Issued January 30, 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 JANUARY 1 TO MARCH 31, 1917.

(No. 50; Nos. 43980 to 44445.)

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 JANUARY 1 TO MARCH 31, 1917 (NO. 50; NOS. 43980 TO 44445).

INTRODUCTORY STATEMENT.

When the war broke out it was expected by many that interest in new plants would suffer a serious setback. That the contrary is true is the conviction forced upon the writer from watching the correspondence which passes over his desk. The hunt for substitutes has served to counterbalance in a measure the effect of the curtailment of the funds of amateur and official experimenters, and the spectacle of our dependence upon foreign raw plant materials has been in the nature of a revelation to millions of people. That the world has scattered over it enthusiastic pioneers who see possibilities in plants which are now obscure, this inventory is evidence, for it describes plants sent in by such pioneers during the third year of the war from 41 different foreign countries or separate islands. While the total number for the three months covered is not so great as that during the similar period in 1913, the fact must be taken into account that only two explorers of the office were in the field, viz, Frank N. Meyer, in central China, and Wilson Popenoe, in Guatemala.

Hosts of the plants have been sent in by correspondents, many of them foreigners, who recognize, as we do, that the area of plant culture can not be confined by national boundaries, but is limited only by the natural barriers of soil, climate, and human intelligence. In the world to-day there is no large plant monopoly which depends for its maintenance upon the prohibition of the export of the seeds of the plant on which it is founded. Where the plants can grow to perfection and the requisite human intelligence is present and other economic factors are favorable, there plant industries will be built up and maintained so long as the factors of quality and the cost of production and transportation remain favorable and fashion does not change.

Many of the plants herein recorded are in the nature of gifts to America by foreign countries, and it is with especial pleasure that we acknowledge officially the debt of gratitude, realizing fully that,

many years hence, when the plants shall have developed and become widely grown, this debt may indeed be a very large one.

The more promising of the introductions appear to be the following:

Three selected strains of red clover (*Trifolium pratense*, Nos. 44105 to 44107), presented by the Danish Royal Agricultural Society, two being quite new, the third already in general use in Denmark.

Psychotria bacteriophila (No. 44119), a shrub from the Comoro Islands, Madagascar, producing leaves which harbor nodules of bacteria that gather nitrogen from the air, quite as do the root nodules of the Leguminosæ.

An ash (*Fraxinus potamophila*, Nos. 44132 to 44134), from Chinese Turkestan, sent through the American ambassador by the British consul general at Kashgar. This ash, first introduced by Frank N. Meyer, has proved perfectly hardy at Fallon, Nev., and promises to be a valuable tree on the poor soil of that region.

The famous Pai li and other cultivated large-fruited varieties of the blight-resistant pear (*Pyrus ussuriensis*, Nos. 44145, 44147, 44148, 44150, and 44151) from China, obtained through Mr. Meyer.

A tall-growing, new species of spruce (*Picea meyeri*, No. 44149), found by Mr. Meyer in Shinglungshan, Chihli Province, China, and named by Rehder and Wilson after our explorer.

A collection of cultivated varieties of Chinese pears (Nos. 44163 to 44174 and 44176), containing some of *Pyrus ussuriensis* and others of *P. lindleyi*. These may prove of considerable value in the studies of blight resistance which are now being made by Reimer and others.

An amaranth (*Amaranthus paniculatus*, No. 44178) from Kashmir, where its farinaceous seeds form the staple food of the hill tribes in many parts of India; the plant is known as rájgira.

A species of Calamus (No. 44181), called the litoco, introduced by Mr. Wester, from Kiangan, northern Luzon. This plant bears small, scaly fruits, of subacid, refreshing flavor, resembling the lanzon (Lansium), and with excellent keeping qualities.

Garcinia multiflora (No. 44239), from Kiayingchow, near Swatow, China, a shrub which bears a delicious but small fruit resembling the true mangosteen in flavor. The fact that it has withstood temperatures of 27° F. without injury may indicate that it can be grown outside the Tropics, and its relation to the true mangosteen may make it valuable for breeding purposes.

Seeds of *Bambos tulda* (No. 44240), from Dehra Dun, India. This species has proved so easy of cultivation in Panama and Porto Rico and its timber is so valuable for fishing-rod manufacture that the securing of a considerable quantity of seed is worthy of mention.

Cudrania tricuspidata (No. 44241), from American-grown trees at Augusta, Ga., where the tree seems to be quite at home and bears

heavily. Recent information indicates that the silk from silkworms fed upon the leaves of this plant is different from ordinary silk and that lute strings made from it give a clearer tone than those made of silk spun by silkworms fed on the ordinary mulberry leaves. This fact doubtless will be of interest to all those studying the influence of foods upon the secretions of animal bodies. Silk being a typical protein, like the white of eggs or the casein of milk, facts discovered regarding changes in its character might have a bearing upon the studies of the changes in the character of other proteins.

A wild bush tomato (*Lycopersicon esculentum*, No. 44245), with wrinkled fruits, from Panama, where it appears, according to Mr. O. W. Barrett, to be resistant to wilt (*Bacillus solanacearum*).

A collection of Chinese peach varieties (*Amygdalus* spp., Nos. 44253 to 44266) from Kiangsu Province, China, secured through the Rev. Lacy L. Little, of Kiangyin, among them one variety from the famous Lushang Gardens.

In Nairobi, British East Africa, the inner bark of *Strychnos spinosa* (No. 44019) appears to be used successfully as an antidote for snake bites and deserves to be investigated. The fact that this plant grows so successfully in southern Florida, where rattlesnakes and moccasins are frequent, may make the wide distribution which has been made of it a thing well worth while. In any event, it deserves study from this new point of view.

The pepino (*Solanum muricatum*, Nos. 44021 and 44022) appears to be represented in Ecuador by two distinct varieties, one white and the other purple. As this is a fruit of excellent quality, practically seedless, and adapted for salads, it seems a pity that a more thorough test of it has not been made in America. Enough ought to be produced to place it on our markets for several years, for a fruit which has become so popular in the Canary Islands surely has a chance in America.

A new annual legume (*Aeschynomene* sp., No. 44040), for soil fertilization, from Costa Rica, which, though not certainly a forage crop, is reported to have unusual quantities of nitrogen-collecting nodules on its roots.

Sixteen distinct species or hybrids of the genus Pyrus (Nos. 44041 to 44056), from the Arnold Arboretum. These deserve a thorough trial as stocks for the cultivated pear. This is particularly interesting at this time, when the question of shutting out European-grown nursery stock and the creation of a more uniform root system for our orchard trees appear as problems of great importance.

Few shrubs strike the American visitor to England as adding more to the charm of the grounds of small cottages than do the cotoneasters, which are extensively used in dooryards. Many of those used in England are tender here, but certain of the Chinese

species (see Nos. 43989 to 43995 and 44077 to 44084) are quite hardy with us, and these deserve the same place in our gardening that the more tender species occupy in England.

It is not often that a plant is introduced from a region so little known as the Falkland Islands, and the climate of these islands of the southern hemisphere may be difficult to approximate in America, but the tussock grass (*Poa flabellata*, No. 44000), which grows in peaty soils near the sea, yields a good forage, and has edible nutty flavored shoots, should be tested carefully.

The tree-tomato (*Cyphomandra betacea*, No. 44064) appears to have become a cultivated fruit plant in British East Africa, and a purple-fruited strain of it found there indicates that something may be done in the selection of this promising species of Solanaceæ.

The species of Rollinia (No. 44094), as yet undescribed, collected by Mr. M. T. Dawe, in the lowlands of northern Colombia, is said to bear orange-colored edible fruits. This adds another annonaceous fruit to the collection being assembled for purposes of hybridization and selection at Miami, Fla.

The pacaya palm (*Chamædorea* sp., No. 44059), cultivated in nearly every garden in Coban, Guatemala, and producing edible inflorescences like ears of corn, deserves to be studied, and if it can be grown in southern Florida or California it should be planted in sufficient quantities to test it thoroughly as a salad-producing plant.

A native grape (*Vitis tiliæfolia*, No. 44060), sold in the city markets of Guatemala, is used extensively for jelly making. It grows luxuriantly in southern Florida and may prove a stock for North American or European grapes.

The soft lumbang tree (*Aleurites trisperma*, No. 44061), producing an oil similar to that of the Chinese tung-oil tree, deserves study on a plantation scale to determine whether it can be grown economically in our tropical territory and can be depended upon to increase the supply of this valuable drying oil, which has trebled in price since the war.

A remarkable collection of pear species and varieties (Nos. 44274 to 44280) made by Mr. Meyer in Chihli Province, China, and including a cultivated variety of *Pyrus ussuriensis* with edible fruits and another pear, possibly a new species, is used for stock by the Chinese horticulturists.

Mangifera caesia (No. 44290), a species related to the mango, may be worthy of trial as a stock, or possibly crosses of it might be useful.

Four varieties of seedling avocados (*Persea americana*, Nos. 44439, 44440, 44444, and 44445) from Guatemala, collected by Wilson Popenoe, include one producing fruits of very unusual size (45

ounces) and good quality, which is at the same time a productive sort.

The manuscript of this inventory has been prepared by Mrs. Ethel M. Kelley, 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.

DAVID FAIRCHILD,
Agricultural Explorer in Charge.

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION,
Washington, D. C., October 14, 1919.

INVENTORY.[1]

43980. BERBERIS TRIFOLIOLATA Moric. Berberidaceæ. **Barberry.**

From College Station, Tex. Presented by Mr. B. Youngblood, director, Agricultural Experiment Station. Received January 8, 1917.

An evergreen shrub from western Texas, with leaves composed of three to five spiny leaflets, which produces red, aromatic, acid berries, about the size of peas. These berries ripen in May. They are often called "currants," and are used for tarts, jellies, etc. (Adapted from *Coulter, Contributions from the United States National Herbarium, vol. 2, p. 10.*)

"According to Mr. Youngblood's verbal statement, this barberry jelly is being made each year in increasing quantities and is highly prized by all who have tested it. There would appear to be a field for the plant breeder in the development of heavy-fruiting barberries of good flavor with few or no seeds, and it seems remarkable that no one has undertaken the task." (*Fairchild.*)

43981. DAHLIA sp. Asteraceæ. **Tree dahlia.**

From Tactic, Alta Vera Paz, Guatemala. Cuttings collected by Mr. Wilson Popenoe, Agricultural Explorer for the Department of Agriculture. Received January 10, 1917.

"No. 78. Double white variety. The pink tree dahlia is common throughout a large part of Guatemala. I have seen it from Antigua to Coban, often in great abundance, its huge single pink flowers, 4 inches in diameter, making it a very striking thing. The pink form, which apparently is the typical one, is the only form which I have seen in the southern part of Guatemala, but in the vicinity of Tactic there are three other forms. None of these is so common as the pink form, although all are seen occasionally in gardens. The forms in question are a single white, identical with the typical single pink except in its color, which is pure white; a double pink, of the same lilac-pink shade as the typical form, but with double flowers 3 inches in diameter; and a double white form, of the same character as the double pink, but pure white. The tree dahlia is called *shikar* in the Pokomchi dialect, the language of the Indians at Tactic. It is very commonly planted around gardens and dooryards to form a hedge, large cuttings 3 to 4 feet long and of stems 1 to 2 inches in diameter being inserted in the ground and apparently rooting very readily. The plants grow to 15 feet in height, and when in full bloom, as they are at this season of the

[1] Each introduction consists of seeds unless otherwise specified.

It should be understood that the varietal names of fruits, vegetables, cereals, and other plants used in this inventory are those under which the material was received by the Office of Foreign Seed and Plant Introduction; and further, that the printing of such names here does not constitute their official publication and adoption in this country. As the different varieties are studied, their identity fully established, their entrance into the American trade forecast, and the use of varietal names in American literature becomes necessary, the designations appearing will be subject to change with a view to bringing the forms of the names into harmony with recognized American codes of nomenclature.

year, are a glorious sight. Tactic is made beautiful by this common plant, and it would seem well worth while to test it for hedges in California, where the pink form has already been introduced and is offered in the trade. The variety sent in under this number is the *double white*, which seems to be one of the most beautiful of all. The flowers of this form are extensively used by the Indians of Tactic for decorating the images of saints which they have in their houses and in the churches." (*Popenoe.*)

This is possibly a cultivated form of *Dahlia maxoni* Safford.

43982. GOSSYPIUM sp. Malvaceæ. **Cotton.**

From Asuncion, Paraguay. Presented by Mr. C. F. Mead. Received January 10, 1917.

"Seeds of the native red cotton of Paraguay. This is said to be indigenous." (*Mead.*)

43983 and 43984. CHAYOTA EDULIS Jacq. Cucurbitaceæ.
(*Sechium edule* Swartz.) **Chayote.**

From Rio de Janeiro, Brazil. Presented by Dr. Alberto Löfgren, Botanic Garden. Received January 2, 1917.

43983. "Fruit very small and quite corrugated." (*B. T. Galloway.*)

43984. "Fruit medium sized, considerably corrugated, and spineless; skin thick." (*B. T. Galloway.*)

43985. CASTILLEJA INDIVISA Engelm. Scrophulariaceæ.
Painted cup.

Grown at the Plant Introduction Field Station, Chico, Calif., from seed collected at Lyford, Tex., by Dr. David Griffiths, of the Department of Agriculture, May 2, 1915. Plants numbered for convenience in distribution on January 17, 1917.

"One of the most showy of the winter annuals of southern Texas. The seedlings come up very abundantly upon the sandy coastal plain in autumn, developing slowly during the winter but rapidly in early spring, and dominating the color of acres of the landscape in late March and early April. Here its seeds are matured in late April and early May. There are few native plants more showy than this one. This whole group of *painted cups*, however, is considered somewhat difficult to grow and is consequently little handled in the trade in this country, although commonly grown in England. Our efforts have met with both success and failure in their handling. Recent trials indicate that the habits of the plant fit it to stand winter handling and that it can be grown successfully as a winter annual in regions having mild winters with sufficient moisture for seed germination in autumn. It requires a comparatively low temperature for its development. Experience at Chico, Calif., shows that the sudden transition from winter to summer, such as we have, dwarfs the plants before maturity, so that they produce but few of the colored bracts which are so attractive in all of the *painted cups* or *Indian paintbrushes*." (*Griffiths.*)

43986. CARICA PAPAYA L. Papayaceæ. **Papaya.**

From St. Leo, Fla. Presented by Father Jerome, St. Leo College. Received January 2, 1917.

"Seed saved from a tree that has endured a temperature of 27° F. and has borne 100 fruits in 12 months from seed. Father Jerome received from Hawaii the seed from which this tree was grown." (*Peter Bisset.*)

43987. PYRUS CALLERYANA Decaisne. Malaceæ. **Pear.**

From Jamaica Plain, Mass. Scions presented by the Arnold Arboretum. Received January 2, 1917.

This wild Chinese pear is not uncommon in western Hupeh at altitudes of 1,000 to 1,500 meters. It is easily recognizable by its comparatively small crenate leaves and small flowers. This pear maintains a vigorous and healthy appearance under the most trying conditions, and might prove to be a very desirable blight-resistant stock. The woolly aphis, which attacks other species of pears, has not been known to touch this species. (Adapted from *Compere, Monthly Bulletin Calif. State Comm. Hort., vol. 4, pp. 313–314,* and from *Rehder, Chinese Species of Pyrus, Proc. Am. Acad., vol. 50, pp. 237–238.*)

43988. PRUNUS BOKHARIENSIS Royle. Amygdalaceæ. **Plum.**

From Seharunpur, India. Cuttings presented by Mr. A. C. Hartless, superintendent, Government Botanical Gardens. Received January 4, 1917.

"*Alucha black.*" A plum from Chinese Turkestan, with medium-sized clingstone fruits of fine flavor, which ripen late in July. They are excellent for preserves and jellies. (Adapted from *note of Frank N. Meyer, Jan. 10, 1911.*)

See also S. P. I. No. 40223 for further data.

43989 to 43996.

From Jamaica Plain, Mass. Presented by the Arnold Arboretum. Received January 5, 1917.

43989. COTONEASTER AMBIGUA Rehd. and Wils. Malaceæ.

A shrub from western China, up to 7 feet high, with deciduous, oval-oblong, sharp-pointed leaves up to 2 inches long; five to ten pinkish flowers borne in corymbs; and black globose fruit about one-third of an inch long containing two or three, rarely four or five, stones. (Adapted from *Sargent, Plantae Wilsonianae, vol. 1, pp. 160–161.*)

43990. COTONEASTER DIELSIANA E. Pritz. Malaceæ.

A shrub from western China, up to 6 feet high, with slender spreading and arching branches and deciduous, firm oval leaves about three-quarters of an inch long with yellowish gray lower surfaces. The pinkish flowers are few and short stemmed, and the red fruit, a quarter of an inch in diameter, contains three or four stones. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 866.*)

43991. COTONEASTER DIVARICATA Rehd. and Wils. Malaceæ.

A deciduous upright shrub from central and western China, with shining oval leaves, one-third to three-quarters of an inch long. The pink flowers are usually in threes, and the fruit, which contains only two stones, is one-third of an inch long. It is a very handsome shrub when studded with its bright-red fruits and is hardy at the Arnold Aboretum. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 3, p. 865.*)

43992. COTONEASTER HORIZONTALIS PERPUSILLA C. Schneid. Malaceæ.

A low Chinese shrub of prostrate habit, with almost horizontal branches in two dense series and roundish oval leaves less than one-third of an inch long. The flowers are erect, pink, and either solitary or in pairs;

43989 to 43996—Continued.

and the bright-red oval fruit, a quarter of an inch in diameter, usually contains three stones. One of the most effective fruiting shrubs for rockeries. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 3, p. 865.*)

43993. COTONEASTER NITENS Rehd. and Wils. Malaceæ.

A shrub from western China, up to 4½ feet high, with deciduous, oval, obtuse, shining green leaves up to half an inch or more long; probably pink flowers, and nearly black fruits, either solitary or in pairs, up to one-sixteenth of an inch long, and containing two stones. In its native country it grows at elevations of 7,500 to 10,000 feet. (Adapted from *Sargent, Plantae Wilsonianae, vol. 1, pp. 156–157.*)

43994. COTONEASTER OBSCURA Rehd. and Wils. Malaceæ.

A shrub from western China, up to 10 feet in height, with elliptic-oval leaves, 1 to 2 inches long. The fruit is dull red, one-third of an inch long, and generally contains three stones. The flowers are white. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 867.*)

43995. COTONEASTER TENUIPES Rehd. and Wils. Malaceæ.

A gracefully branched deciduous shrub from western China, up to 7 feet tall, with oval or elliptic-oval sharp-pointed leaves about 1⅜ inches long. The flowers are white; the fruits are nearly black, usually solitary, and contain two stones. (Adapted from *Sargent, Plantae Wilsonianae, vol. 1, p. 171.*)

43996. SORBUS POHUASHANENSIS (Hance) Hedl. Malaceæ.

An evergreen shrub from northern China, with reddish brown twigs, leaves composed of six to seven pairs of elliptic or lance-elliptic leaflets from 1⅜ to 2 inches long, and red fruits about one-third of an inch in diameter. This shrub is in cultivation at the Arnold Arboretum. (Adapted from *Schneider, Illustriertes Handbuch der Laubholzkunde, vol. 1, p. 672.*)

43997 and 43998.

From Caracas, Venezuela. Collected by Dr. J. N. Rose, associate curator, United States National Museum. Received January 5, 1917.

43997. FRAGARIA VESCA L. Rosaceæ. **Strawberry.**

"Strawberries are found wild in the mountains, but Dr. Ernst declares that they are not native." (*Rose.*)

43998. PSIDIUM GUAJAVA L. Myrtaceæ. **Guava.**

"Seeds of a very large guava, the largest I have ever seen. It is 4 inches long and resembles somewhat a large Bartlett pear. It may be known to you, but is new to me. It is called at Caracas the 'Peruvian guava,' but I saw nothing like it in Peru in 1914. It has only recently been introduced into Caracas. I obtained the seeds from Mr. Frederick L. Pantin, acting manager of the Caracas & La Guaira Railroad." (*Rose.*)

43999. BAILEYA MULTIRADIATA Harv. and Gray. Asteraceæ.

From the Santa Rita Mountains, Ariz. Collected by Dr. David Griffiths. Received January 6, 1917.

A very handsome plant, found in the southwestern United States and northern Mexico. It is biennial or perennial, densely woolly, with alternate compound leaves and long-stemmed heads of bright-yellow flowers. It is common on the mesas in the early spring, and sometimes continues flowering until late in the fall. (Adapted from *Wooton and Standley, Flora of New Mexico, p. 718.*)

44000. POA FLABELLATA (Lam.) Hook. f. Poaceæ. **Tussock grass.**

From Stanley, Falkland Islands. Procured from Mr. W. A. Harding, manager, Falkland Islands Co., through Mr. David J. D. Myers, American consul, Punta Arenas, Chile. Received January 8, 1917.

A coarse grass, native of the Falkland Islands, growing on peat soils near the sea. The plant forms dense masses of stems which frequently rise to a height of 4 to 6 feet, and the long, tapering leaves 5 to 8 feet long and an inch wide at the base hang gracefully over in curves. The plant is much relished by cattle; it is very nutritious and contains saccharin. The inner portion of the stem, a little way above the root, is soft and crisp, and flavored like a hazelnut; the inhabitants of the Falkland Islands are very fond of it. They boil the young shoots and eat them like asparagus. (Adapted from *Hogg, Vegetable Kingdom, pp. 823–824.*)

See S. P. I. No. 43564 for previous introduction.

44001 to 44005.

From Los Angeles, Calif. Presented by Mr. P. D. Barnhart. Received January 9, 1917.

44001. CARDIOSPERMUM HIRSUTUM Willd. Sapindaceæ.

Seeds of a creeping or ascending perennial vine, cultivated in southern California, with a densely hairy, grooved stem, deeply dentate leaves with hairy lower surface, small white flowers in axillary racemes, and pointed, hairy fruits, each containing a globular chocolate-brown seed. This plant is useful for covering arbors; it blooms continuously. It came originally from Africa. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 661.*)

44002. DIPLACUS LONGIFLORUS Nutt. Scrophulariaceæ.

Plants of a low subshrubby perennial from California. The opposite, broadly lanceolate leaves are dark green above, and the large flowers, 1½ inches across, are a beautiful pale orange or buff. The showiness and the rare color of the flowers make this plant a most attractive ornamental.

44003. PENTSTEMON CORDIFOLIUS Benth. Scrophulariaceæ.

Beard-tongue.

Plants of a more or less shrubby climber, with long very leafy branches and short leafy clusters of rich scarlet flowers nearly 2 inches long. The brilliant flowers form a striking contrast to the dark-green foliage.

44001 to 44005—Continued.

44004. RIBES SPECIOSUM Pursh. Grossulariaceæ. Gooseberry.

Plants of an evergreen California shrub, 3 to 5 feet high, with shining dark-green 3-lobed leaves and drooping clusters of bright-red flowers. In March and early April it forms one of the conspicuous charms of the foothills about Los Angeles.

44005. ZAUSCHNERIA CALIFORNICA Presl. Onagraceæ. Balsamea.

Cuttings of a low perennial herb, found at medium altitudes of the Sierra Nevada mountain range in California, with erect or decumbent stems about a foot high and oblong or narrow alternate leaves. The large scarlet fuchsialike flowers are up to 2 inches long, and the oblong seeds have tufts of hair at the apexes. Among the Spanish element in California this plant is used as a vulnerary. (Adapted from *Jepson, Flora of Western Middle California, p. 327.*)

44006. PYRUS CALLERYANA Decaisne. Malaceæ. **Pear.**

From Hongkong, China. Presented by Mr. W. J. Tutcher, superintendent, Botanical and Forestry Department. Received January 13, 1917.

See S. P. I. No. 43987 for previous introduction and description.

44007 to 44017. SACCHARUM OFFICINARUM L. Poaceæ. **Sugar cane.**

From Santiago de las Vegas, Cuba. Cuttings presented by Mr. J. T. Crawley, director, Agricultural Experiment Station. Received January 15, 1917.

44007. B–604.
44008. B–1753.
44009. B–6308.
44010. B–6450.
44011. B–6204.
44012. D–74.
44013. D–306.
44014. Blanca.
44015. Lucier.
44016. Caledonia.
44017. B–3412.

