERSEA AMERICANA Mill. Lauraceæ. **Avocado.**
(*P. gratissima* Gaertn. f.)

"(No. 87a. Seeds of avocado No. 15 [S. P. I. No. 44439] from the finca Santa Lucia, Antigua.) These seeds are to be grown and distributed as choice seedlings to those who wish to plant a seedling tree on the possibility that it may become a valuable new variety. It will be interesting to watch these trees when they come into fruit and to compare their fruits with those of their parent, avocado No. 15. The latter is a very choice variety."

44821. MAXIMILIANEA VITIFOLIA (Willd.) Krug and Urb. Cochlosper-
(*Cochlospermum hibiscoides* Kunth.) [maceæ.

"(No. 107a.) *Tecomasuche.* Seeds of a common shrub or small tree of eastern and central Guatemala, from the highlands at about 4,000 feet down to a level of 1,000 feet or perhaps lower. The plant occasionally reaches a height of 35 feet, is always stiff, rather sparsely branched, and bears stout branchlets, which usually carry leaves only toward their tips. The plant is leafless from December or January to May in most sections; at this period it produces at the ends of the branchlets numerous large yellow flowers, single, brilliant in color, with a deep-orange center. They are followed by oval seed pods as large as a hen's egg."

44818 to 44822—Continued.

44822. MAURANDIA SCANDENS (Cav.) Pers. Scrophulariaceæ.

"(No. 108a. From Purula, Department of Baja Vera Paz.) Seeds of a slender creeper from a garden. It has delicate foliage and funnel-shaped flowers about an inch broad and lavender in color. Since it is found at an altitude of over 5,000 feet, it should be sufficiently hardy to grow in southern California as well as in Florida."

44823. PIMENTA ACRIS (Swartz) Kosteletsky. Myrtaceæ. **Bay tree.**

From Port Louis, Mauritius. Presented by Mr. G. Regnard. Received June 4, 1917.

A small, erect tree, the leaves of which are very aromatic, yielding by distillation an oil which is used in the preparation of bay rum. It is a native of the West Indies, but is cultivated in other tropical places also. The dried leaves and the bay rum form an important export from St. Thomas and other West Indian Islands. (Adapted from *Macmillan, Handbook of Tropical Gardening and Planting, p. 261.*)

44824. PIMENTA OFFICINALIS Lindl. Myrtaceæ. **Allspice.**

From Port Louis, Mauritius. Presented by Mr. G. Regnard. Received June 5, 1917.

A small tree with smooth, grayish bark, native to Central America and the West Indies, but cultivated in many places throughout the Tropics for the berries. These when ripe are glossy black and the size of small peas, but when dried before ripening are the allspice or pimento of commerce. It is considered to yield best in a hot and rather dry climate and prefers a loose loam or an alluvial, well-drained soil. At the present time Jamaica is the only place from which allspice is exported. (Adapted from *Macmillan, Handbook of Tropical Gardening and Planting, p. 259.*)

44825. ERYTHROCHITON sp. Rutaceæ.

From Para, Brazil. Presented by Mr. J. Simão da Costa. Received June 5, 1917.

"A rutaceous plant which may be called a botanical curiosity, from the queer way in which its flowers are borne. It prefers a warm, moist atmosphere and not too much light." (*Da Costa.*)

The flowers of *Erythrochiton hypophyllanthus*, a related species, are borne on the midribs of the leaves.

Received as *Erythrochiton paraensis*, for which no place of publication has yet been found.

44826 to 44828. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**
(*Sorghum vulgare* Pers.)

From Salisbury, Rhodesia, Africa. Presented by Mr. J. O. S. Walters, assistant agriculturist, Department of Agriculture. Received June 5, 1917. Quoted notes by Mr. Walters.

Introduced for the Office of Forage-Crop Investigations.

44826. "The cultivated variety."

44827. "The wild variety."

44828. "Probably a cross. All of these native sorghums cross readily."

44829. BRASSICA OLERACEA VIRIDIS L. Brassicaceæ.

From Jersey Island, Channel Islands, Great Britain. Presented by Mr. D. R. Bisson, St. John. Received June 6, 1917.

"*Jersey tree kale* or *cow cabbage*. In this section Jersey kale is sown at the end of summer, then transplanted to 2 or 3 feet apart about November. It must be protected to stand continued severe frost. Its stalk attains a height of 8 to 12 feet. The leaves of the growing plant are used for feeding cattle and pigs." (*Bisson.*)

44830. ZEA MAYS L. Poaceæ. **Corn.**

From Johannesburg, Union of South Africa. Purchased from the Agricultural Supply Association, for the use of the Office of Cereal Investigations. Received May 9, 1917.

"*Izotsha* maize is a strain (apparently of *Boone County White*) which is successfully grown in a limited area on the south coast of Natal, bordering Pondoland, an area which is subject to great extremes of drought and heat during the summer. It is claimed by farmers in that locality that it is the only breed of maize which has been found satisfactory in that particular vicinity, but as they are isolated from the main maize belt of South Africa it is quite possible they have not tried some of the more drought-resistant types which are now being grown in other parts of the Union. (*Letter of J. Burtt Davy, dated August 18, 1917.*)

44831 to 44838.

From Sydney, Australia. Presented by Mr. J. H. Maiden, director, Botanic Gardens. Received June 8, 1917.

44831. CHORIZEMA CORDATUM Lindl. Fabaceæ.

A tall, slender, glabrous, evergreen shrub, 7 to 10 feet high, with weak branches, more or less prickly leaves about 2 inches in length, and numerous red flowers. It is propagated from cuttings and may be grown in the open in southern California and southern Florida, being excellent for training on pillars and trellises. In colder regions it is an attractive plant for the cool greenhouse. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 752.*)

44832. CYTISUS STENOPETALUS (Webb) Christ. Fabaceæ. **Gacia.**

A shrub or small tree, up to 20 feet in height, with crowded, slender-stemmed trifoliate leaves, silky pubescent on both sides, or sometimes smooth on the upper surface. The bright yellow, slightly fragrant flowers occur in short terminal racemes, and the flat dehiscent pod contains from five to seven seeds. It is a native of the Madeira Islands, and is cultivated there and in Australia as an ornamental. In the Canary Islands it is said to be used as fodder. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 949*, and from *Report of the Director of the Botanic Gardens, Sydney, Australia, 1916, p. 5.*)

44833. EUGENIA CYANOCARPA F. Muell. Myrtaceæ.

Although the fruits of this species are inferior to those of the Eugenias ordinarily cultivated (*Eugenia uniflora* and *E. dombeyi*), yet they may have some economic importance in the future. (Adapted from *Maiden, Report of the Sydney Botanic Gardens, 1915.*)

44831 to 44838—Continued.