44018. AMYGDALUS PERSICA L. Amygdalaceæ. **Peach.**
(*Prunus persica* Stokes.)

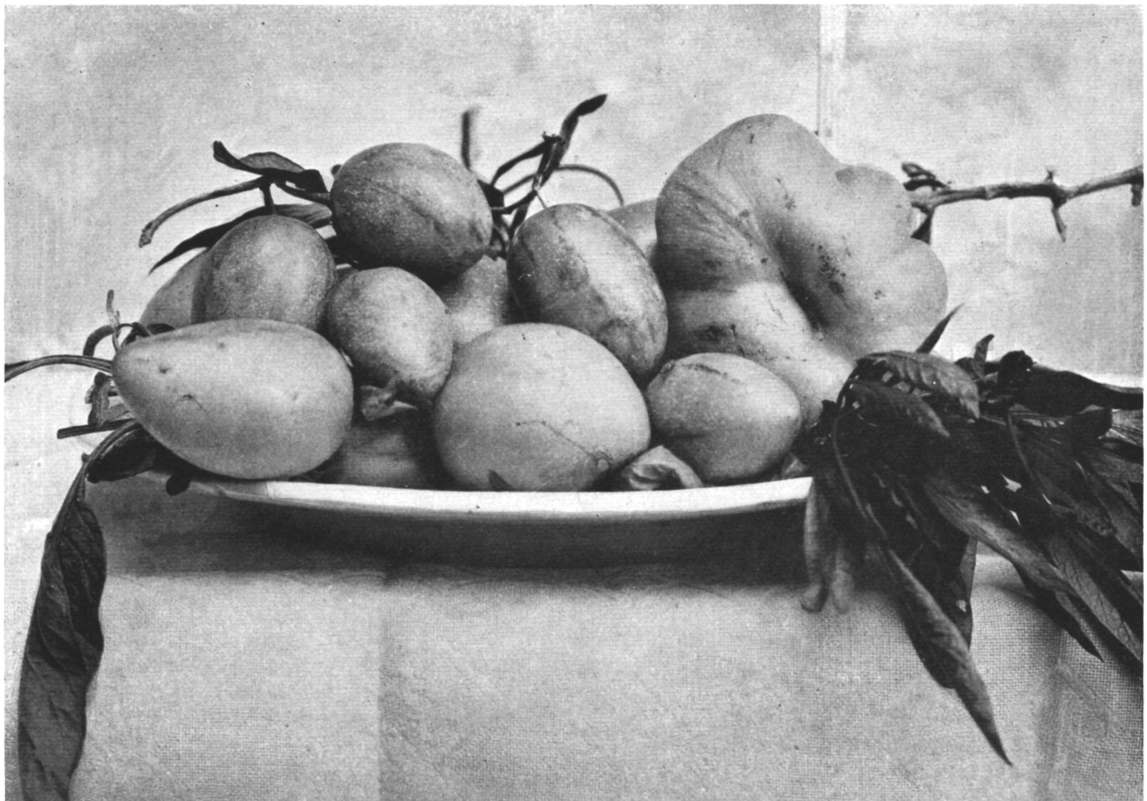
From Tientsin, China. Presented by Mr. Fred. D. Fisher, American consul general. Received January 15, 1917.

"Seeds of common peaches; early season, grown on the banks of the Hai Ho, Tientsin, China." (*Fisher.*)

44019. STRYCHNOS SPINOSA Lam. Loganiaceæ. **Kafir orange.**

From Nairobi, British East Africa. Presented by Mr. A. C. MacDonald, Director of Agriculture, through Mr. Ralph M. Odell, commercial agent, Bombay, India. Received January 16, 1917.

"A moderate-sized tree of the family Loganiaceæ, which produces fruit very similar to an orange. The shell is hard and contains numerous (upwards of 40) seeds of a flat and somewhat circular outline half an inch or more in diameter. When quite ripe the fruit is juicy, and it is eaten and much liked by the natives. The tree is fairly common at Mazeras and Samburu and is probably distributed in other districts in the surrounding country." (*H. Powell.*)



THE GUATEMALAN PEPINO, A SEEDLESS SALAD FRUIT (SOLANUM MURICATUM, S. P. I. NO. 44021).

Though introduced into California from Guatemala 20 years ago, this relative of the tomato has not become popular, as it has in the Canary Islands. It is doubtful whether it has found its proper niche there, where it can produce as delicate-flavored fruits as it does in the terraced gardens of Grand Canary. Its seedlessness, juiciness, and cucumberlike flavor make it worth serious consideration as an addition to salads. (Photographed by David Fairchild, Grand Canary, near Las Palma, Canary Islands, April, 1903; P9790FS.)

BARGAINING FOR KAU BA IN SHANGHAI (ZIZANIA LATIFOLIA, S. P. I. No. 44069).

Scene in the Hongkew market. A Japanese girl is bargaining for "water-bamboo" shoots, "kau ba," as they are called locally. These shoots supply a tasteful vegetable when properly prepared. The young shoots of this relative of our own American wild rice are eaten in the late spring when they are swollen by the action of a fungus similar in its effect to corn smut. It is in no way related to the true bamboo. The usual name for this wild rice is ku, and the South China name for the shoots is chiao sun. (Photographed by Frank N. Meyer, June 11, 1915, at Shanghai, China; P12301FS.)

44020. PYRUS sp. Malaceæ. **Pear.**

From Ningpo, Chekiang, China. Cuttings presented by Mr. L. C. Hylbert. Received January 15, 1917.

44021 and 44022. SOLANUM MURICATUM Ait. Solanaceæ. **Pepino.**

From Ecuador. Presented by Mr. Frederick W. Goding, American consul general, Guayaquil. Received January 17, 1917.

"After persistent search a place near Huigra was found where the plants grew at an altitude of 6,000 feet. As a point of interest I will state that these two varieties are now growing in boxes at this office. One of them has produced flowers, but no fruit as yet." (*Goding.*)

44021. "*Purple* pepino." **44022.** "*White* pepino."

For an illustration of the Guatemalan pepino, see Plate I.

44023 to 44028. SACCHARUM OFFICINARUM L. Poaceæ. **Sugar cane.**

From Cienfuegos, Cuba. Cuttings presented by Mr. R. M. Grey, Harvard Experiment Station. Received January 18, 1917.

"Cuttings. High in sugar, averaging from 19 to 20 per cent sucrose in our hand-mill analyses." (*Grey.*)

44023. [No label.]
44024. Harvard 4068.
44025. Harvard 5082.
44026. Harvard 6047.
44027. Harvard 6065.
44028. Harvard 6159.

44029 to 44035. SACCHARUM OFFICINARUM L. Poaceæ. **Sugar cane.**

From Cienfuegos, Cuba. Seeds presented by Mr. R. M. Grey, Harvard Experiment Station. Received January 18, 1917.

44029. Harvard 5150.
44030. Harvard 1421.
44031. Harvard 2048.
44032. Harvard 5005.
44033. Harvard 1309.
44034. Harvard 5039.
44035. Harvard 1193.

44036. CARICA PAPAYA L. Papayaceæ. **Papaya.**

From Pago Pago, American Samoa. Presented by Mr. J. M. Poyer, governor, American Samoa. Received January 22, 1917.

"A variety of papaya known here as 'Esi fafine.'" (*Poyer.*)

44037 to 44039.

From Changning, via Swatow, China. Presented by Rev. C. E. Bousfield, American Baptist Mission. Received January 23, 1917.

44037. CHAETOCHLOA ITALICA (L.) Scribn. Poaceæ. **Common millet.** (*Setaria italica* Beauv.)

Millet is cultivated extensively as a food plant in Asia, though it is raised only for fodder in America.

44037 to 44039—Continued.

44038. ELEUSINE CORACANA (L.) Gaertn. Poaceæ. **African millet.**

A grass closely related to and much resembling goose-grass (*Eleusine indica*), often cultivated as an ornamental.

44039. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**
(*Sorghum vulgare* Pers.)

Apparently a nonsaccharine or forage variety.

44040. AESCHYNOMENE sp. Fabaceæ.

From El Coyolar, Costa Rica. Presented by Mr. Carlos Werckle. Received January 17, 1917.

"*Yellow sensitiva.* A very dense-growing leguminous annual, whose roots are almost completely covered with nodules. People say that it is a good forage plant, but I have never seen cattle eat it. Our best plant for nitrification of the soil." (*Werckle.*)

44041 to 44056. PYRUS spp. Malaceæ. **Pear.**

From Jamaica Plain, Mass. Cuttings presented by the Arnold Arboretum. Received January 25, 1917.

4041. PYRUS AMYGDALIFORMIS Vill.

A small tree, native of southern Europe, occasionally 20 feet or more high, or sometimes merely a large, rounded shrub. The leaves, which are variable in shape and size, are from 1½ to 2½ inches in length; the white flowers, 1 inch wide, are produced in April in corymbs; and the round, yellowish brown fruits are about an inch in diameter. The chief merit of this tree is its picturesqueness in age. (Adapted from *Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 273.*)

44042. PYRUS BETULAEFOLIA Bunge.

A slender, fast-growing, graceful tree from northern China, attaining a height of 20 to 30 feet, with the young shoots thickly covered with a persistent gray felt. The dark-green oval or roundish, dentate, long-pointed leaves are 2 to 3 inches long; the white flowers, three-quarters of an inch wide, occur eight to ten in corymbs; and the grayish brown roundish fruits are about the size of a pea. The Chinese use this as a stock on which to graft fruiting pears. (Adapted from *Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 279.*)

44043. PYRUS BRETSCHNEIDERI Rehder.

A medium-sized Chinese tree, with sharp-pointed serrate leaves 2 to 4 inches long, white flowers about three-quarters of an inch wide occurring seven to ten in racemes, and nearly globular yellow fruits up to 1½ inches long. It is possible that the native name *Pai-li* may include this species. (Adapted from *Rehder, Proceedings of the American Academy of Arts and Sciences, vol. 50, p. 231.*)

44044. PYRUS CALLERYANA Decaisne.

See S. P. I. No. 43987 for previous introduction and description.

44045. PYRUS PHAEOCARPA GLOBOSA Rehder.

A medium-sized Chinese tree with ovate, round-based, deep-green leaves; unusually large, white flowers; and globular brown or russet slender-stalked fruits. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 5, p. 2780.*)

44041 to 44056—Continued.

44046. PYRUS HETEROPHYLLA Regel and Schmalh.

A small tree, ultimately 20 to 30 feet high, native of Eastern Turkestan, with exceedingly variable leaves of two extreme types, either oval and 2 to 3½ inches long, or cut back to the midrib into three to seven narrow lobes, which are three-quarters of an inch to 2 inches long. The white flowers, three-quarters to an inch wide, are produced in small clusters, and the fruit is like an ordinary small pear. (Adapted from *Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, pp. 284–285.*)

44047. PYRUS KORSHINSKYI Litv.

A tree native of Bokhara, Turkestan, 20 feet or more in height, or sometimes a shrub, with coriaceous lance-shaped or ovate-oblong, coarsely crenate leaves about 3 inches long, and nearly globose stout-stalked fruits almost an inch in diameter, crowned by a persistent calyx. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 5, p. 2868.*)

44048. × PYRUS MALIFOLIA Spach.

A hybrid of unknown parentage, originally grown in Paris in 1834, where it formed a tree more than 30 feet high with a rounded bushy head. The leaves are oval or roundish, about 3 inches wide, occurring in few-flowered corymbs. The deep-yellow fruit is turbinate and about 2 inches long and wide. (Adapted from *Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, pp. 286–287.*)

44049. × PYRUS MICHAUXII Bosc.

A small tree, probably native of the Levant, and said to be a hybrid between *Pyrus amygdaliformis* and *P. nivalis*. It has entire oval or oval-oblong, shining leaves up to 3 inches long, white flowers in very short corymbs, and globular or turbinate greenish yellow fruits. (Adapted from *Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 288.*)

44050. × PYRUS OBLONGIFOLIA Spach.

A small tree, occasionally 20 feet or more high, said to be a hybrid between *Pyrus amygdaliformis* and *P. nivalis*, and common in Provence, France. The leaves are oval or oblong, and the fruits, which are yellowish, tinged with red on the sunny side, are about 1½ inches in diameter. In Provence it is known as the *Gros Perrussier*. (Adapted from *Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 273*, under *P. amygdaliformis oblongifolia.*)

44051. PYRUS USSURIENSIS OVOIDEA Rehder.

A Chinese tree of pyramidal habit, 30 to 50 feet high, with oval-oblong sharply serrate leaves, 3 to 5 inches long; white flowers in five to seven flowered racemes; yellow, juicy, somewhat astringent, exactly egg-shaped fruits, up to 1¾ inches long. In autumn the foliage turns a bright scarlet, and the flowers appear a week ahead of the other species of pears. (Adapted from *Rehder, Proceedings of the American Academy of Arts and Sciences, vol. 50, pp. 228–229*, and from *Bailey, Standard Cyclopedia of Horticulture, vol. 5, p. 2869.*)

44052. PYRUS PASHIA Buch.-Ham.

A usually spiny tree from western China and the Himalayas, with leaves when young three lobed and doubly serrate, becoming glabrous with age. The flowers, an inch wide, are mostly in woolly corymbose

44041 to 44056—Continued.

clusters, and the brown fruits are globose and an inch in diameter. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 5, p. 2870.*)

Received as *Pyrus variolosa*, which is generally referred to *P. pashia*.

44053. PYRUS SALICIFOLIA Pall.

Var. *pendula* Hort. A very elegant tree, native of southeastern Europe and Asia Minor, from 15 to 25 feet high, with pendulous branches, narrow lance-shaped shiny green leaves 1½ to 3½ inches long, pure-white flowers three-quarters of an inch wide in small dense corymbs, and pear-shaped fruits 1 to 1¼ inches long. The leaves and flowers of this very ornamental pear often open simultaneously, producing a charming effect. (Adapted from *Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, pp. 292–293.*)

44054. PYRUS SEROTINA Rehder.

A tree native of central and western China, 20 to 30 feet high, with oval-oblong sharply serrate leaves 3 to 5 inches long, six to nine white flowers in each raceme, and nearly globular, brown fruits with slender stalks. This species or one of its forms has been recommended on the Pacific coast as a more or less blight-resistant stock for the European types. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 5, pp. 2868–2869.*)

44055. PYRUS SERRULATA Rehder.

A tree native of western China, 22 to 25 feet high, with oval or oval-oblong serrulate leaves up to 4½ inches long, six to ten white flowers in each umbellate raceme, and nearly globular brown fruits about three-fifths of an inch long. (Adapted from *Rehder, Proceedings of the American Academy of Arts and Sciences, vol. 50, pp. 234–235.*)

44056. PYRUS USSURIENSIS Maxim.

A tree native of Amur and Ussuri, Siberia, from 20 to 30 feet high, with broadly oval, sharply serrate, acuminate leaves, many-flowered racemes of white flowers, and roundish oval, umbilicate, mild-flavored fruits over an inch in diameter, crowned by a persistent calyx. In autumn the foliage turns a shining brownish red, making the tree very ornamental. (Adapted from *E. Regel, in Gartenflora, vol. 10, pp. 374–375.*)

44057 and 44058. VICIA FABA L. Fabaceæ. **Broad bean.**

From Tiflis, Caucasus, Russia. Presented by the chief specialist, Plant Breeding Department, Tiflis Botanic Garden. Received January 2, 1917.

44057. Beans nearly circular in outline and of a dark reddish brown color.

44058. Beans approximately oblong and of a much lighter color.

44059 and 44060.

From Guatemala. Collected by Mr. Wilson Popenoe, Agricultural Explorer for the Department of Agriculture. Received January 12, 1917.

44059. CHAMAEDOREA sp. Phœnicaceæ. **Pacaya palm.**

"(No. 79a. *Pacaya* palm from Coban, December 13, 1916.) Nearly every garden in Coban contains a number of these small, attractive palms, planted not so much for ornament as for the edible inflorescences

44059 and 44060—Continued.

which they produce. In other parts of Alta Vera Paz the pacaya is also quite common, and it is grown in the southern part of Guatemala as well. Since it succeeds here at elevations of 5,000 feet or even higher, where the winters are quite cool, it would seem that it ought to be a success in southern California and Florida, though it is difficult to predict what effect the sandy soil of the latter State may have upon it. The palm grows to a height of 15 feet, having a slender stem about 2 inches in diameter and handsome leaves, somewhat reminding one of *Chrysalidocarpus lutescens* (*Areca lutescens*). The foliage is of a rich-green color. The inflorescences are produced along the trunk in the winter and spring, and apparently more or less throughout the year. Before the spathe has opened it is removed from the palm opened, and the tender inflorescence, nearly white in color and finely branched, is removed and eaten. Its preparation for the table consists in dipping it in a batter made of eggs and then frying it; in enveloping it in an omelet; in boiling it and serving it as a vegetable; or in mixing it with other vegetables to form a salad. When very young and tender its flavor is agreeable, but when older and nearly ready to emerge from the spathe it has a strongly bitter taste, which makes it disagreeable. It should therefore be used when quite young. The pacaya palm grows in a variety of soils, seeming to do well on clay and also on black sandy loam. An abundance of lime in the soil does not seem to injure it. It is frequently planted in gardens among coffee bushes, and in many sections it is planted beneath large trees, where it has partial shade. I have seen many beneath large avocado trees, interplanted with coffee bushes. It may be necessary to furnish shade for the palms in California and Florida by means of a slat house or some such device, or they might be planted beneath large trees, as they are in Guatemala. The pacaya as an article of food is extensively used in Guatemala and by local standards commands a good price, single inflorescences usually selling at two to five for a peso (2½ cents). The spathes are pulled from the palms, tied together in small bundles, and thus brought to market." (*Popenoe.*)

44060. VITIS TILIAEFOLIA Humb. and Bonpl. Vitaceæ. **Grape.**
(*V. caribaea* DC.)

"(No. 81a, Guatemala, Guatemala, December 29, 1916.) A native grape sold in the markets of Guatemala. The bunches are about the size of those of *Vitis caribaea* and the berries very similar; it may, in fact, be this species, though I do not know whether or not *V. caribaea* occurs in Guatemala. The fruit is used to make jelly. For trial in southern Florida in connection with the work of producing a grape adapted to tropical and subtropical conditions." (*Popenoe.*)

44061. ALEURITES TRISPERMA Blanco. Euphorbiaceæ.
Soft lumbang.

From the Philippine Islands. Presented by Mr. A. W. Prautch, through Mr. Adn. Hernandez, director, Manila Bureau of Agriculture. Received January 22, 1917.

"Mr. Prautch has returned from his trip to Cavite Province with seeds and leaves of *Aleurites trisperma*. The nuts were picked up under the trees, where they had been lying since last August, in which month the tree fruits. As you have already successfully introduced *Aleurites moluccana* in the United States,

it is quite possible that *A. trisperma* will also be successful. It is believed that the soft-shelled kind (*A. trisperma*) is superior, for in addition to the nut being easier to crack, the Bureau of Science has found that the oil so closely approximates the Chinese tung oil as to be practically indistinguishable therefrom. There is a slight difference between this oil and that of *A. moluccana*." (*Hernandez.*)

44062. TRITICUM AESTIVUM L. Poaceæ. **Wheat.**
(*T. vulgare* Vill.)

From Yokohama, Japan. Purchased from the Yokohama Nursery Co. Received January 22, 1917.

"Grown on the slope of Mount Fuji." (*S. Iida.*)

44063. AVENA SATIVA L. Poaceæ. **Oats.**

From Paris, France. Presented by Messrs. Vilmorin-Andrieux & Co. Received January 30, 1917.

"Very early black hybrid." (*Vilmorin-Andrieux & Co.*)

44064 and 44065.

From Londiani, Kenia. Presented by Mr. J. H. Cameron, Londiani Farms (Ltd.). Received January 30, 1917.

44064. CYPHOMANDRA BETACEA (Cav.) Sendt. Solanaceæ. **Tree-tomato.**

"This seed grows in my garden; it is a cultivated plant, but I do not know where it comes from; it is in every garden hereabouts. We call it the *Cape tomato*, but it is not a tomato, nor do I suppose that it ever saw the Cape, i. e., the Cape of Good Hope. The early settlers in this country mostly came up from the Cape after the South African war, and got into the habit of calling everything they saw after something else that they knew in South Africa. It is a tree growing up to 10 feet high, with large glossy green and purple leaves. The fruit is exactly like an English plum, both in size and appearance (an average one I have here on my desk, plucked at random, measures 2½ inches in length and 6 inches in circumference); the skin is purple and the flesh a bright yellow; like *Physalis peruviana* it can be eaten raw, stewed, made into jam, or, as you say in America, preserves, and used in making pies. It does not grow wild here and must have been brought from some other country, probably by missionaries." (*Cameron.*)

44065. PHYSALIS PERUVIANA L. Solanaceæ. **Poha.**

"Seeds of an economic plant which we call the *Cape gooseberry*. A yellow-colored fruit about the size of a large cultivated cherry, but round and not oval like a real gooseberry. It is a most excellent fruit to eat either raw or stewed, and it can be eaten with cream, in pies, or preserved. It is very prolific, rather in danger of becoming a weed and running away with the garden, but not any more so than your own raspberry or blackberry. As to habitat, I find it growing as low as 6,000 feet above the level of the sea, which is low for East Africa. Here at Londiani it is very plentiful. We are 8,000 feet above sea level. It grows in cultivated gardens and also wild by the roadside and in wild bushy places. I was astonished on one occasion to find it growing most profusely away up on the top of Mount Londiani at 10,000 feet above

44064 and 44065—Continued.

sea level, on which occasion I may say it about saved my life. I had ridden up there at dawn for the purpose of shooting buffalo, which I did, and then lost my guides in a great bamboo forest and wandered about for many hours; I finally came to an open place and found many of these plants growing, and being very hungry I devoured many of the fruits. I found them both meat and drink." (*Cameron.*)

44066. COLOCASIA ESCULENTA (L.) Schott. Araceæ. **Taro.**

From Oilla, Tex. Tubers presented by Mr. S. Kato. Received January 24, 1917.

"*Yatsu-gashira-imo.* A Japanese variety of taro of the dasheen type. It is said to be the best variety grown in Japan. These specimens grown in Texas, though very small, were mealy and of fine flavor." (*R. A. Young.*)

44067. VICIA FABA L. Fabaceæ. **Broad bean.**

From Amsterdam, Netherlands. Procured through Mr. Frank W. Mahin, American consul. Received January 23, 1917.

"Seeds of the broad bean, called by the Dutch *Duivenboon.*" (*Mahin.*)

44068. DIOSPYROS KAKI L. f. Diospyraceæ. **Kaki.**

From Hangchow, China. Presented by Dr. D. Duncan Main. Numbered February 5, 1917.

A variety sent in without description.

44069. ZIZANIA LATIFOLIA (Griseb.) Stapf. Poaceæ. **Wild rice.**

From China. Plants collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received January 3, 1917.

"(No. 1261. Peking, China, November 20, 1916.) A Chinese wild rice, cultivated in standing water. The young sprouts are eaten in the spring, while later on the shoots, swollen through the action of a fungus, are eaten in much the same way as bamboo. Chinese name *chiao pai.*" (*Meyer.*)

For an illustration of the shoots of wild rice, known as kau ba, used as a vegetable, see Plate II.

44070 and 44071.

From Wellington Point, near Brisbane, Queensland, Australia. Presented by Mr. James Pink. Received January 22, 1917.

44070. CARICA PAPAYA L. Papayaceæ. Papaya.

"Seeds of a good variety of papaw, grown from seed of my own selection." (*Pink.*)

44071. CASSIA EREMOPHILA A. Cunn. Cæsalpiniaceæ.

"A very handsome flowering shrub." (*Pink.*)

A woody plant, found in Australia in all the colonies except Tasmania. The leaves are composed of two pairs of very narrow leaflets, and the pods are very smooth. In Australia both the pods and the leaves of this plant are eaten by stock. (Adapted from *Maiden, Useful Native Plants of Australia, p. 121,* and from *Vogel, Synopsis Generis Cassiae, p. 47,* as *Cassia nemophila.*)

44072. SIDEROXYLON AUSTRALE (R. Br.) Benth. and Hook. Sapotaceæ.

From Brisbane, Australia. Presented by Mr. J. F. Bailey, director, Botanic Gardens. Received January 22, 1917.

A tree, sometimes attaining a large size, from southeastern Australia. The leaves, which are quite variable in shape, are mostly 3 to 4 inches long, and the flowers occur in axillary clusters. The purplish, nearly round fruits are 2 inches in diameter and are of a coarse, insipid flavor. The wood is dark colored, close grained, prettily veined, and is used for cabinetwork, carving, etc., but requires careful seasoning. (Adapted from *Maiden, Useful Native Plants of Australia, pp. 367–368*, as *Achras australis*, and from *Bailey, Queensland Flora, p. 958.*)

44073 to 44075.

From Ceylon. Presented by Father Jerome, St. Leo College, St. Leo, Fla. Received January 22, 1917.

44073. DEGUELIA DALBERGIODES (Baker) Taub. Fabaceæ.
(*Derris dalbergioides* Baker.)

A small, spreading tree, 15 to 20 feet high, found in the Malay Archipelago and Java. The branchlets are brown-silky, the dark green, compound leaves are 6 to 8 inches long; the rose-colored flowers are in numerous short-stalked racemes; and the thin, flat pods are up to 2½ inches long. (Adapted from *Hooker, Flora of British India, vol. 2, p. 241.*)

44074. LAGERSTROEMIA SPECIOSA (Muenchh.) Pers. Lythraceæ.
(*L. flos-reginae* Retz.)

A tree, 50 to 60 feet in height, with leaves from 4 to 8 inches long and large panicles of flowers, which vary from rose to purple, changing color during the day. This is the chief timber tree in Assam, eastern Bengal, India, and also in Burma. It occurs along river banks and on low swampy ground and is commonly cultivated as an avenue tree. No special care is used in growing this tree, which is felled when from 30 to 50 years of age. The timber is used for shipbuilding, boats, etc., being very durable under water. It has been introduced into southern California. (Adapted from *Watt, Commercial Products of India, p. 701*, and from *Bailey, Standard Cyclopedia of Horticulture, p. 1775.*)

44075. RHUS RUFA Teijsm. and Binn. Anacardiaceæ.

An erect, smooth-barked tree, native of the peninsula of Menado, island of Celebes, and Dutch East Indies, with leaves composed of 12 to 14 pairs of oblong lance-shaped leaflets, with reddish hairy lower surfaces, and axillary and terminal panicles of white sessile flowers. The fruits are black, dry, nearly globular drupes containing kidney-shaped seeds. The inhabitants of Menado call this *Kajoe-Kambling*. (Adapted from *J. E. Teijsman and S. Binnendijk, Natuurkundig Tijdschrift voor Nederlandsch Indië, vol. 27, p. 52.*)

44076 to 44084.