44834. ISOTOMA AXILLARIS Lindl. Campanulaceæ.

An erect perennial plant, 6 to 12 inches high, which flowers the first year, appearing to be annual, but forming at length a hard rootstock. It has a few spreading branches, irregularly pinnatifid linear leaves 2 to 3 inches long, and large, bluish purple axillary flowers. It is a native of Australia, where it is now cultivated as an ornamental. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 3, p. 1707.*)

44835. PERSOONIA MYRTILLOIDES Sieber. Proteaceæ.

A much-branched spreading shrub about 4 feet high, with rigid, oblong-lanceolate leaves about an inch in length and axillary flowers nearly half an inch long. It is a native of the Blue Mountains in New South Wales. (Adapted from *Bentham and Mueller, Flora Australiensis, vol. 5, p. 401.*)

44836. PETROPHILA PULCHELLA (Schrad.) R. Br. Proteaceæ.

An erect, shrubby plant, with alternate, much-divided threadlike leaves and a conical head of small white flowers. It is a native of Australia, where it is sometimes cultivated as an ornamental. (Adapted from *Curtis's Botanical Magazine, vol. 21, pl. 796*, as *Protea pulchella.*)

44837. TELOPEA SPECIOSISSIMA (J. E. Smith) R. Br. Proteaceæ. **Waratah.**

A stout, erect, glabrous shrub 6 to 8 feet high, with leathery, cuneate-oblong leaves 5 to 10 inches long and very handsome crimson flowers in dense heads or racemes 3 inches in diameter. The fruit is a leathery, recurved follicle 3 to 4 inches long, containing 10 to 20 seeds. It is native to New South Wales. (Adapted from *Bentham and Mueller, Flora Australiensis, vol. 5, p. 534.*)

44838. VITTADINIA TRILOBA (Gaud.) DC. Asteraceæ.
(*V. australis* A. Rich.)

An herbaceous plant, either erect and apparently annual or with diffusely ascending stem from a perennial woody base, usually not more than a foot high. The leaves are entire or coarsely three lobed, and the purplish flower heads are solitary and terminal. It is a native of southern Australia and might be useful as an ornamental in borders. (Adapted from *Bailey, Queensland Flora, pt. 3, p. 811.*)

44839. CACARA EROSA (L.) Kuntze. Fabaceæ. **Yam bean.**
(*Pachyrhizus angulatus* Rich.)

From Mayaguez, Porto Rico. Presented by Mr. C. F. Kinman, horticulturist, Agricultural Experiment Station. Received June 8, 1917.

"*Habilla.*" A shrubby, twining, tuberous-rooted vine with trifoliolate leaves, reddish flowers in racemes up to a foot in length, and straight pods 6 to 9 inches long, containing 8 to 12 seeds. It is cultivated throughout the Tropics for the sake of the edible roots, which are prepared and eaten like potatoes or subjected to a process for extracting the starch. This starch is pure white and is said to be equal in every respect to that obtained from arrowroot. It is very palatable and is used in making custards and puddings. The powdered tubers make a very excellent flour. Although the ripe beans are poisonous, the pods are not and when young are eaten like string beans. In Florida and in the island of Mauritius this bean is used as a cover crop.

For an illustration of the yam bean as a cover crop, see Plate VIII.

44840. SISYRINCHIUM sp. Iridaceæ.

From Guatemala. Plant collected by Mr. Wilson Popenoe, agricultural explorer. Received June 8, 1917.

"(No. 135. May 28, 1917.) A flowering plant from the hillsides near Momostenango, in the Department of Totonicapam, at an altitude of 7,500 feet. It grows to a height of about 2 feet, with slender, grasslike leaves. In May it produces flower stalks up to about 2½ feet high, each bearing several pale-blue flowers about an inch in diameter, with six lanceolate petals. It is called in Spanish *Flor de Mayo* (*Mayflower*). This should be adapted to cultivation in California and Florida. It seems to like a heavy soil." (*Popenoe.*)

44841. ANNONA CHERIMOLA Mill. Annonaceæ. **Cherimoya.**

From Oran, Salta, Argentina. Presented by Mr. S. W. Damon. Received June 9, 1917.

"Seeds of *Annona cherimola* from rather good fruit which I ate a few days ago. The trees which bore the fruit withstood, last winter, a temperature of about 15° F." (*Damon.*)

44842. CITRULLUS VULGARIS Schrad. Cucurbitaceæ. **Watermelon.**

From Durban, Natal, Union of South Africa. Presented by Mr. William W. Masterson, American consul. Received June 8, 1917.

Mankataan. A melon much cultivated throughout Natal for use as cattle feed. It is exceptionally tough, enduring rough handling and keeping for six months after ripening without spoiling; but, at the same time, it is very watery and makes an excellent green fodder for live stock, especially when mixed with such feed as alfalfa hay or cornstalks. It is also very suitable for jam making, some of the Cape Colony firms using large quantities for this purpose. One pound of seed will plant 2 or 3 acres, and as much as 120 tons of melons has been taken from a single acre. It might be suitable for the semiarid regions of the United States. (Adapted from *William W. Masterson, consular report, April 18, 1917.*)

44843. COIX LACRYMA-JOBI MA-YUEN (Rom.) Stapf. Poaceæ. **Job's-tears.**

From Chosen (Korea). Presented by Miss Katherine Wambold, Yunmot-kol, Keijo, through Mrs. M. W. Spaulding, Washington, D. C. Received June 1, 1917.

"*Yulé moo.* Grows in ordinary fields. Made into meal by mixing with water, then draining, drying, and pounding. When mixed with water and salt it is made into a kind of bread." (*Wambold.*)

This variety might be called the cultivated edible Job's-tears, and it includes many forms, all of which are characterized by having a thin, loose, easily broken shell. They are often longitudinally striated and in many examples are constricted at the base into what has been called an annulus. In the central provinces of India, among the aboriginal tribes, this grain forms an important article of food. It has been introduced into Japan, where the seeds are pounded in a mortar and eaten as meal. (Adapted from the *Agricultural Ledger, No. 13, p. 217, 1904.*)

44844. CARPINUS ORIENTALIS Mill. Betulaceæ.

Oriental hornbean.

From Petrograd, Russia. Presented by Dr. A. Fischer de Waldheim, director, Jardin Botanique de Pierre le Grand. Received June 5, 1917.

A small tree or large shrub, up to 20 feet high, having ovate, dark glossy-green leaves, 1 to 2 inches long, with doubly dentate margins. The staminate catkins are up to three-quarters of an inch in length, and the exposed nuts are about one-sixteenth of an inch long. It is a native of southeastern Europe and Asia Minor and is cultivated in European gardens merely as an interesting rarity. (Adapted from *Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 296.*)

44845. RUBUS LINEATUS Reinw. Rosaceæ.

From Lawang, Java. Presented by Mr. M. Buysman. Received June 9, 1917.

A stout, semierect herb with softly pubescent branches, straight prickles or none at all, and compound leaves composed of three to five leathery, often doubly serrate leaflets up to 5 inches in length and 2½ inches in width. The flowers occur either in short axillary heads or in elongated terminal panicles, and the berries are red. It is a native of the Sikkim Himalayas, where it is found at altitudes ranging from 6,000 to 9,000 feet. It is very variable in the size of the flowers and the width of the leaflets. (Adapted from *Hooker, Flora of British India, vol. 2, p. 333.*)

44846 to 44854.

From Avondale, Auckland, New Zealand. Presented by Mr. H. R. Wright. Received June 9, 1917.

44846. CYPHOMANDRA BETACEA (Cav.) Sendt. Solanaceæ. **Tree-tomato.**

An evergreen, semiwoody plant, native to Peru. Cultivated throughout the Tropics for the edible, ovoid, smooth-skinned fruits which are produced in hanging clusters at the ends of the branches. When mature these fruits are reddish yellow, with a subacid pulp of an agreeable flavor; although pleasant when eaten fresh, they are used chiefly for stewing or for jam or preserves. The tree is a quick grower, commencing to bear when about 2 years old, and thrives best on deep soil. Propagation is by seeds. (Adapted from *Macmillan, Handbook of Tropical Gardening and Planting, ed. 2, p. 194.*)

44847. DOVYALIS CAFFRA (Hook. and Harv.) Warb. Flacourtiaceæ.
(*Aberia caffra* Hook. and Harv.) **Umkolo.**

"Fruits used for jams and jellies; the plant is grown for hedges. It is very prickly and is hardy in New Zealand." (*Wright.*)

A shrub or small tree, with pale-green leaves 1½ inches long and up to an inch in width. The edible fruit resembles a small yellowish apple and is so exceedingly acid when fresh that it is said to be used without vinegar as a pickle. It is a native of tropical Africa, but has been introduced into southern California and southern Florida. (Adapted from *The Pacific Garden, August, 1914.*)

44848 and 44849. LEPTOSPERMUM SCOPARIUM Forst. Myrtaceæ.

Manuka.

"Very hardy. Used for firewood, as it gives great heat. Very pretty when in flower. Grows 6 to 10 feet high." (*Wright.*)

One of the most abundant of New Zealand shrubs, reaching occasionally a height of 30 feet, with hard, leathery, sharp-pointed leaves and

44846 to 44854—Continued.

white or pinkish, odorless flowers up to three-quarters of an inch in width. This plant flowers so profusely that the entire country appears as though covered with snow. The entire plant is very aromatic, and the leaves have been used for making tea. The wood is used for fences and firewood. (Adapted from *Laing and Blackwell, Plants of New Zealand, p. 272.*)

44848. (No. 1.) **44849.** (No. 2.)

44850. NAGEIA EXCELSA (D. Don.) Kuntze. Taxaceæ.
(*Podocarpus dacrydioides* A. Rich.)

"This is the one tree exclusively used in this country for making butter boxes, the wood being odorless and of a nice white color. The tree grows very tall and often has a trunk 5 or 6 feet in diameter." (*Wright.*)

A tall tree, often branchless for 70 or 80 feet, with flat, bronze-colored young leaves, which become green and scalelike when mature. The very small catkins are borne on the tips of the branchlets, and the fruit is set upon a fleshy red receptacle which is eaten by the Maoris. The tree is native to New Zealand, where it is called by the Maori name *Kahikatea.* It furnishes a light-colored, very heavy timber which is well suited for making paper pulp. (Adapted from *Laing and Blackwell, Plants of New Zealand, p. 70,* as *Podocarpus dacrydioides.*)

44851. NAGEIA FERRUGINEA (G. Benn.) Kuntze. Taxaceæ. **Miro.**
(*Podocarpus ferruginea* G. Benn.)

A large tree with gray or grayish black bark which peels off in large flakes; native to New Zealand. It has narrow, pointed leaves, axillary diœcious flowers, and bright-red fruits about the size of a small plum. The native pigeons are very fond of the *miro* berries and become very fat and lazy from feeding on them. The fruits have the odor and taste of turpentine and ripen in July and August. The timber is hard and rough and is not easily worked, nor is it especially durable. The gum which oozes from the tree possesses healing properties. (Adapted from *Laing and Blackwell, Plants of New Zealand, p. 68,* as *Podocarpus ferruginea.*)

44852. PASSIFLORA sp. Passifloraceæ. **Granadilla.**

"*Bell-apple* or *Indian passion fruit.* A delicious fruit requiring tropical heat." (*Wright.*)

44853 and 44854. PASSIFLORA EDULIS Sims. Passifloraceæ.
Purple granadilla.

44853. "*Fiji.*"

44854. "*Giant.* An improved strain of the common passion fruit as grown in New Zealand and Australia. Largely grown commercially. Will grow wherever frosts are not too heavy in winter." (*Wright.*)

44855. ACHRAS ZAPOTA L. Sapotaceæ. **Sapodilla.**
(*A. sapota* L.)

From Curaçao, Dutch West Indies. Presented by Mr. H. M. Curran. Received June 11, 1917.

"*Nispero.* From very large, choice fruits." (*Curran.*)

44856. PERSEA AMERICANA Mill. Lauraceæ. **Avocado.**
(*P. gratissima* Gaertn. f.)

From Guatemala. Budwood collected by Mr. Wilson Popenoe, agricultural explorer. Received June 12, 1917.

"(Nos. 146, 193, 221. Avocado No. 30.) *Tertoh.* A famous variety from Mixco, near the city of Guatemala, noted for its large size and excellent quality.

"The parent tree is growing in the sitio of Leandro Castillo, just above the plaza of Mixco, at an altitude of approximately 5,700 feet. The tree is said by the owner to have been grown by his grandfather from a seed brought from Moran, a small village about 10 miles distant. While its age is not definitely known, it is estimated at about 60 years. It is about 25 feet high, broad and spreading in habit, with a trunk 15 inches thick at the base, branching 7 feet from the ground to form a dense crown fully 30 feet broad. A peculiarity of the tree is its very brittle wood. This may be against the variety in California and Florida, where strong winds occasionally do much damage. The growth seems to be vigorous, and the budwood is very satisfactory, the twigs being stout, well formed, and supplied with vigorous buds.

"The climate of Mixco is cool, but not cold enough to test the hardiness of the variety. This can only be determined by a trial in the United States.

"The tree flowers in March. According to the owner, it has not borne as well in recent years as formerly. He attributes this to the fact that the tree is getting old, but it seems in addition to have been weakened by the attacks of insects. No fruits were produced from the 1916 blooms. The 1917 blooms resulted in a good crop, but many of the fruits dropped to the ground when nearly full grown. Upon examination they appeared to have been attacked by some insect, whose burrows could be seen toward the base of the fruit. The season of ripening is said to be from February to April, the fruits being at their best in March. They can, however, be picked as early as January. Toward the end of the season they become very rich in flavor.

"The fruit is long and slender, tending toward pyriform. It weighs as much as 3 pounds in some instances. It is deep purple in color when fully ripe and has a rather thin skin (for this race) and deep cream-colored flesh of very rich flavor. The seed is very small in comparison to the size of the fruit.

"An American relates that he once brought a fruit from the tree to his home in the city of Guatemala, where it sufficed to make salads for two meals for a household of 10 people.

"The variety may be formally described as follows: Form oblong to slender pyriform; size extremely large, weight 28 to 36 ounces, and occasionally up to 48 ounces, length 7 to 8½ inches, greatest breadth 3¾ to 4¼ inches; base broad to narrow, sometimes pointed, the slender stem about 5 inches long inserted slightly obliquely without depression; apex rounded; surface nearly smooth, deep dull purple in color with numerous russet dots and patches; skin moderately thick, about one-sixteenth of an inch or slightly more, coarse, granular and woody; flesh cream yellow in color, free from fiber or discoloration and of fine texture; flavor rich and pleasant; quality excellent; seed very small, slender conical in form, about 1½ ounces in weight, tight in the seed cavity, with both seed coats adhering closely to the cotyledons." (*Popenoe.*)

See also Exploring Guatemala for Desirable New Avocados, Annual Report of the California Avocado Association, 1917, p. 135, fig. 32; reprint, 1918, p. 26, fig. 32; and The Avocado in Guatemala, U. S. Department of Agriculture Bulletin No. 743, p. 64, pl. 22.