From Jamaica Plain, Mass. Cuttings presented by the Arnold Arboretum. Received January 22, 1917.

44076. CALLICARPA GIRALDIANA Hesse. Verbenaceæ.

An ornamental shrub from western China, with dentate leaves 2 to 4 inches long, dense cymes of pink flowers on hairy stalks, and violet fruits.

44076 to 44084—Continued.

If sheltered this shrub will grow in the northern parts of the United States, and if killed to the ground young shoots will spring up vigorously, producing flowers and fruits in the same season. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 629,* as *C. giraldii.*)

44077. COTONEASTER AMBIGUA Rehd. and Wils. Malaceæ.

See S. P. I. No. 43989 for previous introduction and description.

44078. COTONEASTER GRACILIS Rehd. and Wils. Malaceæ.

A shrub from western China, where it is found at altitudes of from 5,000 to 10,000 feet. It attains a height of 4 to 10 feet and has light-green leaves up to four-fifths of an inch long. The rose-colored flowers occur in lax 3-flowered corymbs and the immature fruits are about one-fifth of an inch long. (Adapted from *Sargent, Plantae Wilsonianae, vol. 1, pp. 167–168.*)

44079. COTONEASTER HUPEHENSIS Rehd. and Wils. Malaceæ.

A shrub native of central and western China, up to 5 feet in height, with slender spreading branches, oval or elliptic leaves with gray wool on the lower surfaces, 6 to 12 white flowers in each of the numerous cymes, and red, nearly globular fruits about one-third of an inch in diameter. This is one of the handsomest of cotoneasters in bloom, and is hardy as far north as Massachusetts. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 867.*)

44080. COTONEASTER NITENS Rehd. and Wils. Malaceæ.

See S. P. I. No. 43993 for previous introduction and description.

44081. COTONEASTER OBSCURA Rehd. and Wils. Malaceæ.

See S. P. I. No. 43994 for previous introduction and description.

44082. COTONEASTER RACEMIFLORA MEYERI Zabel. Malaceæ.

A low, rather rough shrub from northern Africa and western Asia, with roundish blunt leaves, slightly hairy on the upper surfaces, short-stalked cymes of white flowers, and red fruits. (Adapted from *Schneider, Illustriertes Handbuch der Laubholzkunde, vol. 1, p. 754,* as *C. racemiflora nummularia.*)

44083. COTONEASTER RACEMIFLORA SOONGORICA (Reg. and Herd.) C. Schneid. Malaceæ.

An erect shrub, up to 4 feet in height, but rarely prostrate. The leaves are oval and usually somewhat obtuse, and the white flowers occur 3 to 12 in short-peduncled cymes. The fruit is red. This variety is found in northern China, Caucasia, etc. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 867,* and from *Schneider, Illustriertes Handbuch der Laubholzkunde, vol. 1, p. 754.*)

44084. COTONEASTER TENUIPES Rehd. and Wils. Malaceæ.

See S. P. I. No. 43995 for previous introduction and description.

44085. GARCINIA DIOICA Blume. Clusiaceæ.

From Lawang, Java. Presented by Mr. M. Buysman. Received January 23, 1917.

"The fruit of this tree is eaten." (*Buysman.*)

A Javanese tree up to 60 feet high, with membranous, lance-shaped, sharp-pointed leaves up to 5 inches long, pink flowers in few-flowered axillary or terminal clusters, and nearly globular fruits up to 1¾ inches in greatest diameter.

The natives of Java call this tree *tjeuri* and *kemedjing*. The wood is of little use, but in some portions the fruits are sought for the sake of the taste of the seed coats. (Adapted from *Koorders and Valeton, Boomsorten op Java, Bijdrage No. 9, pp. 369–372.*)

44086. Campomanesia fenzliana (Berg) Glaziou. Myrtaceæ.

From Parana, Brazil. Presented by Mr. B. H. Hunnicutt, Lavras, Minas Geraes, Brazil. Received January 25, 1917.

Guabiroba. A small Brazilian myrtaceous tree with foliage resembling that of the European oaks. It reaches a height of 30 to 35 feet and bears orange-yellow fruits, up to an inch in diameter, with edible pulp resembling that of the guava. (Adapted from *note of Dorsett, Shamel, and Popenoe, April 13, 1914.*)

See also S. P. I. No. 37834 for further description.

44087 to 44091.

From Lamao, Bataan, Philippine Islands. Presented by Mr. P. J. Wester, Lamao Experiment Station, through Mr. Adn. Hernandez, director, Bureau of Agriculture, Manila. Received January 22, 1917.

44087. Citrus excelsa Wester. Rutaceæ. **Limon real.**

A tall, thorny Philippine shrub of vigorous growth and straggly habit, with thick, leathery leaves and thin-skinned smooth fruits up to 3 inches in diameter, with very juicy, mildly acid pulp. (Adapted from the *Philippine Agricultural Review, first quarter, 1915, p. 22.*)

See also S. P. I. No. 41714 for further description.

44088. Citrus medica nana Wester. Rutaceæ. **Dwarf citron.**

A small thorny shrub, rather common in the Philippines, rarely exceeding 2 meters in height, being probably the smallest species in the genus. It has small, sharp spines; narrowly oblong, serrate leaves 7 to 11 cm. long; axillary or terminal, rather loose cymes of white flowers with slight purple tinges on the outside; and roundish egg-shaped, smooth, yellow fruits 2½ inches or more long, with grayish to greenish, acid, rather dry pulp containing many small flattened, smooth seeds. The Filipinos eat the fruit, but it is too dry to be cultivated for the flesh, and the skin is too thin to be used as citron peel. (Adapted from the *Philippine Agricultural Review, first quarter, 1915, p. 19.*)

See also S. P. I. No. 39581 for further description.

44089. Citrus medica odorata Wester. Rutaceæ.

Tibi-tibi. A small, thorny Philippine shrub about 8 feet in height, with rather thick, serrate leaves, white flowers, and fruits up to 4 inches in diameter, with somewhat dry, sharply acid pulp. (Adapted from the *Philippine Agricultural Review, first quarter, 1915, p. 18.*)

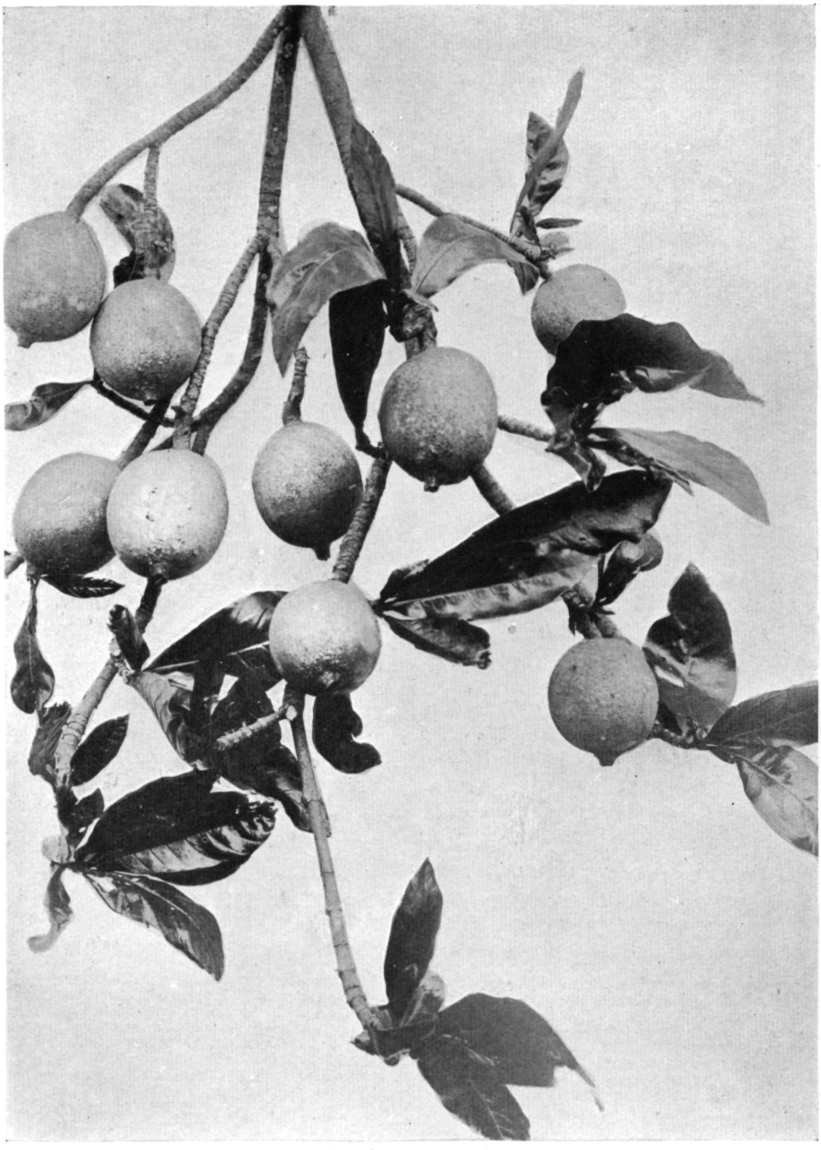
See also S. P. I. No. 41717 for further description.

44090. Genipa americana L. Rubiaceæ. **Genipa.**

A large stately tree, native of the American Tropics, growing 60 feet in height, with dark-green leaves a foot or more long. The edible fruits are about the size of an orange. (Adapted from *note of Dorsett and Popenoe, April 13, 1914.*)

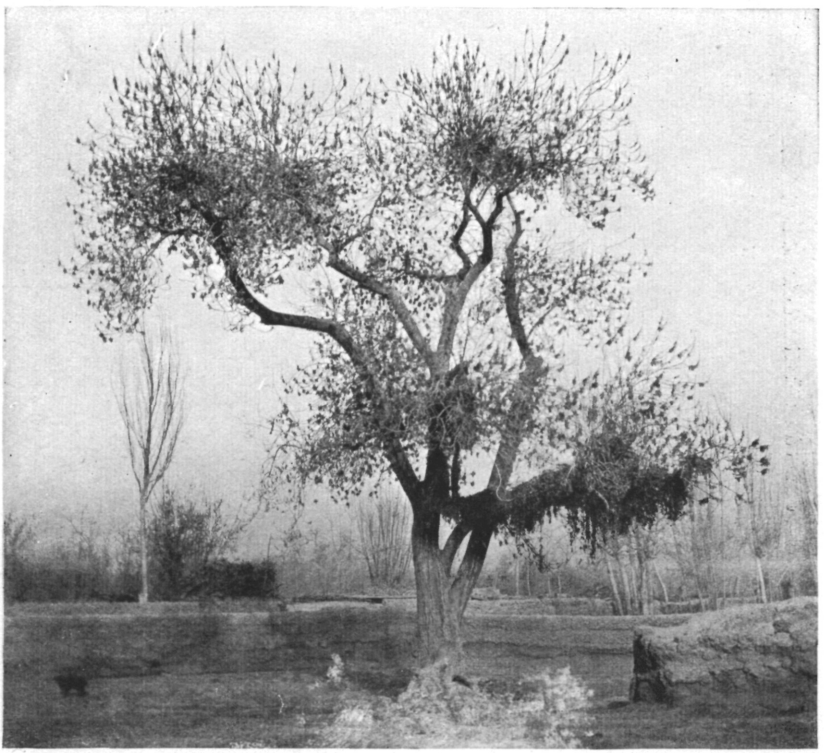
See also S. P. I. No. 37833 for further description.

For an illustration of the Brazilian genipa, see Plate III.



THE BRAZILIAN GENIPA (GENIPA AMERICANA, S. P. I. No. 44090).

Outside of its native region this fruit is little known. In eastern Brazil it is commonly used, and it is also grown in the West Indies. The russet fruits, sometimes nearly 4 inches long, have the flavor of the quince. The tree can be grown only in regions free from severe frosts. See also S. P. I. No. 34882. (Photographed by P. H. Dorsett, Bahia, Brazil, November 12, 1913; P25009FS.)



THE IMODON ASH OF TURKESTAN (FRAXINUS POTAMOPHILA, S. P. I. No. 44132).

During his expedition to Chinese Turkestan, Mr. Meyer took the photograph reproduced above at Khanaka and obtained some of the seeds shown hanging on the tree. This species of ash, under the trying conditions of great drought, intense heat, and soil alkali of that region, made a valuable shade tree. Under S. P. I. No. 30652; the trees grown from these seeds were distributed in 1912. In 1915, some young trees were growing at the Fallon Field Station in Nevada. These promised so much for that treeless region that, through the kindness of the British vice consul, Mr. George MacCartney, more seeds (S. P. I. No. 44132) were imported, with which to make a wide distribution. (Photographed by Frank N. Meyer, Khanaka, Chinese Turkestan, December 5, 1910; P5647FS.)

44087 to 44091—Continued.

44901. UVARIA RUFA (Dunal) DC. Annonaceæ.

Bananac. A much-branched shrub from Java with a stem about the diameter of a man's arm; alternate, elliptic-oblong, acute or obtuse leaves 2½ to 5 inches long; and purplish red, solitary flowers about an inch wide. The oblong, kidney-shaped, red fruits about 1½ inches long, in bunches of 18 or 20, contain whitish, scant, juicy, aromatic, subacid flesh without a trace of sugar and containing many seeds. (Adapted from *Blume, Flora Java, Annonaceæ, pp. 19–20, pl. 4,* and from the Philippine Agricultural Review, vol. 6, no. 7, p. 321.)

44092. LAUROCERASUS ACUMINATA (Wall.) Roemer. Amygdalaceæ.

(*Prunus acuminata* Hook. f.)

From Darjiling, India. Presented by Mr. G. H. Cave, curator, Lloyd Botanic Garden. Received January 29, 1917.

"Freshly gathered seed." (*Cave.*)

A tree 30 to 40 feet high, found in the temperate portions of the central and eastern Himalayas at elevations of from 4,000 to 7,000 feet. The slender branches are covered with flat, smooth leaves 4 to 7 inches long and bear yellowish white flowers a quarter to one-third of an inch wide in many-flowered racemes. (Adapted from *Hooker, Flora of British India, vol. 2, p. 317.*)

See also S. P. I. No. 41813 for previous introduction.

44093. EUCHLAENA MEXICANA Schrad. Poaceæ. **Teosinte.**

From Zomba, Nyasaland. Presented by Mr. J. Stewart J. McCall, Director of Agriculture. Received January 30, 1917.

"Out in Nyasaland I find this a most valuable forage plant, either when fed green to cattle or as hay. I consider it to be the best yielding forage plant I have yet experimented with, and I believe it worthy of special attention in warm districts." (*McCall.*)

44094. ROLLINIA sp. Annonaceæ.

From Bogota, Colombia. Presented by Mr. M. T. Dawe, Director of Agriculture and Agricultural Adviser to the Government. Received February 2, 1917.

"A shrub of the tropical parts of the Department of Magdalena, which affords an edible orange-colored fruit; the flesh is also of orange color." (*Daive.*)

44095. ALEURITES FORDII Hemsl. Euphorbiaceæ. **Tung-oil tree.**

Plants grown at the plant-introduction field stations from seed received from various sources. Numbered for convenience in distribution in 1917.

Plants grown under Yarrow Nos. 2157, 2158, 2159, 3522, and Chico No. 16151.

44096 to 44098.

From Amoy, China. Presented by Mr. H. Hoyle Sink, American consul. Received January 11, 1917.

44096. ANDROPOGON INTERMEDIUS R. Br. Poaceæ. **Grass.**

An erect grass, with rather narrow leaves and slender spikes, growing in large clumps 2 feet or more in height. It is a native of Australia,

44096 to 44098—Continued.

where it is used as a forage grass. It is readily propagated from the roots. (Adapted from *Bentham and Mueller, Flora Australiensis, pp. 531–532,* and from the *Agricultural Gazette, New South Wales, May 2, 1914.*)

44097. ARTHRAXON BREVIARISTATUS Hack. Poaceæ. **Grass.**

A tall, graceful grass found in eastern India and China, with culms 50 to 60 cm. high and leaf blades up to 2 inches in length by half an inch in width. (Adapted from *DeCandolle, Monographia Phanerogamarum, vol. 6, pp. 350–351, 1889.*)

44098. CAPRIOLA DACTYLON (L.) Kuntze. Poaceæ. **Bermuda grass.**
(*Cynodon dactylon* Pers.)

A pasture and lawn grass for the Southern States; a rather variable species.

44099. SACCHARUM OFFICINARUM L. Poaceæ. **Sugar cane.**

From Cienfuegos, Cuba. Presented by Mr. Robert M. Grey, Harvard Experiment Station. Received February 3, 1917.

"Harvard No. 6301. Seeds of one of my hybrid canes, which is very prolific and germinates freely when sown in the open ground here." (*Grey.*)

44100. CANARIUM AMBIONENSE Hochr. Balsameaceæ.

From Buitenzorg, Java. Presented by the director, Jardin Botanique. Received February 3, 1917.

This beautiful tree, which grows to a height of about 90 feet, so resembles *Canarium moluccanum* in general habit and in the leaves that the two can scarcely be distinguished, although the fruit is different. The bark is smooth and white. The fruit of this species is oblong, pointed at both ends, with the angles sharp toward the ends and somewhat flattened toward the middle. This tree is found in the island of Amboina, Celebes. (Adapted from *Hochreutiner, Plantae Bogoriensis Exsiccatae, p. 55.*)

"The seeds are eaten as a table nut, and an emulsion of the oil extracted from the seed is considered an excellent baby food." (*Fairchild.*)

44101. CANARIUM OVATUM Engl. Balsameaceæ. **Pili nut.**

From Camarines, Philippine Islands. Presented by Dr. E. B. Copeland, dean, College of Agriculture, Los Banos, P. I. Received February 8, 1917.

A tree, native of the Philippines, with compound leaves and triangular drupes containing one seed. These seeds are eaten throughout the eastern part of the world, and from them is extracted an oil which is used for table purposes and also for burning in lamps. (Adapted from *notes of H. H. Boyle, assistant horticulturist, Manila, P. I.*)

See also S. P. I. No. 38372 for further distribution.

44102. PYRUS COMMUNIS L. Malaceæ. **Pear.**

From Hamilton City, Calif. Presented by Mr. James Mills. Received January 18, 1917.

"Scions from an old pear tree that was planted by the Mission Fathers about 60 years ago. This tree has not shown any evidence of pear-blight, although blighted trees have been growing in its vicinity." (*Peter Bisset.*)

44103. HELIANTHUS ANGUSTIFOLIUS L. Asteraceæ. **Sunflower.**

Grown at the Plant Introduction Field Station, Chico, Calif., from seed collected by Dr. David Griffiths. Numbered February 13, 1917.

"This native sunflower is said to occur from New Jersey to Florida and westward to Texas. It attracted the collector's attention in a native condition on the prairies of Arkansas, where it grows most luxuriantly. There are several characteristics which adapt it to ornamental uses: The general habit of the plant is pleasing; it has a small flower with long, graceful rays; the foliage is narrow, long, drooping, and glossy; the main steam and each of its branches are long, graceful peduncles; but, best of all, it will cut and come up again and is perennial in habit. These characteristics make this plant valuable for tall massing effects, like the cosmos, as well as for cutting purposes. The seed distributed this season is from a single variety of this very variable and widely distributed species. Many other forms exist, and doubtless in the hands of horticulturists it will be found capable of much improvement. Some of its varieties are bushy, and all can be pinched back to a bushy form." (*Griffiths.*)

44104. PERSEA AMERICANA Mill. Lauraceæ. **Avocado.**

(*P. gratissima* Gaertn. f.)

From Honolulu, Hawaii. Cuttings presented by Mr. Donald MacIntyre, Moanalua Gardens. Received February 8, 1917.

"*Moanalua.* A chance seedling 19 years of age growing on the estate of Hon. S. M. Damon, Moanalua. Form pyriform; size small to medium; cavity flaring, deep; stem somewhat short, rather thick; surface undulating, hard, coriaceous and slightly pitted; color dark green with medium abundant small irregular-shaped yellowish dots; apex a mere dot; skin medium thick, separating readily from the pulp; flesh yellowish in color, running into green at the rind, fine grained, melting and somewhat buttery, 70 per cent of the fruit; seed medium large, conical, fitting tightly in the seed cavity; flavor rich and nutty. Season, July to September. The tree is very vigorous. Height, 30 feet, spread 25 feet." (*Hawaii Agricultural Experiment Station Bulletin No. 25, p. 43.*)

"*Moanalua*, the round variety. This is not an easy thing to bud, and all the plants we have have been inarched. A good avocado, one of our best, it is a late variety, however, and on that account might not be as suitable for the climate of Florida as some of the early kinds." (*MacIntyre.*)

44105 to 44107. TRIFOLIUM PRATENSE L. Fabaceæ. **Red clover.**

From Denmark. Presented by Mr. H. Hertel, Danish Royal Agricultural Society, Copenhagen. Received February 8, 1917.

44105. "*Tystofte* No. 71, an early red clover. Furnished by the experimental station at Tystofte, near Tjaereby on Sealand. The seed raising of early red clover in general is, at the present time, sparse here in Denmark, where favorable conditions for the fecundations are lacking.

"For further information, see the 70th Beretning fra Statens Forsøgsvirksomhed i Plantekultur, page 216." (*Hertel.*)

44106. "*Tystofte* No. 87, a late clover. Furnished by the experimental station at Tystofte, near Tjaereby on Sealand. This is a new form, obtainable so far only in small quantities.

"For further information, see the 95th Beretning fra Statens Forsøgsvirksomhed i Plantekultur, page 392." (*Hertel.*)

44105 to 44107—Continued.

44107. "*Hersnap*, a late red clover. Furnished by the seed-raising society (Danske Landboforeningers Frøforsyning), Roskilde. This is the best species, being used largely at the present time.

"For further information, see the 95th Beretning fra Statens Forsøgsvirksomhed i Plantekultur, page 392." (*Hertel.*)

44108. DIOSPYROS KAKI L. f. Diosypraceæ. **Kaki.**

From Kioshan, Honan, China. Cuttings presented by Dr. Nathanael Fedde, American Lutheran Mission. Received January 22, 1917.

"The Honan red persimmon is of a size like that of the average tomato, and were it not for the large stiff calyx would be almost indistinguishable from one. Commonly, no seeds occur, but some have as many as four or five. The taste is sweet almost to a fault, with no suggestion of pucker unless the core is eaten. The juice leaves a permanent stain in linen." (*Fedde.*)

44109. SACCHARUM OFFICINARUM L. Poaceæ. **Sugar cane.**

From Santiago de las Vegas, Cuba. Presented by Mr. J. T. Crawley, director, Agricultural Experiment Station. Received February 12, 1917.

"*Demerara 74.*"

44110. CARICA PAPAYA L. Papayaceæ. **Papaya.**

From Brooksville, Fla. Presented by Mr. James Jennings, through Mr. J. E. Morrow. Received February 12, 1917.

"Seeds of a small-fruited highly flavored papaya. This tree seems to be unusually hardy and to endure considerable frost. Ripe fruit gathered from tree on February 5, 1917." (*Morrow.*)

44111 and 44112. CARICA PAPAYA L. Papayaceæ. **Papaya.**

From Pago Pago, American Samoa. Presented by Mr. J. M. Poyer, governor. Received February 12, 1917.

44111. "*Esi fafine.* Native of Samoa." (*Poyer.*)

44112. "*Esi palagi.* Introduced in Samoa." (*Poyer.*)

44113 and 44114.

From El Coyolar, Costa Rica. Presented by Mr. Carlos Wercklé. Received January 29, 1917.

44113. AESCHYNOMENE sp. Fabaceæ.

Yellow sensitiva. See S. P. I. No. 44040 for previous introduction and description.

44114. COCCOLOBIS UVIFERA L. Polygonaceæ.

"*Jarra.* Dense, small tree, with small very light-green leaves. A fine plum; seed one-third to two-fifths of the whole fruit, subacid. Hot climate." (*Wercklé.*)

44115. LYCOPERSICON ESCULENTUM Mill. Solanaceæ. **Tomato.**

From Lima, Peru. Presented by Mr. E. E. Wright, at the request of Mr. W. G. Bixby, Brooklyn, N. Y. Received February 16, 1917.

"*Tomate silvestre.*"

44116. FICUS PADIFOLIA H. B. K. Moraceæ.

From El Coyolar, Costa Rica. Presented by Mr. Carlos Wercklé. Received January 29, 1917.