For an illustration of the parent tree of the Tertoh avocado, see Plate IX.

THE PARENT TREE OF THE TERTOH AVOCADO.

(*Persea americana* Mill., S. P. I. No. 44856.)

The Tertoh is one of the largest varieties of Guatemalan avocados discovered by Mr. Wilson Popenoe during his 16 months' exploration of Guatemala. The fruits (two of which are held by Mr. Castillo) are large, sometimes weighing 3 pounds; the seed is comparatively small, and the flesh is a rich yellow color and of a nutty flavor. It is hoped that this variety will prove to be a good bearer in this country. (Photographed by Mr. Popenoe, in the grounds of Mr. Leandro Castillo, Mixco, Guatemala, December 4, 1917. P17470ES.)

THE GUAYACAN, OR "LIGNUM-VITÆ," AN ORNAMENTAL TREE FROM GUATEMALA.

(*Guaiacum guatemalense* Planch., S. P. I. No. 44858.)

In Guatemala, according to Mr. Wilson Popenoe, this species forms a shrub, or sometimes a small tree, with evergreen foliage and attractive lavender-purple flowers, which are so showy as to make the plant conspicuous from a distance. It furnishes the extremely hard wood of commerce and appears to be hardy in southern Florida. It is quite distinct from the native Florida species, *G. sanctum*, which also deserves to be cultivated as an ornamental. The specimen shown here is only 3 years old. (Photographed by David Fairchild, at Buena Vista, Fla., March 28, 1919; P2534FS.)

44857. NEPHROLEPIS sp. Polypodiaceæ. **Fern.**

From Guatemala. Plants collected by Mr. Wilson Popenoe, agricultural explorer. Received June 25, 1917.

"(No. 147. June 9, 1917.) Ferns collected in the forest at Quirigua, where they were found growing in the leaf axils of the corozo palm (*Attalea cohune* Mart.)." (*Popenoe.*)

Introduced for the monographic study of Mr. R. C. Benedict, of the Brooklyn Botanic Garden.

44858. GUAIACUM GUATEMALENSE Planch. Zygophyllaceæ. **Guayacan.**

From Guatemala. Collected by Dr. F. S. Johnson and sent through Mr. Wilson Popenoe, agricultural explorer. Received June 25, 1917.

"(No. 145a. From Zacapa, June 5, 1917.) The *guayacan*, sometimes called by Americans *lignum-vitæ*, is found in abundance upon the plains of the lower Motagua Valley, in the vicinity of El Rancho, Zacapa, and other towns. It is a small tree, sometimes attaining 30 feet in height, usually somewhat spreading in habit, with a trunk sometimes gnarled and twisted and having slender branches. The leaves are small and delicate. Toward the end of the dry season, i. e., in February or March, the tree comes into flower, and it is then a mass of lavender purple, distinguishable for long distances across the plains. It remains in bloom for several weeks.

"The wood is exceedingly hard and, though difficult to work, is of value for cabinet purposes. The heartwood is rich brown in color, while the sapwood which surrounds it is light yellow. Both take a fine polish.

"The tree thrives in a warm climate with little rainfall. The soil upon which it grows is often rocky and poor. Whether it will stand any frost can not be stated, but it seems likely that it may succeed in parts of California and Arizona and perhaps also in Florida. Small trees often flower profusely. It should be given a trial as an ornamental in the regions mentioned." (*Popenoe.*)

For an illustration of the guayacan as grown in Florida, see Plate X.

44859 to 44864.

From Nice, France. Presented by Dr. A. Robertson Proschowsky. Received June 11, 1917.

44859. ALANGIUM CHINENSE (Lour.) Rehder. Cornaceæ.
(*Marlea begoniaefolia* Roxb.)

"A tree, hardy here, but it loses its leaves in winter; this might not happen in a warmer climate." (*Proschowsky.*)

A tall tree, up to 60 feet in height, with ovate, entire or slightly lobed leaves about 8 inches in length, and cymes of small, whitish, fragrant flowers. It is a native of Africa and southern and eastern Asia. This tree might be grown in the extreme southern United States. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 1, p. 243,* as *Alangium begoniaefolium.*)

44860. BOEHMERIA MACROPHYLLA D. Don. Urticaceæ.

A pretty shrub with narrow dentate leaves 6 to 12 inches in length and very long, drooping flower spikes. It is a native of Upper Burma and northeastern India, where it ascends to 4,000 feet. The wood is light reddish brown and moderately hard and yields a good fiber, which is used for ropes and fishing lines. (Adapted from *J. S. Gamble, Manual of Indian Timbers, p. 658.*)

44859 to 44864—Continued.

44861. BOEHMERIA PLATYPHYLLA D. Don. Urticaceæ.

A very common shrub, growing in ravines in the tropical and subtropical Himalayas. It has thin grayish brown bark, very variable leaves 3 to 9 inches long, and simple or branched spikes of small globular flower clusters. The wood is reddish brown and moderately hard. (Adapted from *J. S. Gamble, Manual of Indian Timbers, p. 658.*)

44862. MEIBOMIA TILIAEFOLIA (Don) Kuntze. Fabaceæ.
(*Desmodium tiliaefolium* Don.)

"Hardy and more or less ornamental." (*Proschowsky.*)

A large deciduous shrub, with slender, terete branches, thick, green, trifoliolate leaves about 4 inches long, and red flowers in lax racemes often a foot in length. It is a native of the Himalayas, at altitudes ranging from 3,000 to 9,000 feet. The bark yields an excellent fiber, extensively employed in rope making; the leaves are good fodder, and the roots are used medicinally as a tonic and diuretic. (Adapted from *Hooker, Flora of British India, vol. 2, p. 168*, and from *Watt, Dictionary of the Economic Products of India, vol. 3, p. 83.*)

44863. PIPTANTHUS NEPALENSIS (Hook.) Sweet. Fabaceæ.

A pretty shrub, with greenish gray bark and handsome, large, yellow flowers in rather dense racemes. The wood is white, with irregular gray heartwood. It is a native of the Himalayas at altitudes above 7,000 feet and is sometimes grown as an ornamental in European gardens. (Adapted from *J. S. Gamble, Manual of Indian Timbers, p. 229.*)

44864. TRACHYCARPUS MARTIANUS (Wall.) Wendl. Phœnicaceæ. **Palm.**

"Quite hardy and ornamental here." (*Proschowsky.*)

A tall palm, with a slender trunk 20 to 50 feet high, naked for most of its length, being clothed beneath the crown with persistent leaf sheaths. The rigid, leathery, roundish leaves are 4 to 5 feet in diameter and are cut about halfway down into linear 2-lobed segments. The flowers are yellow, and the one to three dull blue drupes are half an inch long. It is a native of the temperate parts of the Himalayas, at altitudes of 4,000 to 8,000 feet. (Adapted from *Hooker, Flora of British India, vol. 6, p. 436.*)

44865 to 44884.

From tropical America. Presented by Mr. H. M. Curran. Received June 6, 1917.

44865. ACACIA VILLOSA (Swartz) Willd. Mimosaceæ.

"(Curaçao, Dutch West Indies, March 9, 1917.) *Watapaana sjimaron.* A shrub or tree of rapid growth; used for firewood." (*Curran.*)

See S. P. I. No. 44452 for description.

44866. ACHRAS ZAPOTA L. Sapotaceæ. **Sapodilla.**
(*A. sapota* L.)

"(Curaçao, Dutch West Indies, March, 1917.) Seeds from the best and largest *nispero* I have ever eaten." (*Curran.*)

44867. CAPPARIS sp. Capparidaceæ.

"(Urumaco, Venezuela, May, 1917.) A tree with large oval dark-green leaves. Fruits reported to be edible." (*Curran.*)

44865 to 44884—Continued.

44868. CARICA PAPAYA L. Papayaceæ. **Papaya.**

"(Curaçao, Dutch West Indies, March, 1917.) Seeds of a medium-quality papaya sold in the market here." (*Curran.*)

44869. CITRULLUS VULGARIS Schrad. Cucurbitaceæ. **Watermelon.**

"(Curaçao, Dutch West Indies, March, 1917.) The watermelons of Curaçao are the best I have tasted in the Tropics." (*Curran.*)

44870. CUCUMIS MELO L. Cucurbitaceæ. **Muskmelon.**

"(Curaçao, Dutch West Indies, March 9, 1917.) Muskmelon from the Curaçao market; of fair quality." (*Curran.*)

44871 to 44874. GOSSYPIUM sp. Malvaceæ. **Cotton.**

44871. "(Altagracia, Venezuela, May, 1917.) *Algodon de Peru.* Grown as a commercial crop which sells at the rate of $20 for 500 pounds." (*Curran.*)

44872. "(Altagracia, Venezuela, May, 1917.) *Algodon moreno.* Commercial cotton, grown and manufactured in the same region." (*Curran.*)

44873. "(Los Quemazons, Venezuela, May, 1917.) *Algodon de Peru.* Commercial crop." (*Curran.*)

44874. "(Los Quemazons, Venezuela, May, 1917.) *Algodon moreno.* Commercial crop (?)." (*Curran.*)

44875. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**
(*Sorghum vulgare* Pers.)

"(Market, Willemstad, Curaçao, Dutch West Indies, March, 1917.) *Mais chiquito.* Used for making meal." (*Curran.*)

44876. PHASEOLUS LUNATUS L. Fabaceæ. **Lima bean.**

"(Market, Willemstad, Curaçao, Dutch West Indies, March, 1917.) *Klein boontje.*" (*Curran.*)

"Small forms of the large flat Lima bean. The shape, color, and markings are like types in this country. They may be either the bush or the pole form." (*D. N. Shoemaker.*)

44877. PHASEOLUS VULGARIS L. Fabaceæ. **Common bean.**

"(Market, Willemstad, Curaçao, Dutch West Indies, March, 1917.) *Klein boontje.*" (*Curran.*)

"Probably the variety known as *Dutch Caseknife.*" (*D. N. Shoemaker.*)

44878. RUPRECHTIA FAGIFOLIA Meisn. Polygonaceæ. **Duraznillo.**

"(La Estacadita, near Sabanita de Coro, Venezuela, May, 1917.) *Komari.* A small tree." (*Curran.*)

A South American tree with smooth bark which, in renewing itself each year, wrinkles in a peculiar way, giving the tree a characteristic appearance. In the spring it is covered with yellowish flowers which later become pinkish, making the tree very ornamental. The wood is of no commercial use, so far as is known. (Adapted from *Venturi and Lillo, Contribucion al Conocimiento de los Arboles de la Argentina, p. 83.*)

44879. SESAMUM ORIENTALE L. Pedaliaceæ. **Sesame.**
(*S. indicum* L.)

"(Willemstad, Curaçao, Dutch West Indies, March 9, 1917.) *Ajonjoli.* Sold in the market; for making sweetmeats." (*Curran.*)

See S. P. I. No. 44763 for description.

44865 to 44884—Continued.

44880 to 44882. VIGNA SINENSIS (Torner) Savi. Fabaceæ. **Cowpea.**

"(Market, Willemstad, Curaçao, Dutch West Indies, March, 1917.) *Boontje del Baliza.*" (*Curran.*)

Descriptive notes by Mr. W. J. Morse, Office of Forage-Crop Investigations, Bureau of Plant Industry.

44880. "No. 1. A red cowpea, quite similar to our *Red Ripper.*"

44881. "No. 2. A clay-colored cowpea, resembling some of our medium-maturing Clay varieties."

44882. "No. 3. A speckled cowpea, resembling our *Whippoorwill* variety."

44883. MELICOCCA BIJUGA L. Sapindaceæ.

"(Sabanete de Montiel, Venezuela, May, 1917.)" (*Curran.*)

44884. MIMOSA sp. Mimosaceæ.

"(La Estacadita, near Sabanita de Coro, Venezuela, May, 1917.) *Cabuderŏ.* A common, small, leguminous tree with white flowers." (*Curran.*)

44885. PRUNUS SALICIFOLIA H. B. K. Amygdalaceæ. **Capuli.**

From the city of Guatemala, Guatemala. Collected by Mr. Wilson Popenoe, agricultural explorer. Received June 12, 1917. Quoted notes by Mr. Popenoe.

"(No. 128a. May 16, 1917.) The wild cherry of the Guatemalan highlands, called *cereza* in Spanish and *capulí* in the Kiché Indian dialect. The tree is found both wild and cultivated in the mountains of Guatemala, from altitudes of about 4,000 up to 9,000 feet or perhaps higher. As commonly seen, the tree is erect, often somewhat slender, reaching a height of about 30 feet, the trunk stout (occasionally as much as 3 feet thick), and the bark rough and grayish. The young branchlets are dotted with grayish lenticels. The leaves, which are borne upon slender petioles three-quarters of an inch long, are commonly 4½ inches in length, 1¼ to 1½ inches in breadth at the widest point, oblong-lanceolate in outline, with a long, slender tip. The upper surface is dull green, the lower surface glaucous, and the margin is rather finely serrate. The flowers, which are produced from January to May, are white, about three-eighths of an inch wide, and very numerous, on slender racemes 2 to 4 inches in length.

As many as 15 or 20 fruits sometimes develop on a single raceme, but many drop off before reaching maturity, with the result that two to five ripe fruits are commonly found on each raceme. The season of ripening in Guatemala is from May to September. The ripe fruits, which are slightly oblate in form and up to three-quarters of an inch in diameter, separate readily from the short fruit stalks, leaving the green 5-toothed calyxes adhering to the latter. In color the fruit is deep glossy maroon-purple. The skin is thin and tender, but so firm that the fruit is not easily injured by handling. The flesh is pale green, meaty, but full of juice. The flavor is sweet, suggestive of the Bigarreau type of cherry, with a trace of bitterness in the skin. The stone is a trifle large in comparison with the size of the fruit.