"This tree differs completely from the rest of the genus in its superb form. It is very large and very dense and of an exceptionally beautiful color. It is evergreen, while nearly all the other species are bare for a longer or shorter time during the dry season. The fruit is apparently very much liked by birds, and the trees are always full of little parrots. Plant in fibrous fern peat or in turf with a little old mortar (ground) and a little charcoal dust or in common vegetable peat with ground mortar (sand and lime) and charcoal dust." (*Wercklé.*)

44117. LYCOPERSICON ESCULENTUM Mill. Solanaceæ. **Tomato.**

From Lima, Peru. Presented by Mr. E. E. Wright, at the request of Mr. W. G. Bixby, Brooklyn, N. Y. Received February 16, 1917.

"Cultivated Peruvian tomato from Lurin Valley." (*Wright.*)

44118. RHYNCHOSIA sp. Fabaceæ.

From El Coyolar, Costa Rica. Presented by Mr. Carlos Wercklé. Received January 29, 1917.

"*Yellow vetch.* A small blooming annual forage plant, growing now in the dry season, while the *yellow sensitiva* [S. P. I. No. 44113] is completely dried. After the *yellow sensitiva*, our best soil enricher." (*Wercklé.*)

44119. PSYCHOTRIA BACTERIOPHILA Valet. Rubiaceæ.

From Buitenzorg, Java. Roots presented by Mr. P. J. S. Cramer, chief, Plant Breeding Station. Received February 14, 1917.

A shrub, 2 to 3 meters high, native of the Comoro Islands, Madagascar. The elliptic or ovate-oblong, fleshy, dark-green leaves are short petioled and usually thickly covered with little tubercles formed by bacteria. The greenish white flowers are in numerous dense thyrses up to 3 inches long, and the fruits are subglobular drupes about a quarter of an inch in diameter. (Adapted from *Valeton, Icones Bogorienses, vol. 3, pl. 271.*)

See also S. P. I. No. 44295 in this inventory for notes on these bacterial leaf nodules in the Rubiaceæ.

44120 to 44122. CHAYOTA EDULIS Jacquin. Cucurbitaceæ.
(*Sechium edule* Swartz.) **Chayote.**

From Funchal, Madeira. Presented by Mr. J. E. Blandy. Received February 12, 1917.

"*Pipinella* or *chu-chu.*" (*Blandy.*)

44120. Large smooth green.

44121. Medium spiny green.

44122. Large smooth white.

44123 to 44126.

From Cairo, Egypt. Presented by the director, Horticultural Division, Ministry of Agriculture, Gizeh Branch. Received January 5, 1917.

44123. CASSIA BICAPSULARIS L. Cæsalpiniaceæ.

A shrub, found throughout tropical and subtropical South America and cultivated in tropical Asia, 2 to 3.5 meters high, with compound

44123 to 44126—Continued.

leaves up to 9 cm. long, yellow flowers, and curved or straight pods up to 15 cm. long by 1.5 cm. wide. In Porto Rico this shrub is known by the native names of *sen del pais* and *hoja de sen*. (Adapted from *Perkins, Contributions from the National Herbarium, vol. 10, p. 158.*)

44124. CROTALARIA JUNCEA L. Fabaceæ. **Sunn hemp.**

An erect yellow-flowered annual, 4 to 5 feet high, native of tropical Asia generally and commonly occurring in the dry region of Ceylon. It is cultivated in many places in India and also in northern Ceylon for the sake of the strong and useful fiber obtained from the stems. This fiber is used in India for making coarse canvas, cordage, and fishing nets, and an average yield is about 640 pounds an acre. A light, rich soil is considered best for growing this plant, although with cultivation it may be grown on almost any soil. (Adapted from *Macmillan, Handbook of Tropical Gardening and Planting, pp. 549–550.*)

44125. GLYCOSMIS sp. Rutaceæ.

Received as *Glycosmis pleiogyne* for which no place of publication has been found. This is probably merely a garden name for a form of *G. pentaphylla*, a small spineless shrub with dark-green glossy leaves, small fragrant white flowers, and translucent pinkish berries.

44126. WIGANDIA URENS (Ruiz and Pav.) H. B. K. Hydrophyllaceæ.

A tall, coarse, woody perennial, from the mountainous regions of Mexico, with ovate, rusty hairy leaves, one-sided spikes of violet flowers, and densely hairy capsules. Propagation is generally by seed. The chief value of wigandias is as foliage plants for subtropical bedding; they can not endure frost. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 4, p. 1975.*)

44127. DAVIDIA INVOLUCRATA VILMORINIANA (Dode) Hemsl. Cornaceæ.

From Paris, France. Presented by Vilmorin-Andrieux & Co. Received February 10, 1917.

A western Chinese tree, 40 to 50 feet high, with alternate, bright-green, ovate, coarsely serrate leaves 2 to 4½ inches long and inconspicuous flowers in terminal, globular heads about an inch long. In the British Isles this tree is quite hardy, and though it can be propagated by cuttings the plants raised from seeds show the greatest vigor. (Adapted from *Curtis's Botanical Magazine, vol. 138, p. 8432.*)

44128. SOLANUM sp. Solanaceæ. **Wild potato.**

From Ciudad Lerdo, Durango, Mexico. Tubers presented by Dr. Elswood Chaffey, through Dr. J. N. Rose, United States National Museum. Received February 20, 1917.

"I have often heard of these native potatoes, but until now have not seen them. I presume that you already know them, but I think that sometimes a fresh lot may be useful to cross with the cultivated varieties to produce, if possible a stock more resistant to the ills that potatoes may be prone to." (*Chaffey.*)

44129. DATURA DISCOLOR Bernh. Solanaceæ.

From Bard, Calif. Presented by Mr. C. E. Peterson, Yuma Experiment Farm. Received February 12, 1917.

A low, somewhat hairy, annual herb, found in Colorado, Arizona, and southeastern California. It has more or less deeply toothed leaves and purplish white flowers 2 or 3 inches long. The thickish seeds are dark colored with wrinkled or pitted crustaceous coats. (Adapted from *Gray, Synoptical Flora of North America, vol. 2, p. 240.*)

44130. DIOSPYROS EBENASTER Retz. Diospyraceæ. **Black sapote.**

From Honolulu, Hawaii. Presented by Mr. Gerrit P. Wilder. Received February 12, 1917.

An ornamental Mexican tree with oblong-oval glossy leaves about 4 inches long and light-green edible fruits up to 4 inches in diameter with very dark-brown sweetish pulp. (Adapted from *note of Wilson Popenoe, under S. P. I. No. 39719,* which see for further description.)

44131. HIBISCADELPHUS GIFFARDIANUS Rock. Malvaceæ.

From Honolulu, Hawaii. Presented by Mr. Joseph F. Rock, College of Hawaii. Received February 13, 1917.

A rather low Hawaiian tree with an inclined trunk about a foot in diameter, deep magenta flowers, and large yellowish capsules. (Adapted from *Rock, Indigenous Trees of the Hawaiian Islands, p. 299.*)

See also S. P. I. No. 42879 for further description.

44132 to 44134. FRAXINUS POTAMOPHILA Herd. Oleaceæ. **Ash.**

From Kashgar, Chinese Turkestan. Presented by Mr. George MacCartney, British consul general, through Mr. Walter Hines Page, ambassador, London. Received February 15, 1917.

"*Imodon.* The consul general states that, so far as he is aware, there is no special difference of climate or soil between Kashgar or Khotan, nor is there any difference in the ash trees of these two places." (*Page.*)

44132. "Package No. 1. Seeds gathered at Kashgar."

44133. "Package No. 2. Seeds gathered at Kashgar."

44134. "Package No. 3. Seeds gathered at Kashgar."

See S. P. I. Nos. 30414 and 30652 for previous introductions.

For an illustration of the Imodon ash, see Plate IV.

44135 to 44142.

From the Philippine Islands. Presented by Mr. P. J. Wester, through Mr. Adn. Hernandez, director, Bureau of Agriculture, Manila. Received February 8, 1917.

44135. CARICA PAPAYA L. Papayaceæ. **Papaya.**

"Grown in Luzon Province."

44136. CITRUS LIMETTA AROMATICA Wester. Rutaceæ.

Dalayap. "No. 741. Grown in Luzon Province."

A spiny Philippine shrub collected at Palawan, with slender willowy branches, dull-green ovate-elliptic serrate leaves up to 10 cm. long,

44135 to 44142—Continued.

purplish white flowers borne singly or in terminal or axillary cymes, and roundish, smooth, lemon-yellow fruits 5 cm. long with thin skin, pale-green, juicy, sharply acid pulp, and very numerous small seeds. (Adapted from the *Philippine Agricultural Review, first quarter, 1915, p. 25.*)

44137 and 44138. CITRUS MEDICA NANA Wester. Rutaceæ.

Dwarf citron.

A small thorny shrub, collected at Cebu, rather common in the Philippines, with loose cymes of purplish white flowers and roundish egg-shaped, smooth, yellow fruits 2½ inches or more long. (Adapted from the *Philippine Agricultural Review, first quarter, 1915, p. 23.*)

44137. "No. 27. Grown in Luzon Province."

44138. "No. 2384. Grown in Luzon Province."

44139. CITRUS MEDICA ODORATA Wester. Rutaceæ.

Tihi-tihi. "Grown in Luzon Province."

See also S. P. I. Nos. 41717 and 44089 for further description.

44140. CITRUS MITIS Blanco. Rutaceæ. **Calamondin.**

"No. 2534. Grown in Luzon Province."

A small, somewhat spiny Philippine tree, 4 to 6 meters high, with oblong elliptic leaves up to 9 cm. long, axillary, usually solitary, white fragrant flowers 21 mm. wide, and globular, orange-yellow, smooth, thin-skinned fruits 2 to 4 cm. long, with orange-colored, acid, juicy pulp containing large, smooth seeds. The calamondin, both wild and cultivated, is widely distributed in the Philippines, and the trees are nearly always very prolific. (Adapted from the *Philippine Agricultural Review, first quarter, 1915, pp. 12–13.*)

"This is now widely distributed in Florida, under the incorrect name of Panama orange, from early distributions of S. P. I. No. 2886, which came from Panama." (*Fairchild.*)

44141. PENNISETUM CILIARE (L.) Link. Poaceæ. **Grass.**
(*P. cenchroides* Rich.)

A low, spreading, perennial grass with short spikes.

44142. CARICA PAPAYA L. Papayaceæ. **Papaya.**

"Grown in Cavite Province."

44143. AESCHYNOMENE sp. Fabaceæ.

From El Coyolar, Costa Rica. Presented by Mr. Carlos Wercklé. Received February 14, 1917.

"*Yellow sensitiva.* Best soil improver; not troublesome. Hand-picked seed; free from weeds." (*Wercklé.*)

See also S. P. I. Nos. 44040 and 44113 for previous introductions and description.

44144. STIZOLOBIUM NIVEUM (Roxb.) Kuntze. Fabaceæ.

Velvet bean.

From Mowbray, Cape Province, South Africa. Purchased from Messrs. C Starke & Co. Received February 14, 1917.

Kudu-Laing bean, said to be a hybrid velvet bean.

44145 to 44151.

From China. Seeds collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received February 9, 1917.

44145. PYRUS USSURIENSIS Maxim. Malaceæ. **Pear.**

"(No. 126b. Peking, China, December 29, 1916.) Twelve large and twelve small specimens of the Peking white pear, *Pai li*, some with and others without calyx." (*Meyer.*)

Received as *Pyrush simonii*, which is now referred by Mr. Rehder to *P. ussuriensis*.

44146. PYRUS LINDLEYI Rehder. Malaceæ. **Pear.**
(*P. sinensis* Lindl.)

"(No. 127b. Peking, China, December 19, 1916.) *Hung hsiao li*, meaning 'red smile pear.' A remarkable pear of apple shape, with a bright-red blush on one side, while the other side is yellowish, often tinged with green; meat sour and hard; calyx deciduous; peduncle long. A very good keeper and shipper. Of value in breeding experiments. Scions sent under No. 1266 [S. P. I. No. 44164]." (*Meyer.*)

44147. PYRUS USSURIENSIS Maxim. Malaceæ. **Pear.**

"(No. 128b. Tsunhwachow, Chihli Province, China, December 9, 1916.) Specimens of the 'big sour pear,' *Ta suan li*, showing size and persistency of calyx. Scions sent under No. 1272 [S. P. I. No. 44169]." (*Meyer.*)

44148. PYRUS USSURIENSIS Maxim. Malaceæ. **Pear.**

"(No. 129b. Tsunhwachow, Chihli Province, China, December 9, 1916.) Specimens of the 'eight li fragrant pear,' *Pa li hsiang li*. Notice persistent calyx, short peduncle, and fine aroma." (*Meyer.*)

44149. PICEA MEYERI Rehd. and Wils. Pinaceæ. **Spruce.**

"(No. 133b. Shinglungshan, Chihli Province, China, December 3, 1916.) A tall-growing spruce, often having bluish needles." (*Meyer.*)

"This quadrangular-leaved spruce is characterized by its hairy shoots, curved nonpungent leaves, and medium-sized symmetrical cones with rounded or truncate scales. It is most closely related to *Picea gemmata* Rehd. and Wils., which has similarly hairy shoots, more densely hairy buds, very pungent leaves, and larger cones with much broader scales. It is also related to *P. asperata* Masters, which has paler, more yellow, less pubescent shoots, slightly pungent leaves, larger cones with rhombic scales paler in color, and winter buds with more loosely appressed and more recurved scales. The shoots in *P. meyeri* show great variation in degree of pubescence, and this is not constant from year to year on the same branch. One year a shoot may be densely pubescent and the next year the new shoot on the same branch almost glabrous." (*Sargent, Plantae Wilsonianae, vol. 2, p. 28–29.*)

44150. PYRUS USSURIENSIS Maxim. Malaceæ. **Pear.**

"(No. 2354a. Malanyu, Chihli Province, China, December 7, 1916.) *Ta tzŭ hsiang li*, meaning 'Tartar fragrant pear.' A small variety of Chinese pear, of globose form, having a persistent calyx and a short peduncle; color greenish; flesh of aromatic, pleasant tart flavor becoming melting in December. This pear possibly may prove to be immune to pear-blight." (*Meyer.*)

44145 to 44151—Continued.

44151. PYRUS USSURIENSIS Maxim. Malaceæ. **Pear.**

"(No. 2355a. Malanyu, Chihli Province, China, December 7, 1916.) *Suan li,* meaning 'sour pear.' A medium-sized Chinese pear of globose form and of green color. Calyx persistent, length of peduncle varies considerably in different specimens. Flesh somewhat gritty and quite sour. This pear can not be eaten raw except when it has been once frozen, after which it becomes melting. By cooking them, however, a sour sauce can be obtained, which missionaries find acceptable as a substitute for sour apple sauce. Possibly this pear also may be found to be resistant to pear-blight." (*Meyer.*)

44152 to 44156. SACCHARUM OFFICINARUM L. Poaceæ.

Sugar cane.

From Bridgetown, Barbados, British West Indies. Seeds presented by Mr. John R. Bovell, Superintendent of Agriculture. Received February 17, 1917.

44152. "B. H. 10 (12). One of the best, if not the best, of all the sugar-cane seedlings I have as yet grown. The average sucrose content of this cane for three years was 2.33 pounds per gallon." (*Bovell.*)

44153. "Ba. 6032."

44154. "Ba. 7924."

44155. "B–7169."

44156. "B–6308."

44157 to 44162. SACCHARUM OFFICINARUM L. Poaceæ.

Sugar cane.

From Bridgetown, Barbados, British West Indies. Cuttings presented by Mr. John R. Bovell, Superintendent of Agriculture. Received February 17, 1917.

44157. "B–6450."

44158. "B–7169."

44159. "B. H. 10 (12)." See S. P. I. No. 44152.

44160. "Ba. 2471."

44161. "Ba. 6032." See S. P. I. No. 44153.

44162. "Ba. 7924." See S. P. I. No. 44154.

44163 to 44174.

From China. Cuttings collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received February 9, 1917.

44163. PYRUS USSURIENSIS Maxim. Malaceæ. **Pear.**

"(No. 1265. Maoshan, near Malanyu, Chihli Province, December 8, 1916.)"

See S. P. I. No. 44151 for description.

44164 to 44168. PYRUS LINDLEYI Rehder. Malaceæ. **Pear.**
(*P. sinensis* Lindl.)

44164. "(No. 1266. Maoshan, near Malanyu, Chihli Province, December 8, 1916.)"

See S. P. I. No. 44146 for description. Seeds were received under No. 127b [S. P. I. No. 44146].

44163 to 44174—Continued.

44165. "(No. 1267. Maoshan, near Malanyu, Chihli Province, December 8, 1916.) *Fo t'ien hsi li,* meaning 'Emperor's beloved pear.' A medium-sized pear of somewhat compressed shape, yellow at the base and russet-brown toward the peduncle, calyx deciduous, peduncle medium long, flesh hard, but juicy and sweet. A good keeper and shipper. Of value in breeding experiments." (*Meyer.*)

44166. "(No. 1268. Maoshan, near Malanyu, Chihli Province, December 8, 1916.) *Ma li,* meaning 'dotted pear.' A medium large pear of waxy yellow color, with little dots scattered over the skin, especially near the peduncle. Flesh hard, sweet, and a trifle coarse; calyx deciduous. Of value in breeding experiments." (*Meyer.*)

44167. "(No. 1269. Maoshan, near Malanyu, Chihli Province, December 8, 1916.) *Chin hsing mi li,* meaning 'golden star honey pear.' A rather small pear, of canary-yellow color; flesh hard, but juicy and sweet; a good keeper. Some specimens have well-developed persistent calyxes, while in others they are absent; peduncles long. Of value in breeding experiments." (*Meyer.*)

44168. "(No. 1270. Maoshan, near Malanyu, Chihli Province, December 8, 1916.) *Tz'ŭ li,* meaning 'pointed pear.' An interesting pear, of medium-large size and a tublike shape; color yellow with rosy red blush; meat firm, juicy, sweet, and of good flavor; a good keeper and of very attractive appearance. Of value in breeding experiments." (*Meyer.*)

44169. PYRUS USSURIENSIS Maxim. Malaceæ. **Pear.**

"(No. 1272. Lowanyu, near Tsunhwachow, Chihli Province, December 8, 1916.) *Ta suan li,* meaning 'big sour pear.' An improved form of sour pear, being larger and juicier than No. 2355a [S. P. I. No. 44151]. Otherwise the same remarks apply to it." (*Meyer.*)

44170 to 44174. PYRUS LINDLEYI Rehder. Malaceæ. **Pear.**
(*P. sinensis* Lindl.)

44170. "(No. 1273. Lowanyu, near Tsunhwachow, Chihli Province, December 8, 1916). *Ts'ŭ li,* meaning 'pointed pear.'"

See S. P. I. No. 44168 for description.

44171. "(No. 1274. Lowanyu, near Tsunhwachow, Chihli Province, December 8, 1916.) *Ê li,* meaning 'goose pear.' An elongated, yellow pear, ripening in September and not possessing keeping qualities. Of value in breeding experiments." (*Meyer.*)

44172. "(No. 1276. Lowanyu, near Tsunhwachow, Chihli Province. December 8, 1916.) *P'in ti ch'iu pai li,* meaning 'applelike autumn white pear.' A variety of pear said to be flat, apple shaped, with a broad base; of yellow color. Possesses keeping qualities." (*Meyer.*)

44173. "(No. 1277. Lowanyu, near Tsunhwachow, Chihli Province, December 8, 1916.) *Chien ti ch'iu pai li,* meaning 'pointed-base autumn white pear.' A variety of pear said to be like No. 1276 [S. P. I. No. 44172], but having a tapering base." (*Meyer.*)

44174. "(No. 1278. Lowanyu, near Tsunhwachow, Chihli Province, December 8, 1916.)"

See S. P. I. No. 44167 for description.

44175 and 44176.

From China. Roots collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received February 9, 1917.

44175. IRIS DICHOTOMA Pall. Iridaceæ.

"(No. 1280. Near Malanyu, Chihli Province, November 24, 1916.) An iris found amidst stony débris on a hillside; apparently of very low growth." (*Meyer.*)

44176. PYRUS USSURIENSIS Maxim. Malaceæ. **Pear.**

"(No. 1281. Shinglungshan, Chihli Province, December 3 and 4, 1916.) A variety of pear, small in size, flattened, apple shaped, of russet-yellow color, occasionally with a slight blush covered with many small dots. Calyx persistent, peduncle short. Becomes soft in early winter and has a very pleasant tart flavor." (*Meyer.*)

44177. AMYGDALUS NANA × PERSICA. Amygdalaceæ.
Hybrid peach.

From Excelsior, Minn. Cuttings presented by Mr. Charles Haralson, superintendent, Fruit Breeding Farm. Received February 23, 1917.

"A hybrid between *Amygdalus nana* and the Bokhara No. 3 peach. This hybrid grows to about 8 feet on *Prunus americana* stock, is perfectly hardy, and is the best bloomer in the spring of all the stone fruits. The tree produced an abundance of pink blossoms, larger than *Amygdalus nana*, but has never borne any fruit. The foliage is glossy dark green and stays on until the frost gets it in the fall." (*Haralson.*)

44178 to 44180.

From Seharunpur, India. Presented by Mr. A. C. Hartless, superintendent, Government Botanic Gardens. Received February 14, 1917.

44178. AMARANTHUS PANICULATUS L. Amaranthaceæ. **Amaranth.**

Seeds secured from the Director of Agriculture, Kashmir.

A tall, handsome plant, 4 to 6 feet high, cultivated in eastern and western Asia and Africa. The lance-elliptic leaves are 2 to 6 inches long, and the numerous flowers are borne in dense red or gold-colored spikes. The subglobose seeds are white, red, or black, and because of their farinaceous nature form the staple food of the poorer classes of the hill tribes in many parts of India, where the plant is known as *rájgira.* (Adapted from *Cooke, Flora of the Presidency of Bombay, vol. 2, p. 489.*)

44179. MYRICARIA GERMANICA (L.) Desv. Tamaricaceæ.

A shrub, 6 to 8 feet high, related to Tamarix, found throughout most parts of Europe and the Himalayas. The flowers are pink and are borne in spikes. (Adapted from *Lindley, Treasury of Botany, vol. 2, p. 770.*) See also S. P. I. No. 39630 for further description.

44180. TRACHYCARPUS TAKIL Beccari. Phœnicaceæ. **Palm.**

"A further supply that I have just received from the original habitat." (*Hartless.*)

"A palm from Mount Takil, Himalaya, closely related to *Trachycarpus martiana.*" (Note of *A. C. Hartless, February 1, 1916.*)

See S. P. I. No. 41871 for previous introduction.

44181 to 44183.

From the Philippine Islands. Presented by Mr. P. J. Wester, horticulturist, Lamao Experiment Station, through Mr. Adn. Hernandez, director, Bureau of Agriculture, Manila. Received January 23, 1917.

44181. CALAMUS sp. Phœnicaceæ. **Rattan.**

"Seeds of the *litoco*, received from Kiangan, northern Luzon. Fruits in branching racemes, 15 to occasionally more than 30 on a branch, sessile; 20 to sometimes exceeding 25 mm. in diameter, averaging 7 grams in weight, somewhat irregularly roundish, apex a black bony projection; the skin consists of a thin scaly shell that peels off the flesh like an eggshell and is rather ornamental. As stated, the flesh separates perfectly from the skin and also divides into three segments, two of which are usually seedless; sometimes there are no seeds in the fruit. The flesh is light brown, subacid, with a very sprightly, pleasant flavor, somewhat astringent. In flavor the fruit resembles the lanzon more than any other that I have eaten, but is somewhat more tart. The seed is small and free from the pulp. The fruit is a good keeper, and in its native state undoubtedly is one of the best small fruits that I have ever come across. The *litoco* grows at an elevation of about 700 or more meters, where the rainfall is rather evenly distributed." (*Wester.*)

44182. CECROPIA PALMATA Willd. Moraceæ. **Trumpet tree.**

A West Indian tree up to 50 feet in height. At the top of the long, thin, weak trunk are a few horizontal or deflexed awkward branches bearing large palmate leaves divided like thumbs, with white hairy lower surfaces. The branches and trunk are hollow, with partitions at the nodes, and ants often make their homes in them. The juice is milky, the flowers are very small, and the fruits are small 1-seeded nuts. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 697.*)

44183. GENIPA AMERICANA L. Rubiaceæ. **Genipa.**

See S. P. I. Nos. 37833 and 44090 for further description.

44184 to 44186. SOLANUM spp. Solanaceæ. **Wild potato.**

From Lima, Peru. Tubers presented by the director, Ministerio de Fomento, Estacion Central Agronomica. Received February 23, 1917.

44184. SOLANUM IMMITE Dunal.

"Tubers of three plants of *Solanum immite* obtained from seeds in 1916."

44185. SOLANUM MAGLIA Schlecht.

A nearly glabrous wild potato, native of Chile, about 2 feet high, with angled, winged stems, compound light-green leaves 4 to 8 inches long, compound cymes of white flowers 1 inch wide, and subglobose or oblong tubers up to 1½ inches long, with smooth, reddish brown surfaces. When boiled the tubers shrink and become watery and insipid. (Adapted from *Curtis's Botanical Magazine, pl. 6756.*)

44186. SOLANUM sp.

"Harvested in Amancaes in October, 1916."