"Pleasant to eat out of hand, this cherry can also be eaten in various other ways—stewed or made into preserves or jams. In Guatemala it is most commonly eaten out of hand and as a sweet preserve.

"This species does not appear to be adapted to hot tropical seacoasts, but it seems to be distinctly subtropical in character. It may succeed in moist subtropical regions, such as Florida, where other types of cherries do not thrive."

44886 and 44887. MARTYNIA spp. Martyniaceæ.

From La Mortola, Ventimiglia, Italy. Presented by Mr. Joseph Benbow, superintendent, La Mortola gardens. Received June 13, 1917.

Introduced for the plant-breeding experiments of Prof. David M. Mottier, Bloomington, Ind.

44886. MARTYNIA LOUISIANA Mill. **Unicorn plant.**
(*M. proboscidea* Glox.)

An ascending or prostrate annual, with branches 2 to 3 feet in length and large roundish leaves 4 to 12 inches wide. The dull white or yellowish flowers are 1½ to 2 inches long, occurring in short, loose, terminal racemes, and the fruit is a more or less fleshy capsule 4 to 6 inches long at maturity, with a beak equaling or exceeding the body. It is a native of the United States, excepting in the North and East. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 4, p. 2005.*)

44887. MARTYNIA LUTEA Lindl.

A pale annual, with roundish, heart-shaped leaves and large greenish yellow flowers with orange interiors, occurring in erect, few-flowered racemes. The fruit is a woody, boat-shaped capsule with two beaks 2 inches in length. It is a native of Brazil and has been cultivated in European greenhouses for the sake of the showy flowers. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 4, p. 2005.*)

44888. MÉLIA FLORIBUNDA Carr. Meliaceæ.

From Nice, France. Presented by Dr. A. Robertson Proschowsky. Received June 13, 1917.

This species is considered by some to be a very floriferous and precocious form of the China tree (*Melia azedarach*), but the plant grown in the United States under this name is a bushy species 8 or 10 feet high, with pinnate leaves composed of lanceolate or oblong-lanceolate, taper-pointed leaflets. It is said to begin to bloom when 1 or 2 feet high and is an ornamental adapted to the southern United States. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 4, p. 2025.*)

44889. CARICA PAPAYA L. Papayaceæ. **Papaya.**

From Santa Barbara, Isle of Pines, West Indies. Presented by Mr. R. G. Rice. Received June 14, 1917.

"Very fine quality; the fruits weigh from 4 to 7¾ pounds each." (*Rice.*)

44890 and 44891.

From Bogota, Colombia. Presented by Mr. George E. Child. Received June 14, 1917.

44890. ACHRAS ZAPOTA L. Sapotaceæ. **Sapodilla.**
(*A. sapota* L.)

A small, symmetrical tree, 25 to 30 feet high, with leathery, dark-green, shiny leaves and round or oblong fleshy fruits, resembling in outward appearance a smooth-skinned brown potato. It is a native of tropical Amer-

44890 and 44891—Continued.

ica, although cultivated in the Asiatic Tropics as well. When thoroughly ripe, the fruit is very fine for eating, a very thin skin inclosing a pale-brown, juicy pulp of delicious flavor. It is best propagated by cuttings, although it may be raised from seeds. (Adapted from *Macmillan, Handbook of Tropical Gardening and Planting, p. 133.*)

44891. CARYOPHYLLUS JAMBOS (L.) Stokes. Myrtaceæ. **Rose-apple.**
(*Eugenia jambos* L.)

A handsome medium-sized tree, native to India and the Malay Peninsula, but cultivated in many tropical countries for the edible, fragrant, pinkish fruits, which are about the size of a hen's egg, of a sweetish acid taste, and said to be sometimes used in preserves. It thrives best in moist regions at altitudes up to 3,000 feet, preferring a deep, rich soil, and is propagated by seed. (Adapted from *Macmillan, Handbook of Tropical Gardening and Planting, p. 161.*)

44892. BRASSICA PEKINENSIS (Lour.) Gagn. Brassicaceæ. **Pai ts'ai.**

From Ann Arbor, Mich. Purchased from Mrs. Fred Osborn, manager, Varsity City Celery Co. Received June 15, 1917.

"*Lun Gar Bak.* Of the dozens of strains of Chinese cabbage, the short-leaved, solid-headed strain is the one that we have always used and found most profitable.

"As a field crop sow in rows 3 feet apart and thin to 18 inches in the row. Keep the plants well watered and cultivated, for as soon as growth is checked the seed head is formed and bursts forth as soon as moisture is again applied." (*Osborn.*)

44893. CAPSICUM sp. Solanaceæ. **Pepper.**

From Guatemala. Collected by Mr. Wilson Popenoe, agricultural explorer. Received June 18, 1917.

"(No. 136a. June 1, 1917.) A perennial bush pepper from Momostenango (altitude 7,500 feet), in the Department of Totonicapam. The plant makes a large bush 6 feet or more in height and produces throughout the year waxy, golden-yellow, broad peppers about 2 inches long, bluntly three pointed at the apex, with thick meat and a few seeds near the base of the fruit. The taste is rather sharp, so that it can not be classed as belonging to the sweet peppers. It is an unusually handsome pepper and seems to be of excellent quality. It should be tested in the warmer portions of the United States." (*Popenoe.*)

44894. TRICHOSCYPHA sp. Anacardiaceæ.

From Loanda, Angola, Africa. Presented by Mr. John Gossweiler, Servicos de Agricultura, Angola. Received June 18, 1917.

"(No. 6882. February 27, 1917.) A palm-shaped unbranched tree with agreeably acid fruits borne on the trunk." (*Gossweiler.*)

44895 to 44901.

From Buitenzorg, Java. Presented by Dr. J. C. Koningsberger, director, Botanic Garden. Received June 20, 1917.

44895. CYNOMETRA CAULIFLORA L. Cæsalpiniaceæ.

A medium-sized tree, with a very irregular, knotty trunk, covered with thick, brown bark, marked with numerous grayish and whitish spots

44895 to 44901—Continued.

The alternate, compound leaves are smooth and light green when mature, but when young are red or pink or, in some varieties, yellow. From the trunk and branches appear the corymbs of small pink or white flowers. The flattened, roundish, light-brown pods have a fleshy portion which is very palatable when stewed. The tree is a native of Java. (Adapted from *Van Nooten, Fleurs et Fruits de Java, pt. 6, pl. 4.*)

44896. HYDNOCARPUS ALPINA Wight. Flacourtiaceæ.

Var. *elongata.* Apparently an unpublished varietal name.

The species may be described as follows: A large tree, 70 to 100 feet in height, with very variable leaves (red when young and deep green when old) up to 7 inches in length and 2½ inches in width, and diœcious flowers in axillary racemes. The fruit is globose, about the size of an apple, with a brown, hairy surface. The seeds yield an oil which is used as fuel, and the wood is employed for general carpentry. It is a native of the Nilgiri Hills in southern India. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 4, p. 308,* and from *Hooker, Flora of British India, vol. 1, p. 197.*)

44897. LAGERSTROEMIA SPECIOSA (Muenchh.) Pers. Lythraceæ.
(*L. flos-reginae* Retz.) **Crape myrtle.**

A large deciduous tree, with smooth grayish bark, elliptic or lanceolate leaves 4 to 8 inches in length, and large panicles of flowers. The individual flowers are 2 to 3 inches wide and change from pink to purple from morning to evening. It is a native of India and Burma, where it is considered one of the most important timber trees, the light-red wood being hard and shiny. The tree has been introduced into southern California as an ornamental. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 4, p. 1775,* and from *Gamble, Manual of Indian Timbers, p. 373.*)

44898. MUSSAENDA RUFINERVIA Miquel. Rubiaceæ.

A shrub with shiny, elliptic-oblong leaves 4 to 6 inches in length, reddish flowers about half an inch long in terminal corymbs, and oval-oblong fleshy berries. It is a native of Sumatra. (Adapted from *Miquel, Flora Indiae Batavae, vol. 2, p. 211.*)

44899. OTOPHORA ALATA Blume. Sapindaceæ.

Pisang tjina. A tall Javanese tree, with compound, glabrous, green leaves, and purplish flowers in pendulous axillary racemes, or sometimes solitary. The fruits are not much eaten, but hang in graceful clusters, remarkable for their beauty. The juice of the fruits is said to be useful in removing stains from linen. (Adapted from *Van Nooten, Fleurs et Fruits de Java, pt. 3, pl. 4.*)

44900. SARACA DECLINATA (Jack) Miquel. Cæsalpiniaceæ.

Kisokka. An ornamental tree, rarely more than 20 feet high, with alternate, pinnate leaves composed of six to eight pairs of oblong-lanceolate leaflets which are purplish brown when young. The bright-yellow, reddish tinged flowers occur in corymbs, sometimes on the trunk, and make a pleasing contrast with the crimson peduncles of the corymb. The oblong, flat pods are about a foot long and are a beautiful purplish crimson while immature. (Adapted from *Van Nooten, Fleurs et Fruits de Java, pt. 3, pl. 2.*)

44895 to 44901—Continued.

44901. STROPHANTHUS CAUDATUS (Burm.) Kurz. Apocynaceæ.
(*S. dichotomus* D. C.)

Kikoeija. A very ornamental, shrubby vine, with white-dotted, dark-brown bark, simple, opposite, smooth, oval-acuminate, green leaves, and large, showy, red and white flowers occurring either singly or in corymbs. The fruits are follicles sometimes 2 feet in length, and the seeds, which are provided with long, silky hairs, are very pretty. This vine is a native of the East Indies, where the women use the flowers to adorn their headdresses. (Adapted from *Van Nooten, Fleurs et Fruits de Java, pt. 7, pl. 1.*)

44902 to 44905.

From Lawang, Java. Presented by Mr. M. Buysman. Received June 19, 1917.

44902. BRASSAIOPSIS SPECIOSA Dec. and Planch. Araliaceæ.

A small tree with the upper part of the branches, and sometimes the panicle, prickly. The glabrous, digitate leaves with lanceolate or elliptic leaflets are up to 8 inches in length and 3 inches in width, and the flowers occur in large panicles a foot or more in length. The tree is native to the eastern Himalayas from Nepal to Assam, from sea level up to 5,000 feet. (Adapted from *Hooker, Flora of British India, vol. 2, p. 737.*)

44903. LONICERA MACRANTHA (D. Don) Spreng. Caprifoliaceæ.
Honeysuckle.

A rather common Himalayan shrub with leathery, cordate-oblong, hairy leaves an inch wide and 2½ inches long, and white, paired flowers, fading to yellow, appearing in subterminal panicles. It grows at altitudes of 6,000 to 10,000 feet or occasionally lower. (Adapted from *Hooker, Flora of British India, vol. 3, p. 10.*)

44904. RIBES GRIFFITHII Hook. f. and Thoms. Grossulariaceæ.

An erect shrub about 8 feet high, with sharply serrate, 5-lobed leaves 2 to 3 inches long, and very lax, pendent racemes 3 to 6 inches long. The red, glabrous berries are about a quarter of an inch in length. The shrub is a native of the eastern Himalayas at altitudes ranging from 7,500 to 13,000 feet. (Adapted from *Hooker, Flora of British India, vol. 2, p. 411.*)

44905. RUBUS LINEATUS Reinw. Rosaceæ.

See S. P. I. No. 44845 for description and previous introduction.

44906. TRIFOLIUM PRATENSE L. Fabaceæ. **Red clover.**

From Petrograd, Russia. Presented by Mr. I. A. Pullman, through Dr. Robert Regel, Bureau of Applied Botany. Received June 21, 1917.

"(March 25, 1917.) Late, tufted Second generation; Mr. I A. Pullman, selector. Crop of 1916. From 2.7 acres were harvested 10,000 pounds of hay and 600 pounds of seeds." (*Pullman.*)

Introduced for the Office of Forage-Crop Investigations.

44907. BONTIA DAPHNOIDES L. Myoporaceæ.

From Curaçao, Dutch West Indies. Presented by Mr. H. M. Curran. Received June 22, 1917.

"A small, glossy leaved, ornamental tree, suitable for planting in dry situations near the sea in southern California and Texas." (*Curran.*)

A small tree with a habit so similar to that of the olive that it has been put into the olive family by botanists who did not recognize its true nature. It has alternate lanceolate leaves and axillary flowers which are either solitary or in pairs. The fruits are fleshy drupes, each containing eight hard seeds. (Adapted from *Lindley, Treasury of Botany, vol. 1, p. 156.*)

44908. ARTOCARPUS COMMUNIS Forst. Moraceæ. **Breadfruit.**
(*A. incisa* L. f.)

From Honolulu, Hawaii. Plant presented by Mr. Gerrit P. Wilder. Received June 25, 1917.

"*Ulu.* (Hawaiian variety.)" This variety, which now grows wild throughout the Hawaiian Islands, was originally introduced from Tahiti. It has large, rough, ovate, deeply lobed leaves, and the staminate flowers appear in large yellow catkins. The large-stemmed fruit is either round or oblong and varies from 5 to 8 inches in diameter. The thick tough rind, which is brownish at maturity, incloses a firm, very starchy, and somewhat fibrous pulp, which becomes mealy when cooked, slightly resembling a dry sweet potato, and is much esteemed as an article of diet. The tree is propagated by suckers or by layering. (Adapted from *Wilder, Fruits of the Hawaiian Islands, p. 100, pl. 48.*)

44909. CASUARINA STRICTA Ait. Casuarinaceæ.

From Burringbar, New South Wales, Australia. Presented by Mr. B. Harrison, through Mr. C. V. Piper. Received June 28, 1917.

An Australian tree, 20 to 30 feet in height, known in New South Wales as *Feld's fodder tree,* suitable for dry or semiarid sections. The foliage is eagerly eaten by cattle, especially in times of drought, and it is said that one tree has supported 8 to 10 head of stock at one time. Even in large quantities it does not appear to have an injurious effect on the cattle. The wood is used for cabinetwork and shingles and makes an excellent fuel. (*Harrison.*)

44910. CASSIA TOMENTOSA L. f. Cæsalpiniaceæ.

From Cairo, Egypt. Presented by Mr. F. G. Walsingham, Gizeh Branch, Ministry of Agriculture. Received June 28, 1917.