Received as *Solanum tuberosum sylvestre*; probably a wild species; to be grown for identification.

44187. DIOSPYROS EBENASTER Retz. Diospyraceæ. **Black sapote.**

From Honolulu, Hawaii. Presented by Mr. Gerrit P. Wilder. Received February 26, 1917.

See S. P. I. No. 44130 for description.

44188 to 44192.

From Santa Cruz, Argentina. Presented by Mrs. Helen E. Reynard, Hillside, Newark, England, through Mr. G. M. Hitch, American consul, Nottingham, England. Received February 19, 1917.

44188. CROTALARIA sp. Fabaceæ.

"Seeds of a close-growing plant with pea-shaped flowers, brownish yellow in color, sweet smelling." (*Reynard.*)

44189. OENOTHERA ODORATA Jacq. Onagraceæ. **Evening primrose.**

A suffrutescent Chilean plant with attractive yellow flowers which turn purplish before falling.

44190. VICIA sp. Fabaceæ. **Vetch.**

"Seeds of a mauve-blue vetch." (*Reynard.*)

44191. ASTER sp. Asteraceæ.

"Gentian-blue prickly flowers; close-growing plants in clumps on stony soil." (*Reynard.*)

44192. PODOCOMA sp. Asteraceæ.

"A bush with yellow flowers." (*Reynard.*)

44193. CHAYOTA EDULIS Jacq. Cucurbitaceæ. **Chayote.**
(*Sechium edule* Swartz.)

From St. Lucia, British West Indies. Presented by the Agricultural Superintendent at the request of Hon. Francis Watts, Commissioner of Agriculture for the West Indies. Received February 27, 1917.

"*Christophine;* green variety. The green and white varieties appear to be the only ones known in these islands." (*Watts.*)

44194. INODES EXUL O. F. Cook. Phœnicaceæ. **Palmetto.**

From Victoria, Tex. Presented by Mr. J. R. Fleming. Received February 17, 1917.

A large palmetto, cultivated in Texas, with deep-green foliage, solitary fruits, and large seeds not wrinkled above. (Adapted from *O. F. Cook, Bureau of Plant Industry Circular 113, pp. 11–14.*)

See also S. P. I. No. 35116 for further description.

44195. CARICA PAPAYA L. Papayaceæ. **Papaya.**

From Fort Myers, Fla. Presented by Mr. Hans Zeman. Received February 27, 1917.

"Seeds from a 10-pound fruit." (*Zeman.*)

44196. CHAYOTA EDULIS Jacq. Cucurbitaceæ. **Chayote.**
(*Sechium edule* Swartz.)

From Cairo, Egypt. Presented by the director, Horticultural Division, Ministry of Agriculture, Gizeh Branch. Received February 28, 1917.

44197 to 44200.

From China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received at the Plant Introduction Field Station, Chico, Calif., February 21, 1917.

44197 and 44198. CASTANEA MOLLISSIMA Blume. Fagaceæ. **Chestnut.**

44197. "No. 2324a. Peking, China, November 10, 1916.) A good quality of Chinese chestnuts, said to come from the Pangshan district to the northeast of Peking. Dark-colored nuts. Price, 7 cents (Mex.) per pound." (*Meyer.*)

44198. "(No. 2325a. Peking, China, November 10, 1916.) Chinese chestnuts of good quality, said to come from the Pangshan district to the northeast of Peking. Light-colored nuts. Price, 6 to 8 cents (Mex.) per pound." (*Meyer.*)

44199 and 44200. JUGLANS REGIA L. Juglandaceæ. **English walnut.**

44199. "(No. 2326a. Peking, China, November 10, 1916.) Chinese walnuts, large size, said to come from the mountains west of Peking. Price, 11 cents (Mex.) per catty. Chinese walnuts seem especially adapted to semiarid regions with warm summers and dry, cold winters." (*Meyer.*)

44200. "(No. 2327a. Peking, China, November 10, 1916.) Chinese walnuts, medium size, said to come from the mountains west of Peking. Price, 9 cents (Mex.) per catty." (*Meyer.*)

44201. PERSEA AMERICANA Mill. Lauraceæ. **Avocado.**
(*P. gratissima* Gaertn. f.)

From Ceiba, Honduras. Cuttings presented by Mr. Francis J. Dyer, American consul. Received March 7, 1917.

"This tree grows on the property of Mr. Jos. Taranto, in the business quarter of La Ceiba. It is said to produce the best fruit known locally, and it certainly is better than any others I have seen in the local markets." (*Dyer.*)

44202. MAMMEA AMERICANA L. Clusiaceæ. **Mamey.**

From Mount Coffee, Liberia. Presented by Mr. Henry O. Stewart. Received February 23, 1917.

A tree 40 to 50 feet high, native of tropical America and the West Indies, with large, leathery, shining leaves and white, scented flowers. The nearly spherical fruit is 3 to 5 inches in diameter, with a thick, barky skin and sweetish orange-colored pulp, which is eaten raw or stewed or preserved with sugar. The small flowers are sometimes distilled, the product thus obtained being used in flavoring liquors. Propagation is by seed. (Adapted from *Macmillan, Handbook of Tropical Gardening, p. 169.*)

44203 to 44238.

From China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received February 9, 1917.

44203. ZIZIPHUS JUJUBA Mill. Rhamnaceæ. **Jujube.**
(*Z. sativa* Gaertn.)

"(No. 2330a. Peking, China, December 16, 1916.) A small quantity of cleaned jujube stones, obtained mostly from large fruits. To be sown in California and in Texas to obtain new types." (*Meyer.*)

44203 to 44238—Continued.

44204. ZEA MAYS L. Poaceæ. **Corn.**

"(No. 2332a. Malanyu, Chihli Province, China, November 25, 1916.) *Yü mi*, meaning 'imperial rice.' A large-grained yellow flint corn, cultivated on rich bottom lands in the mountains." (*Meyer.*)

44205. PERILLA FRUTESCENS (L.) Britton. Menthaceæ.
(*P. ocymoides* L.)

"(No. 2333a. Malanyu, Chihli Province, China, November 25, 1916.) *Su tzŭ*. An odoriferous annual, the seeds of which contain a great percentage of oil which is used in waterproofing paper and cloth. They are also much fed to song birds in winter. The young tops are employed in giving flavor to certain pickles." (*Meyer.*)

44206. CANNABIS SATIVA L. Moraceæ. **Hemp.**

"(No. 2334a. Malanyu, Chihli Province, China, November 25, 1916.) *Sheng ma*, meaning 'thread hemp.' A variety of hemp, producing very strong fiber of medium length. Thrives especially well on lands recently cleared of brush or timber." (*Meyer.*)

44207. ABUTILON THEOPHRASTI Medic. Malvaceæ. **Indian mallow.**
(*A. avicennae* Gaertn.)

"(No. 2335a. Malanyu, Chihli Province, China, November 27, 1916.) *Ch'ing ma*, meaning 'green hemp.' A variety of Abutilon hemp, producing a very much stronger fiber than the common sort. Does especially well on rich bottom lands." (*Meyer.*)

44208. FAGOPYRUM VULGARE Hill. Polygonaceæ. **Buckwheat.**
(*F. esculentum* Moench.)

"(No. 2336a. Malanyu, Chihli Province, China, November 25, 1916.) *Ch'iao mai*, meaning 'triangular wheat.' Chinese buckwheat, grown as a late crop on poor lands and on mountain slopes. From the flour a very thin and brittle vermicelli is manufactured, from which a meal can be prepared within a few minutes." (*Meyer.*)

44209 to 44214. SOJA MAX (L.) Piper. Fabaceæ. **Soy bean.**
(*Glycine hispida* Maxim.)

"From Malanyu, Chihli Province, China, November 25, 1916."

44209. "(No. 2337a.) *Huang tou*, meaning 'yellow bean.' An early-maturing medium-sized yellow variety of soy bean, primarily used to make bean curd." (*Meyer.*)

44210. "(No. 2338a.) *Huang tou*, meaning 'yellow bean.' A late-maturing medium-sized yellow variety used for oil production and in making bean curd and sauce." (*Meyer.*)

44211. "(No. 2339a.) *Ta ch'ing tou*, meaning 'large green bean.' A pale-green variety, used in bean curd and sauce manufacture." (*Meyer.*)

44212. "(No. 2340a.) *Ch'ing tou*, meaning 'green bean.' A green variety, often used as an appetizer with meals when slightly sprouted and salted or when fried and salted." (*Meyer.*)

44213. "(No. 2341a.) *Ch'ing tou*, meaning 'green bean.' A green variety, slightly different from No. 2340a [S. P. I. No. 44212]. Used as an appetizer with meals when slightly sprouted and salted or when fried and salted." (*Meyer.*)

44203 to 44238—Continued.

44214. "(No. 2342a.) *Hei tou*, meaning 'green bean.' A small, shining, black soy bean, generally used, when boiled, as a food for hard-working horses, mules, donkeys, and oxen, mixed with chopped straw and kaoliang grains." (*Meyer.*)

44215 to 44217. PHASEOLUS VULGARIS L. Fabaceæ. **Common bean.**

"From Malanyu, Chihli Province, China, November 25, 1916. *Yün tou*, meaning 'fragrant bean.' Garden beans eaten mostly when green, as a vegetable." (*Meyer.*)

Selections made from No. 2343a.

44215. Bluish black.

44216. Pure white mixed with ivory white.

44217. Maroon mixed with gray.

44218 to 44221. VIGNA SINENSIS (Torner) Savi. Fabaceæ. **Cowpea.**

"From Malanyu, Chihli Province, China, November 25, 1916."

44218. "(No. 2344a.) *No ling tan chiang tou*, meaning 'wren's egg precious bean.' A speckled variety of cowpea with white top. Cowpeas are in great favor with the Chinese as a human food; they are eaten boiled with rice, stewed in meat dishes, and cooked in soups; they are believed to promote speedy excretions of waste in the body." (*Meyer.*)

44219. "(No. 2345a.) *Hung chiang tou*, meaning 'red precious bean.' A small brown variety of cowpea." (*Meyer.*)

44220. "(No. 2346a.) *Hei yen pai chiang tou*, meaning 'black-eyed white precious bean.' A small, wrinkled, white cowpea, with black hilum." (*Meyer.*)

44221. "(No. 2347a.) *Hung yen pai chiang tou*, meaning 'red-eyed white precious bean.' A small, wrinkled, white cowpea with reddish hilum." (*Meyer.*)

"A brown-eyed variety of cowpea, quite similar to S. P. I. No. 34103, which seems fairly promising as a table variety." (*C. V. Piper.*)

44222 to 44226. PHASEOLUS AUREUS Roxb. Fabaceæ. **Mung bean.**

"From Malanyu, Chihli Province, China, November 25, 1916."

Selected from No. 2347a, which was a mixed lot of seeds.

44222. "Apparently ordinary green mung. Seed much like S. P. I. No. 17289, which was grown from seed received from China." (*C. V. Piper.*)

44223. "Green mung. Seeds rather shiny, much the same as S. P. I. No. 28053 from Manchuria and F. C. I. 01896, a green mung selected from No. 31806, which is a field pea received from Chinese Turkestan." (*C. V. Piper.*)

44224. "Brown mung, much like S. P. I. No. 13395. *Newman* bean." (*C. V. Piper.*)

44225. "Seeds green to brownish, densely speckled with black, giving a black appearance to the seed. We have never had seed exactly like this, but S. P. I. No. 16323 is somewhat similar." (*C. V. Piper.*)

44226. "Apparently the same as S. P. I. No. 44225, but seeds dull, the dullness due to crenulation." (*C. V. Piper.*)

44203 to 44238—Continued.

44227 and 44228. PHASEOLUS ANGULARIS (Willd.) W. F. Wight. Fabaceæ. **Adsuki bean.**

"From Malanyu, Chihli Province, China, November 25, 1916."

Selected from No. 2347a.

44227. "An adsuki bean, greenish buff to brown, speckled and mottled with black, similar to S. P. I. No. 25141; received from Soochow, China." (*C. V. Piper.*)

44228. "Seed greenish, straw or buff color, similar to S. P. I. No. 19185; received from China." (*C. V. Piper.*)

44229 and 44230. VIGNA SINENSIS (Torner) Savi. Fabaceæ. **Cowpea.**

"From Malanyu, Chihli Province, China, November 25, 1916."

44229. Selected from 2347a. "Red and white variety. Seed appears identical with that of S. P. I. No. 36078." (*C. V. Piper.*)

44230. "No. 2348a. *Hua yao chaing tou*, meaning 'flower kidney precious bean.' A large variety of cowpea, of reddish brown color with white tip." (*C. V. Piper.*)

44231. PISUM SATIVUM L. Fabaceæ. **Pea.**

"(No. 2349a. Malanyu, Chihli Province, China, November 25, 1916.) *Wan tou*, meaning 'ten thousand beans.' A small white garden pea, cultivated for human consumption. In winter these peas are often forced in hot, dark, moist rooms and the sprouts eaten scalded." (*Meyer.*)

44232. PHASEOLUS ANGULARIS (Willd.) W. F. Wight. Fabaceæ. **Adsuki bean.**

"(No. 2350a. Malanyu, Chihli Province, China, November 25, 1916.) *Hei hsiao tou*, meaning 'black small bean.' An adsuki bean of marble-blackish color, used mostly to produce first quality bean sprouts." (*Meyer.*)

44233. JUGLANS MANDSHURICA Maxim. Juglandaceæ. **Manchurian walnut.**

"(No. 2351a. Shinglungshan, Chihli Province, China, December 3, 1916.) *Shan ho t'ao*, meaning 'mountain or wild walnut.' A wild walnut, occurring in Manchuria and northern China, growing into a stately tree. The nuts are small and contain but little meat, but they are eagerly eaten by the people. The young foliage is very sensitive to frosts and the trees can be grown successfully only in localities where late frosts are of rare occurrence. Of value as a hardy shade tree; possibly also as a stock for Persian walnuts in cold localities." (*Meyer.*)

44234. JUNIPERUS CHINENSIS L. Pinaceæ. **Juniper.**

"(No. 2352a. Peking, China, December 27, 1916.) *Pai shu.* Berries of the North Chinese juniper, a hardy, drought and alkali resistant evergreen tree, living to be many centuries old. Especially suited for dry climates with winters not too severe." (*Meyer.*)

44235 to 44237. PYRUS USSURIENSIS Maxim. Malaceæ. **Pear.**

44235. "(No. 2356a. Tsunhwachow, Chihli Province, China, December 10, 1916.) *Kuan li*, meaning 'bushy pear.' Seeds obtained from fresh fruits. A small pear, of greenish rusty color, of flattened apple shape; calyx persistent, peduncle short. Flesh becoming melting in early winter, of pleasant tart flavor, and possessing aroma. Comes close to the *Pa li hsiang li* and the *Ta tzŭ hsiang li*

44203 to 44238—Continued.

[S. P. I. No. 44150] Might possibly prove to be immune to fire-blight." (*Meyer.*)

44236. "(No. 2357a. Shinglungshan, Chihli Province, China, December 3 and 4, 1916.) Collected from wild trees which often reach great size, especially in the rich valleys where the trees are now being destroyed to make room for settlers. The bark is of a blackish gray color and characteristically grooved. Branches on young trees are often quite spiny. The fruits are said to ripen early in September, and as there are many rodents about they are soon carried away. To obtain a sufficient supply, one has to be on the spot when these fruits fall." (*Meyer.*)

44237. "(No. 2358a. Chiupatzeling, Shinglungshan district, Chihli Province, China. December 5, 1916.) Collected from wild trees. See Nos. 2356a and 2357a [S. P. I. Nos. 44235 and 44236] for further description." (*Meyer.*)

44238. QUERCUS spp. Fagaceæ.

"(No. 2359a. Shinglungshan, Chihli Province, China, December 3, 1916.) Various species of oaks mixed, among which species possibly exist that have not been introduced as yet to western horticulture." (*Meyer.*)

44239. GARCINIA MULTIFLORA Champ. Clusiaceæ.

From Kiayingchow, via Swatow, China. Presented by Miss Louise Campbell. Received March 7, 1917.

A shrub, native of southern China, with ovate leaves 3 to 3½ inches long, and perfect flowers in short terminal corymbs, appearing in the heat of summer. (Adapted from *Bentham, Flora Hongkongensis, p. 25.*)

"In a conversation with me on January 8, 1913, Mr. George Campbell, of Kiayingchow, described this fruit and the circumstances connected with its discovery by him as follows:

"'In October I was at Pine Mouth. It was the time of the autumn festival and there was a large crowd there. I wandered down a side street and saw a Chinese woman sitting down with a basket before her containing a fruit I had never seen before. It looked something like a guava, but it was symmetrical, round, and green in color, and I was sure it was not a guava. I got two or three of them, asked the woman about them, but all she knew was that they grew wild on the mountains. I took them to the boat and opened them. They were the size of a walnut with the husk on and made me think of a walnut. Upon opening one of the fruits, there was a layer as thick as your finger clear around, which could not be eaten—bitter pulp. Inside there was a nucleus of whitish, almost transparent flesh. There were three perfect seeds in the fruit, I think smaller than a persimmon seed. The inner pulp was very sweet, and the sweetness was that of a mangosteen, very pleasant. The Chinese have a name for this fruit, but it is entirely inappropriate. This fall I had it in mind, and while at Pine Mouth, inquired about the fruit. The people said there was no such thing, but I satisfied myself that some of them did know of the plant. I left some money with a doctor in Pine Mouth, Dr. Chang, and asked him to get some of the fruits for me, if possible, but shortly after this I was obliged to come to America with my wife, so have heard nothing of it. I did, however, ask the doctor to get the fruits, if possible, and send them to

my daughter at Kiaying. I think that very few of these fruits come to the market and that there are very few trees, but I think by searching one could find a tree of the fruit.'

"Introduced as a possible stock for the less-hardy mangosteen. This shrub has stood several degrees of frost in the mountains of northern Kwangtung, where it is native." (*Fairchild.*)

44240. BAMBOS TULDA Roxb. Poaceæ. **Bamboo.**

From Dehra Dun, India. Presented by Mr. R. S. Hole, forest botanist, Forest Research Institute and College, at the request of the economic botanist, Poona. Numbered March 14, 1917.

An evergreen or deciduous tree bamboo, common in Bengal, India, with green or gray-green culms 20 to 70 feet high and 2 to 4 inches in diameter, and branches from nearly all the nodes. (Adapted from *J. S. Gamble, Bambuseæ of British India, p. 30.*)

This bamboo is said to furnish the so-called "Calcutta cane," used for the finest quality of split-bamboo fishing rods.

See S. P. I. No. 40886 for further description.

For an illustration of a clumb of Calcutta bamboos in Panama, see Plate V.

44241 and 44242.

From Augusta, Ga. Presented by Mr. R. C. Berckmans. Received February 26, 1917.

44241. CUDRANIA TRICUSPIDATA (Carr.) Bureau. Moraceæ. **Cudrania.**
(*Maclura tricuspidata* Carr.)

"This tree is very easily propagated from suckers. The tree that we have in our nursery is about 12 feet high and about 6 feet broad. It would have been considerably larger than this but for the fact that some four years ago we headed it back to about 3½ feet from the ground. This tree had at least 1½ bushels of fruit which had been matured from the middle of August up to the present time (November), and the specimens that it bore would run into the thousands. It is most prolific, and the fruit matures on the limbs like bunches of onions." (*Berckmans.*)

A compact, somewhat spiny, Chinese bush, with light-green leaves varying from three lobed to ovate in outline, which are used for feeding silkworms. The silk produced by silkworms fed on these leaves is employed in making lute strings, which give clearer tones than those made from ordinary silk. The tree is said to afford a reddish yellow dye called the *chê* yellow, used in dyeing the imperial garments. (Adapted from *Gardeners' Chronicle, vol. 24, p. 410.*)

44242. PHELLODENDRON SACHALINENSE Sarg. Rutaceæ.

A rapid-growing tree, native of Saghalin, Chosen, western China, and northern Japan. It ascends to a height of 50 feet, forming a broad crown, and the dark-brown thin bark is not corky. The dull-green compound leaves are 3 to 5 inches long, and the black fruits, one-third of an inch in diameter, occur in broad panicles. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 5, p. 2578.*)

A CLUMP OF THE TULDA BAMBOO IN PANAMA (BAMBOS TULDA, S. P. I. NO. 44240).

A Wardian case filled with plants of this species of bamboo was sent to Washington in the spring of 1907 from Sibpur, near Calcutta, India, by Maj. A. T. Gage, superintendent of the Royal Botanic Garden there. Two years later plants were sent to Panama and central Florida, and some of these have grown into beautiful clumps; there is one at Mr. Nehrling's place near Gotha, Fla., and this clump in the Canal Zone. Later, thousands of seedlings from imported seeds were distributed. This species is ranked as one of the most useful plants of Bengal. Its culms are imported to America and used in the making of split bamboo fishing rods. (Photographed at Culebra, Canal Zone, 1917.)

THE NIPA PALM IN FRUIT (NYPA FRUTICANS, S. P. I. No. 44405).

Along the low lands near the coast of the Malay Archipelago this stemless palm, covering vast areas, raises its superb long leaves, like giant fern fronds, above the swamps. It deserves to be naturalized wherever it will grow, not only for its beauty, but for its possibilities as an alcohol-producing plant and for its leaves, from which beautiful floor mats are made. (Photographed by P. L. Bryant, of the Far Eastern Review, August, 1915; P25002FS.)

44243. INODES EXUL O. F. Cook. Phœnicaceæ. **Palmetto.**

From Victoria, Tex. Presented by Mrs. Martin O'Connor. Received March 9, 1917.

A large palmetto, cultivated in Texas, with deep-green foliage, solitary fruits, and large seeds not wrinkled above. (Adapted from *O. F. Cook, Bureau of Plant Industry Circular 113, pp. 11–14.*)

"These have been through several freezes." (*O'Connor.*)

See also S. P. I. No. 35116 for further description.

44244. ANNONA SQUAMOSA L. Annonaceæ. **Sugar-apple.**

From Dindigul, South India. Presented by Rev. Willis P. Elwood, American Madura Mission. Received March 9, 1917.

"Seeds of sugar or custard-apple. Some of it I saved myself, but a greater part came from other places where the fruit was said to be superior." (*Elwood.*)

44245. LYCOPERSICON ESCULENTUM Mill. Solanaceæ. **Tomato.**

From Cristobal, Canal Zone. Presented by Mr. O. W. Barrett. Received March 14, 1917.

"Seeds from ripe fruits of the so-called bush (i. e., jungle) variety which bears more or less wrinkled berries of 15 to 25 mm. in diameter; the plant is very loosely branched, 50 to 75 cm. or more high, and it appears to resist the *Bacillus solanacearum* very well." (*Barrett.*)

44246. PYRUS USSURIENSIS Maxim. Malaceæ. **Pear.**

From Charles City, Iowa. Scions presented by Mr. Charles G. Patten. Received March 6, 1917.

"In Grundy Center, Iowa, there is a pear tree growing which endured the extremely cold winters of 1883, 1884, and 1885. This pear is owned by Mr. O. A. Bardhall, a tailor, and was imported from China as a Chinese sand pear by John S. Collins & Sons, of New Jersey, and was supposed by them to bear pears nearly the size of Flemish Beauty, but only of cooking quality. The extreme hardiness of the tree appealed to Mr. Charles G. Patten, of Charles City, Iowa, who planted one in his orchard in 1885, and the following year planted two in an isolated orchard on his farm. The second year after that the tree bore fruit, but on account of its early blooming and consequent lack of pollination bore only a very scanty number of very small, green-colored, hard pears, from which but few seeds were saved. There are in Charles City some 200 seedling pear trees, products of crosses of the Longworth, Seckel, and Chinese sand varieties." (Adapted from *Charles G. Patten*, in *Report of the Iowa State Horticultural Society for the Year 1912, p. 162.*)

44247 to 44249.

From China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received March 6, 1917.

44247. ALLIUM FISTULOSUM L. Liliaceæ. **Leek.**

"(No. 137b. Ansuhsien, Chihli Province, China, January 18, 1917.) *Ta t'ou ts'ung*, meaning 'large-headed leek.' One specimen of a peculiar, short variety of winter leek." (*Meyer.*)

44247 to 44249—Continued.

44248. ALLIUM SATIVUM L. Liliaceæ. **Garlic.**

"(No. 138b. Ansuhsien, Chihli Province, China, January 18, 1917.) *Suan.* Bulbs of the first-quality Chinese garlic, extensively used by the people raw, boiled, and pickled as health promoters. They are said to prevent ptomaine poisoning through the action of the strong antiseptic oil they contain. These bulbs sell locally at two for 1 cent (Mex.)." (*Meyer.*)

44249. CHAENOMELES LAGENARIA CATHAYENSIS (Hemsl.) Rehder. Malaceæ. (*Cydonia cathayensis* Hemsl.) **Chinese quince.**

"(No. 139b. Peking, China, January 27, 1917.) *Mu kwa,* meaning 'wooden gourd,' the shape suggesting to the Chinese a gourd. The Chinese quince is much used in winter as a room perfumer by the better class of Chinese. These fruits are said to have come from Anhwei Province. Plants raised from the seeds should be tested as a stock for pears and loquats. Experiments might be made also concerning its susceptibility to blight." (*Meyer.*)

44250. MYRIANTHUS ARBOREUS Beauv. Moraceæ.

From Loanda, Angola, Africa. Presented by Mr. J. Gossweiler. Received March 6, 1917.