A shrub, 10 to 12 feet high, with compound leaves composed of six to eight pairs of oval-oblong, obtuse leaflets with white-velvety lower surfaces. The flowers are deep yellow. It is a native of tropical America and is said to be a good winter bloomer in southern California. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 680.*)

44911. ATTALEA sp. Phœnicaceæ. **Palm.**

From Venezuela. Presented by Mr. H. M. Curran. Received June 26, 1917.

"(No. 1027. From Colon, Estado Tachira, south of Lake Maracaibo, Venezuela, June 6, 1917.) *Coruba,* a common palm." (*Curran.*)

44912 and 44913. CYPHOMANDRA BETACEA (Cav.) Sendt. Solanaceæ. **Tree-tomato.**

From Guayaquil, Ecuador. Presented by Dr. Frederic W. Goding, American consul general. Received June 25, 1917.

"The fruit is delicious; it is eaten in the raw state or as preserves." (*Goding.*)

For a general description, see S. P. I. No. 44846.

44912. "Yellow tree-tomato. December 4, 1916."

44913. "White tree-tomato. December 6, 1916."

44914 to 44921.

From Zacuapam, Vera Cruz, Mexico. Secured from Dr. C. A. Purpus. Received June 25, 1917.

44914. ACACIA SPADICIGERA Cham. and Schlecht. Mimosaceæ. **Bull-horn acacia.**

"An interesting shrub or small tree, with spreading branches armed with thorns resembling the horns of a bull and consequently called, together with its allies, *bull-horn acacia.* The thorns attracted the attention of early botanists from the fact that they are usually hollowed out and inhabited by stinging ants which serve as bodyguards, protecting the plant from herbivorous animals. The present species is very closely allied to *Acacia cornigera* of Linnæus, if not identical with that species. The hollow, indehiscent pods, terminating in sharp spines, inclose a number of hard seeds surrounded by a sugary aril which is much relished by cattle and other animals." (*W. E. Safford.*)

44915. AMARANTHUS sp. Amaranthaceæ. **Amaranth.**

Quelite. "This is used as a vegetable, tasting like spinach. It grows about the houses and fields and does not need any care." (*Purpus.*)

44916. CACARA EROSA (L.) Kuntze. Fabaceæ. **Yam bean.**
(*Pachyrhizus angulatus* Rich.)

For previous introduction and description, see S. P. I. No. 44839.

44917 and 44918. EXOGONIUM PURGA (Wender.) Benth. Convolvulaceæ. (*Ipomoea purga* Hayne.) **Jalap.**

A perennial twining vine which bears handsome rose-purple flowers similar to those of the common morning-glory. It is a native of the eastern slopes of the mountains of western Mexico, at altitudes of 5,000 to 8,000 feet, in regions where rain is very frequent and abundant. It is cultivated in Mexico and also in other tropical places for the sake of the drug which is extracted from the dried tubers. In cultivation the plant requires a rich forest loam, and must be supported by trellises. (Adapted from the *National Standard Dispensatory, p. 834.*)

44917. "Wild form." (*Purpus.*)

44918. "Cultivated form, from the sierras around Mount Orizaba." (*Purpus.*)

44919. LYCOPERSICON ESCULENTUM Mill. Solanaceæ. **Tomato.**

"Var. *cerasiforme.* Growing wild in bean fields." (*Purpus.*)

A variety which is smaller and more erect than the common tomato and has smaller, more numerous, and grayer leaves. The globular red

44914 to 44921—Continued.

and yellow fruits are used for pickles and conserves. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 4, p. 1931.*)

44920. PSIDIUM sp. Myrtaceæ.

"A wild guava which tastes like a strawberry." (*Purpus.*)

44921. VITIS sp. Vitaceæ.

"*Callulos.*" "Several species of Vitis are found in the Mexican lowlands. The commonest of these is *Vitis tiliaefolia.* Another belongs apparently to the Muscadine group and produces fruits much like those of the James, although usually smaller. These tropical grapes should be brought together in some suitable region, such as extreme southern Florida, and there developed by a competent plant breeder. We do not have as yet a first-class table grape suited to strictly tropical regions. With the excellent material available for breeding, it should be comparatively simple to produce one." (*Popenoe.*)

44922 to 44924. ACACIA spp. Mimosaceæ.

From the vicinity of Khartum, Sudan, Africa. Presented by Mr. F. G. Walsingham, Gizeh Branch, Ministry of Agriculture, Cairo, Egypt. Received June 28, 1917.

44922. ACACIA ALBIDA Delile.

A large, much-branched tree, with whitish bark and stipular spines usually from one-half to three-quarters of an inch in length. The compound leaves are composed of four to six pairs of pinnæ, and the white flowers occur in axillary spikes up to 5 inches long. The flat, oblong pods are 2 to 4 inches long. The tree is a native of tropical and northern Africa and yields a gum similar to gum arabic. The leaves are eaten by goats, and the bark is used in curing leather. (Adapted from *Oliver, Flora of Tropical Africa, vol. 2, p. 339,* and from *Kew Bulletin of Miscellaneous Information, Additional Series IX, pt. 2, p. 288.*)

44923. ACACIA SEYAL Delile.

A small or medium-sized tree with brown or reddish brown bark, slender, recurved, ivory-white spines 1 to 2 inches long, and bipinnate leaves with three to nine pairs of pinnæ. The very fragrant flowers are in heads, and the leathery, sickle-shaped pods are from 3 to 6 inches long. The tree is common in tropical Africa north of the Equator and is one of the principal gum-yielding acacias in the Nile region. This gum, which flows freely from all wounds, is of a bright amber color, becoming white and brittle when thoroughly dry. It has a relatively high viscosity and strong adhesive power. (Adapted from *Oliver, Flora of Tropical Africa, vol. 2, p. 351,* and from *Kew Bulletin of Miscellaneous Information, Additional Series IX, pt. 2, p. 295.*)

44924. ACACIA VERUGERA Schweinf.

A tall tree, up to 60 feet in height, with gray or greenish gray bark, and long, slender, straight, spreading spines. The bipinnate leaves are composed of seven to eight pairs of pinnæ, and the heads of flowers are in axillary fascicles of four to eight. (Adapted from *Oliver, Flora of Tropical Africa, vol. 2, p. 354.*)

44925 to 44934. TRITICUM spp. Poaceæ.

From Paris, France. Presented by Messrs. Vilmorin-Andrieux & Co. Received June 30, 1917.

The following varieties were sent in response to a request for rust-resistant wheats.

44925 to 44932. TRITICUM AESTIVUM L. (*T. vulgare* Vill.) **Wheat.**

44925. "Altkirch Red Winter."

44926. "Autumn Saumur; Gray St. Laud."

44927. "Broad-Headed Winter, hybrid."

44928. "Dreadnought or Steadfast; Early Hybrid. Suitable for autumn or early February sowing; good yielder; short straw."

44929. "Lamed hybrid; reddish yellow grain."

44930. "Red St. Laud."

44931. "Scotch Red, Blood Red, or Golden Drop."

44932. "Treverson."

44933. TRITICUM SPELTA L. **Spelt.**

"White beardless spelt."

44934. TRITICUM TURGIDUM L. **Poulard wheat.**

"*Nonette de Lausanne.*"

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