A tree, native of tropical Africa, with large entire or three to five lobed leaves with prominent stipules. The male flowers are borne on thick, branching receptacles, and the female flowers appear in solitary headlike inflorescences. The fleshy fruits are edible. (Adapted from *A. Engler, Die Pflanzenwelt Ost-Africas, part C, p. 162.*)

44251 and 44252.

From Bogota, Colombia. Presented by Mr. George E. Child. Received March 12, 1917.

44251. ANNONA CHERIMOLA Mill. Annonaceæ. **Cherimoya.**

"It is always worth while to test new strains of the cherimoya, particularly when they are obtained from high altitudes, as this one appears to be. The aim of subtropical horticulturists at the present time is to secure a variety which will be reasonably hardy and prolific in bearing, with a fruit of good quality. To this end we need to plant seed from all parts of tropical America where the cherimoya is grown." (*Popenoe.*)

44252. PERSEA AMERICANA Mill. Lauraceæ. **Avocado.**
(*P. gratissima* Gaertn. f.)

"The avocados of Colombia are scarcely known in the United States. A few fruits of the West Indian race have reached the markets of New York from Colombian ports, but we know very little regarding the races or varieties of the highlands. Some very remarkable young seedlings have been grown in Florida from seed of Colombian origin. It is possible that we shall obtain from that country new races or varieties of considerable value." (*Popenoe.*)

44253 to 44266. AMYGDALUS spp. Amygdalaceæ. **Peach.**

From China. Procured from Mr. Thomas Sammons, American consul general, Shanghai. Received March 12, 1917.

"Seeds procured in the region of Kiangyin, Kiangsu Province, by the agent of the Rev. Lacy L. Little. The following directions for the planting and

care of peach trees were furnished by a native peach grower who is thoroughly conversant with the native methods of peach culture.

"The seeds must first be soaked in water and kept therein until the water becomes stale. They should then be taken out and planted, covering them with a thin coating of earth. They should be kept moist with a mixture of wine dregs and water until they sprout. Should worms be discovered in the fruit, the earth should be drawn away from the tree where it emerges from the ground and an old straw sandal (one that has been worn), having been first soaked in urine, should be wrapped around the part of the tree from which the earth has been removed. After this it should be fertilized at intervals with household excrement." (*Sammons.*)

44253 to 44265. AMYGDALUS PERSICA L.
(*Prunus persica* Stokes.)

44253. "*Autumn half-pound* peach. Ripens in the autumn. Round and unusually large. Sometimes weighs more than a half pound. White, freestone. Exceedingly fine flavor. Should be carefully looked after." (*Native peach grower.*)

44254. "*Shiny gray* peach. Ripens in August. Oblong in shape; color reddish purple. Flavor sweet, with slight acid taste." (*Native peach grower.*)

44255. "*Nanking red* peach. Ripens about the middle of May. Round and pointed; color reddish white. Flavor sweet, slightly acid. Has a great reputation at Soochow, in Kiangsu Province." (*Native peach grower.*)

44256. "*Watery honey* peach. This peach was first planted in Shanghai, in the Lushang Gardens, in the Da Ts'ing dynasty, in the years known as Ien Fong and Dong Z. Although these gardens are no longer in existence, the seeds of this peach are still to be found along the Yangtse River. It has a peculiarly fine flavor." (*Native peach grower.*)

44257. "*Large fuzzy* peach. Ripens the last of August. Round in shape. Color green; has a fuzzy skin. Wait until it is fully ripe before gathering." (*Native peach grower.*)

44258. "*June red* peach. Ripens in June. Round; color whitish green; skin is unusually thick. Excellent flavor." (*Native peach grower.*)

44259. "*Early summer* peach. Ripens about the middle of July. Shaped somewhat like a pear; color reddish green, flavor sweet." (*Native peach grower.*)

44260. "*Watery white* peach. Ripens about the middle of July. Large and round, pointed somewhat like a pear; color white, surface smooth, flavor fine." (*Native peach grower.*)

44261. "*Shiny plum* peach. Ripens in July and August. Oblong in shape, color purplish green and shiny. Flavor very fine." (*Native peach grower.*)

44262. "*August white* peach. Ripens about the middle of August. Round and pointed. White with greenish tinge. Best flavor when thoroughly ripe." (*Native peach grower.*)

44253 to 44266—Continued.

44263. "*Rainy season* peach. Ripens in the latter part of May (the Chinese rainy season). Round and pointed; slightly red at the point; flavor sweet and good." (*Native peach grower.*)

44264. "*July white* peach. Ripens in the middle of July. Round and pointed; skin soft and thin. Color white with greenish tinge. Flavor delicious." (*Native peach grower.*)

44265. Mixed seed of the foregoing twelve varieties (Nos. 44253 to 44264.)

44266. AMYGDALUS PERSICA PLATYCARPA (Decaisne) Ricker. (*Prunus persica platycarpa* Bailey.)

"Flat peach. Ripens about the middle of August. Round and flat; color greenish white. Fuzz fine and thick." (*Native peach grower.*)

44267 and 44268.

From El Coyolar, Costa Rica. Presented by Mr. Carlos Wercklé. Received March 7, 1917.

44267. COCCOLOBIS sp. Polygonaceæ.

A plant allied to the sea grape, or *jarra*, of the West Indies.

44268. GUILIELMA UTILIS Oerst. Phœnicaceæ. **Pejibaya palm.** (*Bactris utilis* Benth. and Hook.)

"This palm, commonly called *pejibaya*, grows in the hot humid sections of Costa Rica, more abundantly on the Atlantic slope. The Indians have cultivated it since remote times, and it is not known in the wild state. The trunk reaches a height of 8 meters and is covered with sharp thin spines disposed in circular zones. The leaves are pinnate, dark green in color. The flowers are yellow, very much sought after by insects. They form short racemes protected by a bristled spathe. The fruits reach the size of a small peach and in the larger number of varieties are red, the other sort being yellow. The seed is inclosed in a sweet farinaceous pulp that is cooked and eaten. It has a flavor much like that of the chestnut and is a favorite food of the town people. The wood is very hard and is used by the Indians for walking sticks, arrow points, bows, pikes, and for all purposes where strength and durability are required. The name *pejibaya* is probably South American with the variations *pejiballe, pijibay, pixbae, pixbay.*" (*C. B. Doyle.*)

44269 to 44272.

From Curacao, Dutch West Indies. Seeds collected by Mr. H. M. Curran. Received March 16, 1917.

44269. CEPHALOCEREUS LANUGINOSUS (L.) Britt. and Rose. Cactaceæ. **Cactus.**

"Edible fruit. March 1, 1917." (*Curran.*)

44270. COCCOLOBIS DIVERSIFOLIA Jacq. Polygonaceæ.

"*Kamalia.* Edible fruit. March 6, 1917." (*Curran.*)

A West Indian tree 2 to 10 meters in height, with ovate leaves 7 to 14 cm. long, spicate inflorescences of green flowers, and ovoid, brown fruits about 1 cm. long containing round, brownish green seeds. (Adapted from *Engler, Botanische Jahrbücher, vol. 13, p. 149,* as *Coccoloba barbadensis.*)

44269 to 44272—Continued.

44271. IPOMOEA sp. Convolvulaceæ.

An ornamental vine allied to our morning-glory.

44272. SESBAN sp. Fabaceæ.

"Perennial leguminous plant in low lands, March 6, 1917." (*Curran.*)

44273. PSYCHOTRIA BACTERIOPHILA Valet. Rubiaceæ.

From Buitenzorg, Java. Presented by the director, Jardin Botanique. Received March 19, 1917.

See S. P. I. No. 44119 for previous introduction and description.

For notes on the interesting phenomenon of bacterial leaf nodules in Rubiaceous plants, see S. P. I. No. 44295.

44274 to 44288.

From China. Seeds collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received February 19, 1917.

44274 and 44275. PYRUS spp. Maxim. Malaceæ. **Pear.**

44274. PYRUS USSURIENSIS Maxim.

"(No. 2360a. Tsunhwachow, Chihli Province, China, December 9, 1916.) *Ta suan li*, meaning 'big sour pear.'" (*Meyer.*)

Scions received under No. 1272 [S. P. I. No. 44169], which see for description.

44275. PYRUS USSURIENSIS Maxim.

"(No. 2361a. Tsunhwachow, Chihli Province, China, December 9, 1916.) *Hung hua kuan li*, meaning 'red-flowered pear.' A small variety of pear, of round, flattened shape with very long peduncle (twice the diameter of the fruit). Calyx persistent; color on top dull red, at base greenish yellow. Flesh of watery sweet taste, becoming soft later on. Probably a hybrid and possibly immune to fire-blight." (*Meyer.*)

44276. PYRUS sp.

"(No. 2362a. Peking, China, November 4, 1916.) *T'ou li*, meaning 'joining pear,' which name also is given to *Pyrus betulaefolia*, in which case it has reference to the fact that this last one is used extensively as a joining (i. e., grafting) stock. This number, however, is quite a different pear and may prove to be a new species. A small pear, the size of a crab apple, of russet color, with a very long peduncle and a deciduous calyx. Flesh soon becoming soft and mealy and decaying quickly." (*Meyer.*)

44277. PYRUS sp.

"(No. 2363a. Peking, China, December 15, 1916.) *Shui pai li*, meaning 'water white pear.' A variety of Chinese pear of yellow color; medium size; of round-oval shape; peduncle medium long; calyx persistent. Meat firm and sweet, but a trifle coarse. A rare variety." (*Meyer.*)

44278. PYRUS USSURIENSIS Maxim.

"(No. 2364a. Peking, China, December 19, 1916.) The well-known white pear, or 'Pai li,' which is among the pears most appreciated by foreign residents in North China. The fruits are of apple shape, of pale

44274 to 44288—Continued.

waxy-yellow color, and the flesh of a fresh, sweet taste after they have become soft. Some of the fruits have persistent calyxes, while others have deciduous ones." (*Meyer.*)

Received as *Pyrus simonii*, which is now referred to the above species by Mr. Rehder.

44279. PYRUS LINDLEYI Rehder.
(*P. sinensis* Lindl.)

"(No. 2365a. Malanyu, Chihli Province, China, November 25, 1916.) *P'in li*, meaning 'apple pear.' A variety of pear of russet-brown color and of flat, apple shape, though some specimens are of elongated form and taper down toward the base; calyx deciduous; peduncle medium long; flesh firm and juicy, but not sweet. A long-time keeper and a good shipper; can be used by occidentals as a cooking pear." (*Meyer.*)

44280. PYRUS spp.

"(No. 2366a. North China, November and December, 1916.) Mixed varieties of cultivated pears; to be tested as regards degree of immunity to pear-blight." (*Meyer.*)

44281 to 44283. MALUS spp. Malaceæ.

44281. MALUS SPECTABILIS (Ait.) Borkh. **Flowering crab apple.**
(*Pyrus spectabilis* Ait.)

"(No. 2367a. Peking, China, November 3, 1916.) *Hai tan kuo*, meaning 'sea red fruit,' implying that the plant came to North China by the sea route, probably from central China. A flowering crab apple, resistant to the drought and alkali of North Chinese soils. The small, greenish white fruits, which are of no value, have a persistent calyx. To be sown in order to obtain new types." (*Meyer.*)

44282. MALUS sp. **Apple.**

"(No. 2368a. Peking, China, December 15, 1916.) *Ch'iu kuo*, meaning 'autumn fruit.' A small Chinese apple, of very dark-red color with bluish bloom. Calyx persistent; peduncle medium long; contains but few seeds. Flesh mealy and without flavor. Withstands dry air and a fair amount of alkali in soil and water." (*Meyer.*)

44283. MALUS BACCATA (L.) Moench. **Crab apple.**
(*Pyrus baccata* L.)

"(No. 2369a. Peking, China, December 15, 1916.) *Hai tan kuo*, meaning 'sea red fruit.' A medium-sized crab apple, of bright-red color and of pleasant, sour taste. Calyx deciduous; peduncle medium long. Much used in North China as a preserve. This variety seems to be able to stand considerable drought and alkali and may be of value in breeding experiments in the upper Mississippi Valley." (*Meyer.*)

44284. NICOTIANA TABACUM L. Solanaceæ. **Tobacco.**

"(No. 2370a. Malanyu, Chihli Province, China, November 27, 1916.) *Yen*. A variety of tobacco considered locally to be very good. To be tested for nicotine content." (*Meyer.*)

44285. INDIGOFERA KIRILOWII Maxim. Fabaceæ.

"(No. 2371a. Shinglungshan, Chihli Province, China, December 3, 1916.) A low-growing leguminous shrub, with pretty rose-colored flowers; occurring on decomposed rocky mountain slopes, often in partial shade. Fit to be employed as a rockery shrub." (*Meyer.*)

44274 to 44288—Continued.

44286. ULMUS PARVIFOLIA Jacq. Ulmaceæ. **Elm.**

"(No. 2372a. Near Shihtaoyin, Chihli Province, China, December 1, 1916.) An autumn-flowering elm, found in a locality farther north than one generally meets with this species." (*Meyer.*)

44287. CHRYSANTHEMUM INDICUM L. Asteraceæ. **Chrysanthemum.**

"(No. 2373a. Malanyu, Chihli Province, China, November 30, 1916.) A wild, perennial chrysanthemum, producing masses of small, golden-yellow flowers late in the fall. The plant is well worth growing on dry banks and in large rockeries; it requires partial shade to do best. Deserves to be naturalized in a locality like Colorado Springs." (*Meyer.*)

44288. SPODIOPOGON SIBIRICUS Trin. Poaceæ. **Grass.**

"(No. 2374a. Shinglungshan, Chihli Province, China, December 3, 1916.) A perennial grass, 2 to 3 feet high, occurring on mountain slopes on decomposed porphyritic rock in partial shade. Possibly of forage value in Rocky Mountain localities." (*Meyer.*)

44289. THUNBERGIA GIBSONI S. Moore. Acanthaceæ.

From Lawang, Java. Presented by Mr. M. Buysman. Received March 19, 1917.

An ornamental climbing shrub native to tropical East Africa. It flowers profusely, the corolla being of clear or deep-orange color and having a waxy texture. The plant is said to grow well under ordinary greenhouse conditions. (Adapted from *Gardeners' Chronicle, May 1, 1915.*)

"Seeds of a plant often discussed in the Gardeners' Chronicle, but never brought into commerce. It is doubtless the finest species of the genus." (*Buysman.*)

44290. MANGIFERA CAESIA Jack. Anacardiaceæ.

From Buitenzorg, Java. Presented by Dr. J. C. Koningsberger, director, Botanic Garden. Received March 19, 1917.

Binjai. A large, stately tree, native of the Malay Archipelago, with alternate wedge-shaped or elliptic leathery leaves 6 to 16 inches long; stout, much-branched panicles of purplish flowers, and oblong or ovoid fruits, which are eaten by the natives but are said to be very poor. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 4, pp. 1894–1895.*)

44291 to 44294.

From China. Seeds collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received March 6, 1917.

44291. BRASSICA PEKINENSIS (Lour.) Gagn. Brassicaceæ. **Pai ts'ai.**

"(No. 2375a. Ansuhsien, Chihli Province, China, January 18, 1917.) *Pan ch'ing pan, pan pai ts'ai*, meaning 'half green, half white pai ts'ai,' on account of the outer leaves being green while the center is white. A fine quality of heavy winter *pai ts'ai*, coming from a locality famous for its cabbage and formerly supplying the Imperial Court at Peking. This *pai ts'ai* has a sweet, wholesome flavor, is quite juicy, but not watery, like most other varieties. After having been boiled once it can be warmed up again three successive days without losing its fine taste. The plants are transplanted three times before being put out in their permanent places. They need a rich porous soil and plenty of water while growing fast. In good seasons specimens are obtained that weigh between 30 and 40 pounds apiece." (*Meyer.*)

44291 to 44294—Continued.

44292. BRASSICA PEKINENSIS (Lour.) Gagn. Brassicaceæ. **Pai ts'ai.**

"(No. 2376a. Ansuhsien, Chihli Province, China, January 18, 1917.) *Pai ts'ai*, meaning 'white vegetable.' A heavy quality of white winter *pai ts'ai*, much in demand and generally disposed of by the growers to private customers before the end of December. Needs a rich soil and no lack of moisture to become tender and sweet." (*Meyer.*)

44293. RAPHANUS SATIVUS L. Brassicaceæ. **Radish.**

"(No. 2377a. Ansuhsien, Chihli Province, China, January 18, 1917.) *Teng lung hung lo po*, meaning 'lantern red root,' referring to the resemblance of the root to a Chinese or Japanese flat lantern. A large, flat red, winter radish, said to grow as heavy as 5 catties apiece. Needs rich, well-drained soil to do well. Sow out in summer, not in spring." (*Meyer.*)

44294. ALLIUM FISTULOSUM L. Liliaceæ. **Leek.**

"(No. 2378a. Ansuhsien, Chihli Province, China, January 18, 1917.) *Ta t'ou st'ung*, meaning 'large-headed leek.' A peculiar variety of Chinese winter leek of very short growth, looking almost like a slender onion. Said to be of very good flavor; possesses also good shipping and keeping qualities. Does best in light, rich, moisture-retaining soil." (*Meyer.*)

44295. PAVETTA ZIMMERMANNIANA Valet. Rubiaceæ.

From Buitenzorg, Java. Presented by Dr. J. C. Koningsberger, director, Botanic Gardens. Received March 19, 1917.

A small rubiaceous tree or shrub, with opposite, nearly elliptic leaves and clusters of small slender-tubed white flowers.

"The remarkable researches of Zimmerman and Faber detailed in the Jahrbücher für Wissenschaftliche Botanik, vol. 51, p. 285, 1912, and vol. 54, p. 243, 1914, make this species of unusual interest. Faber has proved that the leaves of this and of several other species of Pavetta, Psychotria, and possibly other genera of the Rubiaceæ contain colonies of a nonmotile, nitrogen-fixing bacterium which he names *Myco-bacterium rubiacearum*. The bacteria of this species almost invariably inhabit the micropyle of the young seed and when the seed germinates grow through certain stomata of the very young leaves and into the intracellular spaces formed in the leaf tissues around these stomata. Cavities are formed through the growth of the epidermal cells which later close entirely and make bacterial nodules which are deeply embedded in the leaf tissues. A single leaf may have several dozen of these symbiotic bacterial nodules.

"Faber was able, by treating the seeds with hot water and a sublimate solution, to kill the inhabiting myco-bacteria and, later, to infect part of the seedlings grown from these seeds with pure cultures of the bacterium. The artificially infected seedlings grown in soil free from combined nitrogen grew well and remained healthy for four months, whereas those not so infected turned yellowish white and died in three or four weeks. The plants from unsterilized seeds produced leaves bearing many more bacterial nodules than did those from sterilized seeds which were later artificially inoculated. In view of the fact that these rubiaceous plants with bacterial nodule-bearing leaves occur in many parts of the Tropics and that in India, at least, the value of their leaves for manure has long been recognized, and considering the value of nitro-

gen-fixing legumes as fertilizers, the suggestion of Faber that we may have in these trees and shrubs plants of positive agricultural value for the tropical planter is well worthy of consideration. The value of the mulch formed by the leaves of leguminous and other plants is keenly appreciated by the best cultivators; and it may be possible to find suitable small shrubs of Pavetta or other rubiaceous plants which will be worth while growing for their nitrogen-fixing leaf bacteria in the orchards of our semitropics or wherever else the climate will permit their cultivation." (*David Fairchild.*)

44296 to 44311.[1] PRUNUS SERRULATA Lindl. Amygdalaceæ. Flowering cherry.

From Yokohama, Japan. Scions purchased from the Yokohama Nursery Co. Received February 27, 1917.

44296. *Kirin;* late flowering, with large, very double, rose-colored flowers; one of the best. Considered by Wilson a form of *Prunus serrulata sachalinensis* and by Miyoshi forma *atrorubra* of *P. serrulata.*

44297. *Taki-nioi;* very fragrant, single, white flowers; called by Miyoshi forma *cataracta* of *Prunus serrulata* and by Wilson forma *cataracta* of *P. lannesiana.*

44298. *Shōgetsu;* a rather late, good variety with very large, long-pediciled, double, pale-pink flowers; called by Wilson forma *superba* of *Prunus serrulata sachalinensis* and by Miyoshi the same form of *P. serrulata.*

44299. *Kan-zakura;* a curious Japanese cherry from the vicinity of Tokyo, with single, pale-pink flowers which appear in late winter. It is now being cultivated in the Arnold Arboretum. (Adapted from *Wilson, The Cherries of Japan, p. 31,* as *P. serrulata,* var. *spontanea,* forma *praecox.*)

44300. *Minakami;* flowers very fragrant, white, single or nearly so; placed by Wilson under forma *donarium* of *Prunus lannesiana* and by Miyoshi under forma *glauca* of *P. serrulata.*

44301. *Kokonye;* flowers pink, double or semidouble, long pediceled and usually short peduncled. Considered by Wilson forma *homogena* of *Prunus serrulata sachalinensis,* while Miyoshi considered it a form of *P. serrulata.*

44302. *Ranzan;* a very pleasing form with single pink flowers on long slender pedicels. Considered by Wilson a form of *Prunus lannesiana.*

44303. *Yae-akebono;* flowers very large, fragrant, semidouble, soft pink, very beautiful; called by Wilson forma *versicolor* of *Prunus lannesiana* and by Miyoshi the same form of *P. serrulata.*

44304. *Gyciko;* semidouble flowers, pale yellow with greenish stripes, three flowered; considered by Wilson a form of *Prunus lannesiana* and by Miyoshi as forma *tricolor* of *P. serrulata.*

44305. *Horinji;* a small tree with dark-gray twigs, yellowish brown young leaves, and flowers with roundish petals, the outer rank pink, the inner rank white. Blossoming time from the middle to the end of April. (Adapted from *Miyoshi, "Japanische Bergkirschen," Journal of*

[1] See footnote, p. 11.

44296 to 44311—Continued.

the College of Science, Tokyo, vol. 34, art. 1, p. 110, as *Prunus serrulata* Lindl. forma *decora.*)

"This is a very beautiful form, with clusters of pale pink double or semidouble flowers." (*Wilson, The Cherries of Japan, p. 40, as Prunus serrulata,* var. *sachalinensis* forma *horinji.*)

44306. *Hitoye-fudanzakura;* a precocious form, which blooms in almost any season; single flowers, white or nearly so, of little horticultural value; considered by Wilson a form of *Prunus lannesiana.*

44307. *Asagi.* A Japanese cherry from Kohoku, with greenish white flowers tinged with pink, about 4 cm. in width, occurring in two to four flowered clusters. (Adapted from *Miyoshi, "Japanische Bergkirschen," Journal of the College of Science, Imperial University of Tokyo, vol. 34, pp. 124–125.*)

Called by Miyoshi, *Prunus serrulata,* subforma *luteoides* Miyoshi.

Received as *Asagi-zakura,* but no mention of this name is made in the above publication or in Wilson, The Cherries of Japan.

44308. *Botan-zakura;* one of the very best forms bearing very large, pale-pink, fragrant, semidouble flowers, called by Wilson forma *moutan* of *Prunus lannesiana* and by Miyoshi the same form of *P. serrulata.*

44309. *Surugadai-nioi.* A moderately large tree with brown-gray twigs, brownish red young leaves, and white, fragrant flowers. Blossoming time about the end of April. (Adapted from *Miyoshi, "Japanische Bergkirschen," Journal of the College of Science, Tokyo, vol. 34, art. 1, p. 132,* as *Prunus serrulata* Lindl. forma *surugadai-odora.*)

"Flowers semidouble, fragrant, nearly white, pendulous on long slender pedicels. This is a late-flowering form." (*Wilson, The Cherries of Japan, p. 51,* as *Prunus lannesiana* forma *surugadaiodora.*)

44310. *Shirayuki.* A moderately large tree with numerous closely crowded erect-spreading branches, smooth brown-gray twigs, yellowish brown young leaves, and white flowers with hairy penduncles. Blossoming time mid-April. (Adapted from *Miyoshi, "Japanische Bergkirschen," Journal of the College of Science, Tokyo, vol. 34, art. 1, p. 127,* as *Prunus serrulata* Lindl. forma *nivea.*)

"With its large flowers, this distinct form resembles *Prunus yedoensis* Matsumura, but the bracteoles show that it belongs to *P. serrulata* Lindl. . . . The branches are erect spreading and the flowers white, single or nearly so." (*Wilson, The Cherries of Japan, p. 34,* as *P. serrulata* var. *pubescens* forma *sirayuki.*)

44311. *Udzu-zakura;* a good form; produces near ends of branches pink, double flowers, with short peduncles and long pedicels. Called by Miyoshi forma *spiralis* of *Prunus serrulata* and by Wilson the same form of *P. serrulata sachalinensis.*

44312 to 44318.

From China. Seeds collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received March 20, 1917.

44312. BRASSICA PEKINENSIS (Lour.) Gagn. Brassicaceæ. **Pai ts'ai.**

"(No. 2379a. Peking, China, February 5, 1917.) A medium-large, very solid, white, winter *pai ts'ai,* possessing excellent keeping qualities. Needs rich, friable soil to thrive well." (*Meyer.*)

44312 to 44318—Continued.

44313 to 44315. ALLIUM FISTULOSUM L. Liliaceæ. **Leek.**

44313. "(No. 2380a. Peking, China, February 5, 1917.) *Chi t'ui ts'ung*, meaning 'chicken-leg leek.' A short variety of winter leek; very firm and juicy." (*Meyer.*)

44314. "(No. 2381a. Peking, China, February 5, 1917.) *Kao chio pai ts'ung*, meaning 'tall-horn white leek.' A long, heavy variety of winter leek; a good keeper; stands repeated freezing and thawing." (*Meyer.*)

44315. "(No. 2382a. Peking, China, February 5, 1917.) *Pai lu ts'ung*, meaning 'frost-festival leek.' A medium long variety of winter leek." (*Meyer.*)

44316 to 44318. BRASSICA spp. Brassicaceæ. **Mustard.**

"*Chieh.* Mustard seed, such as is used in Peking to make ground table mustard. It is cultivated a few days' journey to the northwest of Peking in a region with cool nights in summer, a climate resembling that of the intermountain sections of the United States.

44316. "(No. 140b. Peking, China, February 5, 1917.) Price of this sample 28 cents in Yuan silver per catty." (*Meyer.*)

Received as *Brassica juncea*, but it is apparently not that species.

44317. "(No. 141b. Peking, China, February 10, 1917.) Price of this sample 26 cents in Yuan silver per catty." (*Meyer.*)

44318. "(No. 143b. Peking, China, February 10, 1917.) Price of this sample 24 cents in Yuan silver per catty." (*Meyer.*)

44319. OPUNTIA sp. Cactaceæ. **Prickly-pear.**

From Curacao, Dutch West Indies. Cuttings presented by Mr. H. M. Curran. Received March, 1917.

"Spineless form. March 1, 1917." (*Curran.*)

44320 to 44325.

From Richmond, Victoria, Australia. Seeds presented by Mr. F. H. Baker. Received March 7, 1917.

44320 to 44323. ACACIA spp. Mimosaceæ. **Wattle.**

"In sowing acacia seed they should have boiling water poured over them and should be allowed to stand for 24 hours. Do not use any manure, and sow them in the poorest soil." (*Baker.*)

44320. ACACIA DIFFUSA Lindl.

"Prickly acacia; good bloomer." (*Baker.*)

A straggling shrub, native of New South Wales, Australia, with loosely scattered, sessile, linear leaves about an inch long and yellow flowers in axillary heads about the size of a pea. (Adapted from the *Botanical Register, vol. 8, pl. 634.*)

44321. ACACIA IMPLEXA Benth.

"A fine, stately tree." (*Baker.*)

A tall Australian tree, 50 feet high, with light-green sickle-shaped lanceolate leaves 6 to 7 inches long, cream-colored flowers in short

44320 to 44325—Continued.

racemes, and light-brown pods, curved like an interrogation mark, 4 to 6 inches long. The dark-brown, hard, close-grained wood is much used for turnery and for all purposes which call for tenacity and strength. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 1, p. 185,* and from *Maiden, Native Useful Plants of Australia, p. 357.*)

44322. ACACIA LEPROSA Sieber.

"A beautiful wattle; always weeping; a good bloomer." (*Baker.*)

An Australian shrub with erect, slender branches; linear or lance-shaped sicklelike leaves covered with very small patches of whitish matter exuded through the epidermis, and pale yellow flowers in clustering heads. The whitish patches on the leaves give the plant a gray, powdery appearance; hence its name. (Adapted from the *Botanical Register, vol. 17, pl. 1441.*)

44323. ACACIA PYCNANTHA Benth.

A small tree, native of southern Australia, with lanceolate or oblong leaves 2½ to 6 inches long and showy, fragrant, yellow flowers in simple or compound racemes. The pods are 2 to 5 inches long. The bark contains the highest percentage of tannin of any of the species; a good gum exudes from the trees; and the tree itself is used as a sand binder. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 1, p. 184.*)

44324. CANDOLLEA GRAMINIFOLIA (Swartz) F. Muell. Candolleaceæ.
(*Stylidium graminifolium* Swartz.)

A glabrous Australian perennial with a short tufted stem rarely lengthening to 4 or 5 inches and linear, rather rigid, flattened leaves usually 2 but at times 6 to 9 inches long. The scapes are up to 1½ feet high, the upper quarter or half being occupied by a narrow, simple raceme or interrupted spike of pink flowers. The oval capsules are a quarter to half an inch long. (Adapted from *Bentham, Flora Australiensis, vol. 4, p. 10.*)

44325. KENNEDYA MONOPHYLLA Vent. Fabaceæ.
(*Hardenbergia monophylla* Benth.)

A trailing herb, native of southern Australia, with leaves consisting of one ovate or lance-shaped leaflet 2 to 4 inches long, violet flowers nearly half an inch long in few-flowered racemes, and flat papery pods about 1½ inches long. (Adapted from *Bailey, Queensland Flora, pt. 2, p. 424.*)

44326 to 44330. SACCHARUM OFFICINARUM L. Poaceæ.

Sugar cane.

From Kingston, Jamaica. Cuttings presented by Mr. William Harris, Superintendent of Public Gardens. Received March 12, 1917.

"Jamaica seedlings raised at our experiment station." (*Harris.*)

44326. No. 70.
44327. No. 71.
44328. No. 72.
44329. No. 73.
44330. No. 74.

44331 and 44332. SACCHARUM OFFICINARUM L. Poaceæ. **Sugar cane.**

From Cienfuegos, Cuba. Cuttings presented by Mr. Robert M. Grey, Harvard Experiment Station. Received March 13, 1917.

44331. *Demerara 74.* 44332. *Demerara 95.*

44333. PYRUS CALLERYANA Decaisne. Malaceæ. **Pear.**

From Hongkong, China. Grafts presented by Mr. W. T. Tutcher, superintendent, Botanical and Forestry Department. Received March 14, 1917.

See S. P. I. No. 43987 for previous introduction and description.

44334. PONCIRUS TRIFOLIATA (L.) Raf. Rutaceæ. (*Citrus trifoliata* L.) **Trifoliate orange.**

From Taiku, Korea. Sprouts presented by Rev. James E. Adams, Korean Mission. Received March 19, 1917.

A shrub or small tree used extensively as a hedge plant in our Southern States, where it is quite hardy.

44335. ILEX MACROPHYLLA Wall. Aquifoliaceæ. **Holly.**

From Pisa, Italy. Seed presented by the director, Botanic Garden. Received March 23, 1917.

A tree, native of Java and Sumatra, about 15 feet high, with gray bark, rigid, shining leaves 4 to 7 inches long, flowers in branched cymes, and round drupes containing about eight stones. (Adapted from *Hooker, Flora of British India, vol. 1, pp. 604–605.*)

44336. CACARA EROSA (L.) Kuntze. Fabaceæ. **Yam bean.** (*Pachyrhizus angulatus* Rich.)

From Kingston, Jamaica. Seed presented by Mr. William Harris, Superintendent of Public Gardens. Received March 23, 1917.

A shrubby, climbing, leguminous plant with large edible roots that also produce a valuable starch.

See S. P. I. Nos. 22971 and 33258 for previous introductions.

44337. CUCUMIS MELO L. Cucurbitaceæ. **Melon.**

From Baku, Russia. Seed presented by Mr. Roy G. Pierce, Forest Pathologist, who secured them from Mr. Arthur Knapp. Received March 24, 1917.

"Seeds from a melon called a *denya*, which is grown in the Trans-Caucasus. The melon is yellow and very like the California *cassaba* melon. The remarkable thing about this melon is that if it is hung up in a cool place it will keep for a year." (*Knapp.*)

44338. ANANAS SATIVUS Schult. f. Bromeliaceæ. **Pineapple.**

From Antigua, West Indies. Plants purchased from Mr. J. Jackson, curator and superintendent, Agricultural Department. Received March 15, 1917.

White Antigua pineapple. A medium-sized pineapple. It is light colored, oblong in shape, with a quality better than the average. It is used as a dessert and for general kitchen purposes. (Adapted from *Bulletin No. 8, Division of Pomology, U. S. Department of Agriculture.*)

44339 to 44343.

From Kew, England. Seeds presented by Sir David Prain, director, Royal Botanic Gardens. Received March 19, 1917.

44339. BERBERIS sp. Berberidaceæ. **Barberry.**

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

See S. P. I. Nos. 33024, 40139, and 42184 for previous introduction.

44340. MALUS NIEDZWETSKYANA Dieck. Malaceæ. **Apple.**

A tree, native of southwestern Siberia, resembling the common apple in habit, with reddish tinged young wood and young leaves, large clusters of deep-pink flowers, and dark-red conical apples with purplish flesh. The attractive coloring of the wood, leaves, and fruit makes this an especially ornamental species. (Adapted from *The Garden, May 22, 1915*, and from *Bailey, Standard Cyclopedia of Horticulture, vol. 5, p. 2871*, as *Pyrus malus niedzwetskyana.*)

44341. SORBUS KOEHNEANA C. Schneid. Malaceæ.

A shrub, native to central China, up to 4 meters (13 feet) in height, with generally smooth, compound leaves from 8 to 15.5 cm. long; white flowers, usually on the very short lateral branches; and round white fruits, about 7 or 8 mm. in diameter. (Adapted from *Sargent, Plantae Wilsonianae, vol. 1, pp. 471–472.*)

44342. × SORBUS MEINICHII (Lindeb.) Hedl. Malaceæ.

A hybrid tree, whose parents are *Sorbus aucuparia* and *S. hybrida.* It is a native of the island of Åland and the neighboring islands and has compound, serrate leaves. (Adapted from *Hedlund, Monographie der Gattung Sorbus, pp. 49–50.*)

44343. SORBUS VILMORINI C. Schneid. Malaceæ.

A large shrub or small tree, native of western China, with attractive, pinnate leaves; white flowers about a quarter of an inch in diameter, in corymbs appearing in June; and pale rosy-red fruits. In summer and also in autumn this is a most attractive Sorbus. (Adapted from *The Garden, September 2, 1916.*)

44344. ACHRAS ZAPOTA L. Sapotaceæ. Sapodilla.

(*A. sapota* L.)

From Bokeelia, Fla. Seed presented by Mr. Harry P. Johnson. Received March 24, 1917.

"Seeds of the largest sapodilla fruit I have ever seen; grown on my place here. As large as a big orange." (*Johnson.*)

44345. INODES EXUL O. F. Cook. Phœnicaceæ. Palmetto.

From San Antonio, Tex. Seed presented by Mr. C. R. Letteer, San Antonio Experiment Farm. Received March 26, 1917.

"Collected at Victoria, Tex., in 1912." (*Letteer.*)

A large palmetto, cultivated in Texas, with deep-green foliage, solitary fruits, and large seeds not wrinkled above. (Adapted from *Circular 113, Bureau of Plant Industry, pp. 11–14.*)

See also S. P. I. No. 35116 for further description.

44346. LUCUMA sp. Sapotaceæ.

From El Coyolar, Costa Rica. Seed presented by Mr. Carlos Wercklé. Received March 7, 1917.

"Seeds of the apple-shaped *nispero sapotilla*. Better than *Vitellaria multiflora;* flesh of the same consistency and appearance, but more highly colored." (*Wercklé.*)

44347 to 44356.

From Maidstone, England. Plants presented by George Bunyard & Co., Ltd. Received March 29, 1917. Quoted notes from Bunyard's Catalogue.

44347 to 44349.[1] RIBES VULGARE Lam. Grossulariaceæ. **Garden currant.**

44347. "*Moore's Ruby.* Berries medium size. Midseason. Growth very upright; very fertile; a hardy and desirable sort. Raised by Judge Moore, U. S. A."

44348. "*Skinner's Early.* Berries medium, bright red; bunches long, very fertile; growth vigorous, upright. The earliest of all; most valuable for market. This variety is esteemed in Kent and is named after a local grower, but is quite possibly the old sort renamed."

44349. "*Utrecht.* Berries medium, dark red; bunches medium; growth vigorous, upright; leaves resembling *Scotch* but distinct. A useful midseason variety, origin probably indicated by its name."

44350 to 44356. CORYLUS AVELLANA L. Betulaceæ. **Filbert.**

44350. "*Cosford.* Nut almost round, large, most excellent flavor, and very thin shell. A prolific variety, and recommended as a pollenizer for filberts of less fertile sorts. Possibly originated in Suffolk, where there is a hundred of *Cosford.*"

44351. "*Duke of Edinburgh.* Nut large, oblong; shell rather thick; of excellent flavor; quite one of the best flavored. Raised by Mr. Webb, of Calcot, and certificated by the Royal Horticultural Society in 1883."

44352. "*Kentish Cob.* Nut large, broad and long, excellent flavor; prolific; the best for all-round use. Almost exclusively grown in Kent for market work. Raised by Mr. Lambert, of Cloudhurst, Kent, about 1830; hence its synonym '*Lambert's*' filbert."

44353. "*Merveille de Bolwyller.* Nut remarkably broad and thick, very handsome and of first-class flavor; vigorous grower. Originated with an amateur in Silesia about 1840 and sold by Messrs. Baumann of Bolwyller."

44354. "*Pearson's Prolific.* Nut round, short, good flavor; an abundant and early bearer; produces a large number of catkins and is valuable for purposes of cross-fertilization. Introduced by Messrs. Pearson, of Chilwell."

44355. "*Prolific.* Curiously frizzled husk; nuts small but produced in large clusters, often ten to a bunch; very early, sweet, and good. Originated in a garden at Moreton, Norwich, about 1840. Sometimes called the *Frizzled nut.*"

44356. "*Red skinned.* Resembling the *White* filbert in all respects save the red skin of the kernel. Has been known since 1800."

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[1] See footnote, p. 11.

44357 and 44358. ORYZA SATIVA L. Poaceæ. **Rice.**

From San Jose, Costa Rica. Presented by Mr. J. E. van der Laat, director, Department of Agriculture. Received February 13, 1917.

44357. A variety received without description.

44358. "This is a very prolific rice, but it has degenerated here by neglect." (*Van der Laat.*)

44359 to 44361.

From Cairo, Egypt. Seeds presented by Mr. F. G. Walsingham, horticultural division, Ministry of Agriculture, Gizeh Branch. Received March 10, 1917.

44359. MONTANOA HIBISCIFOLIA (Benth.) C. Koch. Asteraceæ. **Tree daisy.**

One of the tree daisies of Central America, which is easily distinguished by its five to seven lobed leaves, which are opposite and entire. It is easily cultivated, the seeds being started indoors and the plants transferred to the open for foliage effects. It may also be propagated by cuttings. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 4, p. 2064,* and from *Koch, Wochenschrift des Vereines zur Beforderung des Gartenbause, vol. 7, p. 407.*)

44360. SOLANUM sp. Solanaceæ. **Wild potato.**

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

44361. ZIZIPHUS SPINA-CHRISTI (L.) Willd. Rhamnaceæ.

A shrub, native of Palestine and Egypt, 3 to 5 meters high, with whitish, spiny branches, rounded or heart-shaped leaves 2 to 4 cm. long, and roundish, dry, astringent fruits about the size of a hazelnut. As a stock upon which to graft the common jujube this species is not satisfactory, for it has a tendency to sucker. The best use to which this shrub can be put is that of a shade tree for crops. When once established a clump can scarcely be eradicated. (Adapted from *Post, Flora of Syria, p. 201,* and from *Bagnol,* in *Bulletin de la Société Nationale d'Acclimatation de France, vol. 44, pp. 153–157.*)

44362. DIOSPYROS KAKI L. f. Diospyraceæ. **Kaki.**

From Felton, Del. Cuttings presented by Mr. J. W. Killen. Received March 29, 1917.

"This persimmon has withstood our climate for the past 25 years, though it has been killed back a number of times. It had no protection at all this past winter and does not seem to have been affected by the cold this time. It has borne a number of times. The fruits are seedless and about 2½ to 3 inches in diameter." (*Killen.*)

44363. DIOSPYROS DISCOLOR Willd. Diospyraceæ. **Mabolo.**

From Manila, Philippine Islands. Cuttings presented by Mr. Adn. Hernandez, Director of Agriculture. Received March 28, 1917.

A common Philippine tree of medium size, 8 to 15 meters high, with dark-green leaves and roundish or somewhat flattened velvety reddish fruits about 7.5 cm. in diameter, containing cream-colored, rather dry, sweet, and aromatic flesh inclosing several large seeds. (Adapted from the *Philippine Agricultural Review, third quarter, 1916, p. 234.*)

44364. MEDICAGO SATIVA L. Fabaceæ. **Alfalfa.**

From Russia. Seed presented by Mr. W. P. Cresson, secretary of embassy in charge of the consulate at Tiflis. Received March 29, 1917.

"An inferior quality from the region of Elisavetpol." (*Cresson.*)

44365. PERSEA AMERICANA Mill. Lauraceæ. **Avocado.**
(*P. gratissima* Gaertn. f.)

From Peru. Seed purchased from Mr. H. P. Archer, Lima. Received March 30, 1917.

"*Palta*, from the Chanchamayo. The months of December and January are the best ones for getting paltas." (*Archer.*)

44366 to 44369.

From Bogota, Colombia. Seeds presented by Mr. M. T. Dawe, Agricultural Adviser and Director of Agriculture. Received March 30, 1917.

44366. LYCOPERSICON ESCULENTUM Mill. Solanaceæ. **Tomato.**

"Seeds of the wild variety found in this neighborhood." (*Dawe.*)

44367. ANNONA CHERIMOLA Mill. Annonaceæ. **Cherimoya.**

See S. P. I. No. 44251 for previous introduction and description.

44368. CARICA PAPAYA L. Papayaceæ. **Papaya.**

"In connection with the improvement of the papaya in southern Florida and the development of strains suitable for commercial purposes, it is desirable that varieties be obtained for trial from as many different regions as possible. The papayas of Colombia are of particular interest as coming from a region in which several wild species of Carica occur. From such a region there is always the possibility of getting hybrids or distinctly new strains." (*Popenoe.*)

44369. DOLICHOLUS PHASEOLOIDES (Swartz) Kuntze. Fabaceæ.
(*Rhynchosia phaseoloides* DC.)

"*Pionia*, a small deep-red and black seed from a creeping plant. Heaving the seed into water to soften, grinding it afterwards, and straining the paste and mixing it with sirup is said to be effective to cure epilepsy." (*Alcazar.*)

44370. CANNABIS SATIVA L. Moraceæ. **Hemp.**

From Keijo, Chosen. Presented by Mr. Nagashima, of the Government Industrial Model Farm, through Mr. L. H. Dewey, of the Department of Agriculture. Received March 31, 1917.

This number differs somewhat from other so-called Keijo strains, and from the single trial so far given it would seem to be less productive.

44371. CANNABIS SATIVA L. Moraceæ. **Hemp.**

From Seoul, Chosen. Presented by the Yokohama Nursery Co., Yokohama, Japan, who secured it from Mr. Kato, Seoul. Received through Mr. L. H. Dewey, of the Department of Agriculture, March 31, 1917.

A promising strain which produced plants 4.3 meters in height during the only trial so far accorded it.

44372 to 44374. CITRUS spp. Rutaceæ.

From Lamao, Bataan, Philippine Islands. Seeds presented by Mr. P. J. Wester, Lamao Experiment Station, through Mr. Adn. Hernandez, Director of Agriculture, Manila. Received March 31, 1917.

44372 and 44373. CITRUS MEDICA L. **Citron.**

44372. The identification of this number was apparently questioned by Mr. Wester, but it seems to be at least a form of *Citrus medica.*

44373. An unnamed variety received without description.

44374. CITRUS MEDICA ODORATA Wester.

Tihi-tihi.

See also S. P. I. No. 44139 for further description.

44375 to 44404.

From Elstree, Herts, England. Plants presented by Hon. Vicary Gibbs, through Mr. E. Beckett, The Gardens, Aldenham House. Received March 28, 1917.

44375. ACER HOOKERI Miquel. Aceraceæ. **Maple.**

A tree, 40 to 50 feet high, native of the eastern Himalayas, with green, cordate, entire, finely serrate leaves 3 to 6 inches long, flowers in simple racemes 2 to 4½ inches long, and glabrous samaras with venose wings. (Adapted from *Hooker, Flora of British India, vol. 1, p. 694.*)

44376. AESCULUS GLABRA LEUCODERMIS Sarg. Aesculaceæ. **Horse-chestnut.**

This form is characterized by the smooth, pale, often nearly white bark of the trunk and branches and is found in the southeastern United States. (Adapted from *Kew Bulletin of Miscellaneous Information, Appendix 3, 1914, p. 57.*)

44377. ALNUS SITCHENSIS Sarg. Betulaceæ. **Sitka alder.**

A tree, native of northwestern United States and Alaska, up to 40 feet in height, with a narrow head of short and nearly horizontal branches, ovate, light-green, dentate leaves 3 to 6 inches long, and staminate catkins 4 to 5 inches long. (Adapted from *Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 184.*)

44378. ARALIA CHINENSIS L. Araliaceæ. **Chinese Angelica tree.**

Var. *fastigiata.* A garden variety with the branches more or less parallel with the main trunk.

44379. ARONIA ARBUTIFOLIA (L.) Pers. Malaceæ.
(*Pyrus arbutifolia* L. f.)

Var. *grandiflora.* A large-flowered garden variety of a bushy shrub, native of eastern North America. It is from 5 to 10 feet high, with narrowly oval leaves with dark-green upper surfaces and gray velvety lower surfaces. It has white or slightly rosy flowers produced in small corymbs and small, nearly globular red fruits.

44380. BERBERIS SARGENTIANA C. Schneid. Berberidaceæ. **Barberry.**

A black-berried barberry from western Hupeh, China, reaching a height of 2 meters. It is the only evergreen barberry which has proved entirely hardy at the Arnold Arboretum, and for this reason is one of the most desirable of the recent introductions as a garden plant. (Adapted from *Sargent, Plantae Wilsonianae, vol. 1, p. 359.*)

44375 to 44404—Continued.

44381. BERBERIS HOOKERI Lem. Berberidaceæ. **Barberry.**

An evergreen spiny Himalayan shrub 3 to 5 feet in height, with tufted, lanceolate-obovate, dark-green, leathery leaves 1 to 3 inches long with slender teeth on the margins. The pale-yellow flowers are two-thirds of an inch wide, and the black-purple, narrowly cylindrical berries often remain on the plant until the following spring. (Adapted from *Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 243.*)

44382. BETULA JAPONICA MANDSHURICA (Regel) Winkl. Betulaceæ. **Birch.**

A white-barked tree, native of western China, 10 to 25 meters in height, with very glabrous, regularly dentate leaves. The bark is used for lining straw hats. (Adapted from *Sargent, Plantae Wilsonianae, vol. 2, p. 461.*)

44383. CISSUS STRIATA Ruiz and Pav. Vitaceæ.
(*Vitis striata* Miquel.)

A low, shrubby evergreen vine of graceful habit, native of Chile and southern Brazil, with small, three to five foliolate, serrate leaves, yellowish flowers in many-flowered cymes, and round-flattened fruits about the size of a pea. This vine grows well in southern California. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 776.*)

44384 and 44385. COTONEASTER spp. Malaceæ.

44384. "Forrest No. 33." **44385.** "Forrest No. 5667."

44386. COTONEASTER DAMMERI C. Schneid.

A prostrate evergreen shrub, native of central China, with pure-white, solitary flowers, and coral-red fruits a quarter of an inch wide. It is quite hardy and is very distinct among cotoneasters for its perfectly prostrate habit. Its fruits are brightly colored, and the plant will no doubt prove useful as an evergreen carpet shrub; also for covering sunny slopes, as it is very vigorous. It occurs wild on heaths and rocky ground. (Adapted from *Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 411.*)

44387. COTONEASTER ROYLEI Hort.

"I have labeled these [small-leaved] forms in several herbaria as [*C. racemiflora*] var. *royleana* Dipp., because I believed that these (especially *C. roylei* or *royleana* Hort.) corresponded with the spontaneous material; but I am now dubious about this and I am holding out the spontaneous forms as the var. *kotschyi*. The named garden forms remain confused." (*Schneider, Illustriertes Handbuch der Laubholzkunde, vol. 1, p. 754.*)

44388. CRATAEGUS NITIDA (Engelm.) Sarg. Malaceæ. **Hawthorn.**

A tree, up to 30 feet high, from Illinois and Kansas, with spreading branches, coarsely serrate leaves, and dark dull-red fruits about half an inch long. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 883.*)

44389. DIERVILLA JAPONICA (Thunb.) DC. Caprifoliaceæ.
"Forrest No. 7882."

44375 to 44404—Continued.

44390. HYPERICUM sp. Hypericaceæ. **St.-John's-wort.**

"Wilson No. 256." "From cliffs and thickets, Wushan Hsien, eastern Szechwan, at an altitude of 1,000 meters, 1907. A shrubby plant, 6 cm. tall, with yellow flowers." (*Sargent, Plantae Wilsonianae, vol. 3, p. 452.*)

44391. JASMINUM sp. Oleaceæ. **Jasmine.**

"Forrest No. 11472."

44392. LARIX DAHURICA PRINCIPIS-RUPPRECHTII (Mayr) Rehd. and Wils. Pinaceæ. **Larch.**

A tree from northern China, with beautiful pink cones up to 1½ inches long and leaves up to 1¾ inches in length. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 4, p. 1823.*)

See also S. P. I. No. 42194 for further description.

44393. LAUROCERASUS OFFICINALIS Roemer. Amygdalaceæ. (*Prunus laurocerasus* L.) **Cherry laurel.**

Var. *camelliaefolia*. A garden variety with leaves of ordinary size, but curled and twisted. Curious but not ornamental. (Adapted from *Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 240.*)

44394. LONICERA NITIDA Wilson. Caprifoliaceæ. **Honeysuckle.**

An evergreen shrub from western China, up to 6 feet high, with upright branches, broadly oval or oblong glossy leaves, fragrant whitish flowers one-third of an inch long, and purple fruits. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 4, p. 1907.*)

44395. LONICERA PILEATA Oliver. Caprifoliaceæ. **Honeysuckle.**

A much-branched, low, evergreen or partially deciduous shrub from central and western China, about a foot high, with slender branches, oblong, lance-shaped, dark, shining-green leaves half to an inch long, and pale-yellow flowers in almost sessile pairs. It is quite hardy in England. (Adapted from *Curtis's Botanical Magazine, pl. 8060.*)

44396. ABIES sp. Pinaceæ. **Fir.**

"Wilson No. 6744."

44397. PICEA KOYAMAI Shiras. Pinaceæ. **Spruce.**

A Japanese tree, up to 30 feet in height, with bright reddish brown branchlets, bluish white, 4-sided sharp-pointed leaves one-third to half an inch long, and light brownish green cones 1½ to 2½ inches long with broadly oval scales. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 5, p. 2621.*)

44398. PIPTANTHUS CONCOLOR Harrow. Fabaceæ.

"Wilson No. 885." A bush, 1 to 1.6 meters tall, found in western Szechwan, China, at elevations up to 3,500 meters. It has alternate, trifoliate leaves, almost the same color above as below, with white hairs on the margins; yellow pealike flowers; and silky pods about 6 mm. long. (Adapted from *Gardeners' Chronicle, December 16, 1916, p. 289.*)

44399. PYRACANTHA GIBBSII A. Jackson. Malaceæ.

A shrub from western China up to 14 feet high, nearly spineless, with large, ovate-oblong, variable leaves up to 3 inches long and abundant fruits about 7 mm. in diameter. The leaves are commonly used by the Chinese for tea. (Adapted from *Gardeners' Chronicle, December 30, 1916, p. 309.*)

44375 to 44404—Continued.

44400. ROSA OMEIENSIS Rolfe. Rosaceæ. **Rose.**

A stout, branched shrub, from 3 to 10 feet high, with young shoots covered with dense bristles and the older stems armed with stout straight thorns. The long green leaves are composed of 9 to 13 sharply serrate leaflets, and the white flowers, which are over an inch in diameter, occur singly on short lateral twigs. The bright-red fruits are up to half an inch in length, and their yellow stalks are very striking in autumn. These fruits are said to be eaten in China, where the plant grows at an elevation of 8,000 to 9 500 feet. It thrives in good loamy soil and may be propagated from the freely produced seeds. (Adapted from *Curtis's Botanical Magazine, pl. 8471.*)

44401. RUBUS IRENAEUS Focke. Rosaceæ.

A prostrate evergreen shrub, native of central and western China, beset with small decurved prickles and having white flowers, large red fruits, and simple leaves, suggesting those of coltsfoot. (Adapted from *Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 460.*)

See also S. P. I. No. 40595 for further description.

44402. RUBUS LASIOSTYLUS DIZYGOS Focke. Rosaceæ.

An erect deciduous shrub, native of central China, 4 to 6 feet high, with waxy blue-white stems, compound leaves, small, rosy flowers, and agreeably acid, red fruits an inch in diameter. (Adapted from *Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 462.*)

See also S. P. I. No. 42587 for further description.

44403. STYRAX WILSONII Rehder. Styracaceæ.

A very pretty, small, compact Chinese shrub with alternate, oval, irregularly dentate leaves up to two-thirds of an inch long, white flowers in axillary and terminal racemes, appearing when the plant is but a few inches high and 2 or 3 years old, and gray-velvety, roundish fruits about one-third of an inch long. It is best propagated by seeds, although layering may be used. On one occasion, in the nursery at Kew, England, this shrub withstood a temperature of 12° F. (Adapted from *Curtis's Botanical Magazine, pl. 8444.*)

44404. VIBURNUM HUPEHENSE Rehder. Caprifoliaceæ.

A deciduous shrub, native of Hupeh, China, with coarsely serrate, roundish oval leaves, and flowers in large flat corymbs. The red fruit is ovoid, from one-third to two-fifths of an inch long. (Adapted from *Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 650.*)

See also S. P. I. No. 42197 for further description.

44405. NYPA FRUTICANS Wurmb. Phœnicaceæ. **Nipa palm.**

From Manila, Philippine Islands. Seeds presented by Mr. Adn. Hernandez, director, Bureau of Agriculture. Received March 27, 1917.

A creeping Philippine palm with a stout branching rootstock and large leaves 5 to 10 meters long. The sap is collected from the immature inflorescence and made principally into alcohol, and to a less extent into vinegar and sugar. A good preserve is made by boiling the immature seeds in sugar. (Adapted from the *Philippine Agricultural Review, third quarter, 1916, p. 174.*)

For an illustration of the nipa palm in fruit, see Plate VI.

44406. DAHLIA sp. Asteraceæ. **Tree dahlia.**

From Guatemala. Cuttings collected by Mr. Wilson Popenoe, Agricultural Explorer for the Department of Agriculture. Numbered March, 1917.

"(No. 106. From Tactic, Alta Vera Paz.) A double white variety of the common tree dahlia. The plant was not seen in bloom, and there is a possibility that it may not be true to name, but the Indian from whom it was obtained assured me that it was the double white form and not the common single pink. The flowers of the double white variety (which seems to be the most beautiful form of all) are used extensively by the Indians of Tactic for decorating the images of the saints. This seems to me to be a very promising plant for cultivation in California. It is likely that this is a cultivated form of *Dahlia maxoni* Safford." (*Popenoe.*)

44407 to 44417.

From Buenos Aires, Argentina. Seeds presented by the Jardin Botanico. Received March 10, 1917.

44407. AEXTOXICON PUNCTATUM Ruiz and Pav. Euphorbiaceæ.

A Chilean tree, sometimes reaching a height of 40 feet, with beautiful dark-green foliage. It thrives in both the dry and moist portions of Chile. (Adapted from *note of W. F. Wight, May 7, 1913.*)

See also S. P. I. No. 36123 for further description.

44408. CHENOPODIUM sp. Chenopodiaceæ.

A very small seeded variety, apparently allied to *Chenopodium ambrosioides.*

44409. GEVUINA AVELLANA Molina. Proteaceæ. **Avellano.**

A Chilean evergreen tree, reaching a height of 12 meters. Its large, dark-green, glossy pinnate leaves and axillary racemes of white flowers make a very pleasing combination during the winter. The pleasant-flavored nuts resemble the hazelnut in taste and are eaten raw or cooked. The wood is suited for general carpentry and for cabinetwork, the medullary rays giving it a pleasing appearance. (Adapted from *Castillo and Dey, La Jeografia Botanica del Rio Valdivia, p. 39,* and from *Bailey, Standard Cyclopedia of Horticulture, vol. 3, p. 1335.*)

44410. MYRCIARIA CAULIFLORA (Mart.) Berg. Myrtaceæ. **Jaboticaba.**

"One of the best indigenous fruits of Brazil, and at the same time one of the most curious and interesting, due to its habit of producing its fruits directly upon the trunk and larger branches (cauliflory). Several species are grown under the name of *jaboticaba,* and they are still somewhat confused botanically, but it appears that most of the plants common in cultivation belong either to *Myrciaria cauliflora* or *M. jaboticaba,* fruits of the latter being distinguishable from those of the former by the presence of a slender stem.

"The *jaboticaba* occurs in southern Brazil, both wild and cultivated. It is a very handsome tree, reaching a height of 35 or 40 feet, with a dense dome-shaped crown. The leaves are small, lanceolate, light green in color, and the flowers are white, with four petals and a conspicuous tuft of stamens. The fruits are produced in the greatest abundance and are the size of large grapes, with a tough, leathery skin, white, juicy pulp of rather acid, aromatic flavor, and two to four flattened oval

44407 to 44417—Continued.

seeds. The resemblance between the *jaboticaba* and some of the grapes of the Muscadine group, e. g., the *James*, is very striking, not only in the general appearance of the fruit but also in flavor.

"The *jaboticaba* prefers a soil that is rich and deep. It is rather slow of growth, coming into bearing after six or eight years. It withstands slight frosts and gives promise of being successful in southern Florida and perhaps also in sheltered localities throughout southern California. At the present time seed propagation is the only means of multiplication which is commonly employed, but inarching or some other means of propagation should be utilized to perpetuate good varieties." (*Popenoe.*)

44411. NAGEIA ANDINA (Poepp.) F. Muell. Taxaceæ.
(*Podocarpus andina* Poepp.)

A Chilean tree, up to 20 feet in height, with upright or somewhat spreading branches, indistinctly 2-ranked, linear, dark-green leaves half an inch to 1½ inches long, flowers in spikes, and fruits without fleshy receptacles. It is propagated by seeds or by cuttings made from almost ripened wood under glass and grows out of doors only in the Southern States and California. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 5, p. 2725.*)

44412. NOTHOFAGUS ANTARCTICA (Forst.) Oerst. Fagaceæ.
Antarctic beech.

A large deciduous South American tree, found from Tierra del Fuego northward to Concepcion, Chile. It has cordate or broadly oval irregularly dentate leaves half an inch to 1¼ inches long, and the staminate flowers appear in May singly, in pairs, or in threes. Propagation is by layering. Few trees have greater elegance and distinction than this when young. (Adapted from *Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 98.*)

44413. SOPHORA TETRAPTERA J. Miller. Fabaceæ.

Pelú. A Chilean tree, attaining a height of 10 meters, with green, pinnate leaves, golden yellow flowers, and indehiscent, 4-winged, cork-covered pods. It prefers to grow near rivers, which afford excellent opportunities for the dissemination of the corky pods. The exceedingly hard wood is used for plow points, wheels, etc. (Adapted from *Castillo and Dey, La Jeografia Botanica del Rio Valdivia, p. 56.*)

44414. TRICONDYLUS DENTATUS (Ruiz and Pav.) Kuntze. Proteaceæ.
(*Lomatia dentata* R. Br.)

Avellanillo. A Chilean tree, up to 10 meters in height and 30 cm. in diameter, with alternate, oval, dentate leaves, abbreviated lateral racemes of yellowish white flowers, and papery follicles. Of no industrial value. (Adapted from *Brown, Transactions of the Linnean Society of London, vol. 10, p. 201,* and from *Castillo and Dey, La Jeografia Botanica del Rio Valdivia, p. 41.*)

44415. TRICONDYLUS OBLIQUA (Ruiz and Pav.) Kuntze. Proteaceæ.
(*Lomatia obliqua* R. Br.)

Badal. A Chilean tree, with alternate, smooth, serrate leaves, yellowish white flowers in axillary racemes, and papery follicles inclosing winged seeds. Attains a height of 8 to 19 meters, with a diameter of 1 meter. (Adapted from *Brown, Transactions of the Linnean Society of London, vol. 10, p. 201,* and from *Castillo and Dey, La Jeografia Botanica del Rio Valdivia, p. 39.*)

44407 to 44417—Continued.

44416. PHYLLOCLADUS sp. Taxaceæ.

"Tree or shrub with the branchlets flattened and expanded into rigid and coriaceous, toothed or lobed, leaflike cladodia. The true leaves are reduced to linear scales." (*Bailey, Standard Cyclopedia of Horticulture, vol. 5, p. 2607.*)

44417. WEINMANNIA TRICHOSPERMA Cav. Cunoniaceæ. **Tineo.**

A Chilean and Peruvian tree, 15 to 18 meters high, with opposite, unequally pinnate leaves with winged petioles, aromatic white flowers in axillary racemes, and small oval capsules. The great fragrance of the flowers attracts many insects, which lay their eggs in the bark of the tree and produce larvæ which bore into the trunk and make the wood unfit for use. (Adapted from *Castillo and Dey, La Jeografia Botanica del Rio Valdivia, p. 52, fig. 30.*)

44418 to 44425.

From Elstree, Herts, England. Plants presented by Hon. Vicary Gibbs, through Mr. E. Beckett, The Gardens, Aldenham House. Received March 27, 1917.

44418. BERBERIS AQUIFOLIUM Pursh. Berberidaceæ. **Barberry.**

Var. *vicarii*. A variety originating in the gardens of Hon. Vicary Gibbs and presumably named for him.

"The best of the mahonias." (*Gibbs.*)

44419. CEANOTHUS HYBRIDUS Hort. Rhamnaceæ.

Var. *Gloire de Versailles*. A half-evergreen shrubby garden variety, distinguished by its large panicles of bright-blue flowers. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 696.*)

44420. CEANOTHUS HYBRIDUS Hort. Rhamnaceæ.

Var. *Perle rose*. A garden variety, with beautiful pink flowers. (Adapted from *V. Lemoine & Fils, Catalogue et Prixcourtant, 1914, p. 38.*)

44421. COTONEASTER sp. Malaceæ.

"Forrest No. 32."

44422. COTONEASTER SALICIFOLIA FLOCCOSA Rehd. and Wils. Malaceæ.

A half-evergreen shrub from western China, up to 15 feet high, with oblong to lance-oblong bright-green leaves; flowers in dense corymbs; and 3-seeded bright-red fruits nearly one-fourth of an inch in diameter. The value of this shrub lies in the ornamental effect of the fruits in autumn. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 867.*)

44423. MALUS BACCATA (L.) Moench. Malaceæ. **Crab apple.**
(*Pyrus baccata* L.)

Var. *Cashmere* crab. A horticultural variety of the Siberian crab, presumably from Kashmir, India.

44424. POPULUS SZECHUANICA C. Schneid. Salicaceæ. **Poplar.**

A common tree in the forests of Szechwan, China, growing to a large size, with massive branches and stout branchlets. It has very large, ovate, elongated or rounded leaves. It is hardy in the northeastern United States. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 5, p. 2763.*)

44418 to 44425—Continued.

44425. PYRUS sp. Malaceæ. **Pear.**

A variety received without description.

44426. ROSA ODORATA (Andr.) Sweet. Rosaceæ. **Rose.**

One of two roses associated with S. P. I. No. 22449. Renumbered for convenience in distribution.

"A rose which Mr. Meyer sent in from China, which he collected in a garden at Pautungfu, Chihli Province. For several years past it has attracted considerable attention as a pillar rose. The form that Mr. Meyer collected produces small, double, white flowers with pale pink centers; it blooms quite freely. Although it is an attractive rose, the discovery by Mr. Edward Goucher of its peculiar usefulness as a stock on which to bud or graft other roses now constitutes its chief interest to rose growers. Cuttings of the young wood grow so readily that with ordinary care 90 to 95 per cent of those put in an ordinary propagating bench will root. It has also been found that the vigorous young canes, often 5 to 8 feet long, can be used as a stock upon which to insert between each two leaves or eyes, in the manner of ordinary shield or slip budding, buds of any varieties it is desired to propagate. Later, when these buds have united, the canes are made into ordinary cuttings, each with a bud of the desired variety, which will root readily in slight bottom heat in an ordinary sand propagating bench, while the inserted buds will give rise to strong, healthy plants.

"Further, this rose has been successfully used as a grafting stock. The young canes are cut into suitable lengths and upon these are cleft-grafted or 'worked' scions or pieces of wood of the desired variety. The completed grafts are then potted singly in small pots, which are placed in an ordinary sweat box used for young grafted stock and maintained at a temperature of 75° to 80° F. Simultaneously the cuttings root and the grafts grow, and as many as 90 per cent of the cuttings thus made have succeeded." (*Peter Bisset.*)

44427 to 44431.

From Canton, China. Seeds presented by Mr. G. Weidman Groff, Canton Christian College. Received March 13, 1917.

44427 and 44428. BRASSICA spp. Brassicaceæ. **Mustard.**

44427. "*T'ai ts'eng shao po* (Taai ts'eng shiu paak)."

44428. "*Pen t'ai* (Poon tei)."

44429 to 44431. RAPHANUS SATIVUS L. Brassicaceæ. **Radish.**

44429. "*Hua mien* (Fa min)."

44430. "*Pa chih.*"

44431. "*Tung kua.*"

44432. MEDICAGO SATIVA L. Fabaceæ. **Alfalfa.**

From Shensi, China. Presented by Dr. A. C. Selmon, superintendent of the North China Mission of Seventh-Day Adventists, Nanking, China. Received January 2, 1917.

"Some months ago I was traveling in the northwest of China in the Province of Shensi, where the climate is very dry. There I found that the farmers raised a plant somewhat resembling alfalfa, which also grew wild. I found a specimen of it growing on the top of the city wall (60 feet high) at Sianfu, the capital of Shensi Province. It makes a very good rough feed for stock." (*Selmon.*)

44433 to 44436.

From Oran, Salta, Argentina. Seeds presented by Mr. S. W. Damon. Received March 7, 1917.

44433. GOURLIEA DECORTICANS SUBTROPICALIS Lillo. Fabaceæ.

Chañar. A tall tree, native of northern Argentina, with a crooked, tapering trunk about 1.4 meters (4½ feet) in diameter and yellowish, coarse, soft wood, which is not used commercially. This variety differs from the typical species in the tapering trunk and the manner in which the bark peels off. (Adapted from *Lillo, Contribución al Conocimiento de los Arboles de la Argentina, p. 43.*)

44434 and 44435. PROSOPIS CHILENSIS (Molina) Stuntz. Mimosaceæ. (*P. juliflora* DC.) **Algaroba.**

The algaroba is a leguminous tree, native to Argentina, usually 30 to 40 feet tall, with sweetish succulent pods which are fed to cattle. The wood is used for general carpentry.

44434. *Algarroba negro.* A form with dark-colored pods.

44435. *Algarroba blanco.* A form with light-colored pods.

44436. ZIZIPHUS MISTOL Griseb. Rhamnaceæ. **Mistol.**

A spiny tree, native of Argentina, up to 30 feet in height, with oval leathery short-stemmed leaves about an inch long and edible black fruits about one-third of an inch in diameter. The hard, red wood is not used commercially. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 6, p. 3548,* and from *Lillo, Contribución al Conocimiento de los Arboles de la Argentina, p. 85.*)

44437 and 44438.

From Guatemala. Collected by Mr. Wilson Popenoe, Agricultural Explorer for the Department of Agriculture. Received March 30, 1917.

44437. LYCOPERSICON ESCULENTUM Mill. Solanaceæ. **Tomato.**

"(No. 90a. From Antigua, Guatemala, February 26, 1917.) Seeds of a small native tomato which is commonly grown and used in the high lands of Guatemala as well as in some parts of the low lands. The plants are exceedingly vigorous and productive; the fruits are up to an inch or slightly more in diameter and of good flavor. While I have not seen this plant in the wild state, it is said by the natives to occur as a wild plant." (*Popenoe.*)

44438. ABUTILON sp. Malvaceæ.

"(No. 91. From Zacapa, Guatemala, March 15, 1917.) Cuttings of a handsome malvaceous shrub, 6 to 10 feet high, which is abundant in the mountains back of Zacapa at elevations of about 2,000 feet and has also been seen toward Gualan, at a low elevation in the lower Motagua valley. At this season of the year the plants are almost devoid of foliage and are a mass of brilliant yellow flowers. Individually the flowers resemble a single hibiscus, but are slightly smaller, being about 2 inches broad; they are golden yellow in color, with a crimson center. The plants bloom through a considerable period. For trial in southern California and Florida." (*Popenoe.*)

44439. PERSEA AMERICANA Mill. Lauraceæ. **Avocado.**
(*P. gratissima* Gaertn. f.)

From Guatemala. Budwood collected by Mr. Wilson Popenoe, Agricultural Explorer for the Department of Agriculture. Received January to March, 1917.

"(No. 92. Avocado No. 15.) *Nabal.*[1] For productiveness combined with desirable form and excellent quality of fruit, this variety seems particularly worthy of trial in the United States. While not a large avocado, it is excellent in every way, having a smooth green surface, rich yellow flesh of good flavor, and a seed not unduly large in comparison to the size of the fruit. In addition, it seems to be slightly earlier in season than the average.

"The parent tree was accidentally destroyed in June, 1917, by a laborer who was planting coffee. It stood among coffee bushes in the Finca Santa Lucia, 7a Calle Poniente, near the Alameda de Santa Lucia, Antigua, Guatemala. The soil in this finca is a rich, black, sandy loam of volcanic origin, deep and apparently very fertile. The tree was young, probably not more than 6 or 7 years old. It stood about 25 feet high, with a trunk 6 inches in diameter at the base, branching 10 feet from the ground. The crown was open, scantily branched, with little bearing wood. The young growths were strong, stout, vigorous, and the budwood was excellent, having large, vigorous eyes. The variety should not be difficult to propagate, and the indications are that it will be a good grower, though it is impossible to speak with certainty in regard to this latter point. The wood is rather tough for an avocado.

"The elevation of Antigua, 5,100 feet, is not great enough to insure unusual hardiness in a variety, but it seems reasonable to expect that varieties from this elevation will be as hardy as the average of the Guatemalan race. There is no way of determining whether they are hardier than the average until they are tested in the United States.

"The parent tree did not flower in 1917. Since flowers are nearly always produced at the same time as the spring flush of growth, however, it may be suspected that the flowering season of the variety will be rather late, since the spring growth did not appear this season until the end of March. The heavy crop of fruit produced last year probably prevented the tree from flowering this season. When first examined, in October, 1916, the tree was carrying more than 300 fruits. It ripened this crop—an unusually large one for a tree of such small size, when the size of the fruit is considered—in February and March, 1917, at which time they were all picked. They would probably have remained on the tree until June if they had been allowed to do so.

"The fruit is nearly spherical in form, of convenient size for serving a half fruit as a portion. It weighs 10 ounces or a little more. The surface is smooth, bright green, very attractive in appearance. The skin is sufficiently thick to make the fruit a good shipper and is of the characteristic Guatemalan texture. The flesh is rich yellow in color, quite free from fiber or discoloration, and very rich in flavor. The seed is tight in the cavity and slightly below the average in size. Considered from all points of view, it bears every indication of being an excellent little fruit.

"A formal description of the variety follows:

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[1] This and other varietal names for Mr. Popenoe's Guatemalan avocados are arbitrarily selected from appropriate words in the Maya language. It has seemed wiser thus to give these plants names which would indicate the origin of the variety than to give them English names that could convey no hint of the source whence the plants had come.

"Form almost spherical; size below medium, weight about 10 ounces, length 3½ inches, breadth slightly over 3 inches; base scarcely extended, the stem inserted almost squarely without depression; apex rounded, with a slight depression around the stigmatic point; surface undulating to finely pebbled, dull green in color with numerous very minute yellowish dots; skin not very thick, scarcely up to one-eighth of an inch over any portion of the fruit, separating readily from the flesh, woody, brittle; flesh yellow, greenish toward the skin, free from fiber or discoloration, of firm, smooth texture and rich flavor; quality excellent; seed rather small, nearly spherical in form, weighing slightly more than 1 ounce, tight in the seed cavity, with both seed coats adhering closely to the cotyledons." (*Popenoe.*)

44440. PERSEA AMERICANA Mill. Lauraceæ. **Avocado.**
(*P. gratissima* Gaertn. f.)

From Guatemala. Budwood collected by Mr. Wilson Popenoe, Agricultural Explorer for the Department of Agriculture. Received March to June, 1917.

"(Nos. 94, 110, 116, 138. Avocado No. 17.) *Nimlioh.* It is rare to find a large-fruited avocado which is at the same time very productive. In this variety, however, these two characteristics are both combined to an unusual degree. In addition, the quality of the fruit is excellent, the flesh being rich yellow in color, free from discoloration, and of very rich flavor. The habit of the tree and the character of the wood indicate that the variety may not be a very strong grower.

"The parent tree is growing in a sitio belonging to Trinidad Hernandez, Callejon de Concepción No. 28, Antigua, Guatemala. The elevation is approximately 5,100 feet. The soil is a very sandy loam, black, loose, deep, and undoubtedly very fertile. The tree stands close to the wall, with no other large trees close to it. It is very poorly cared for. Its age is not known, but it is probably 15 years. It is about 25 feet high, the trunk is 14 inches thick at the base, and the first branches 12 feet from the ground. The crown is broadly oval, of good form, and rather dense. It looks, however, as though the variety might be a diffuse grower when young, with long heavy shoots inclined to droop. The wood is unusually brittle, and the budwood very poor, the eyes being stalked or losing their bud scales and falling early. The tree is badly attacked by leaf-gall, and there are a good many scale insects on it.

"The elevation of Antigua, 5,100 feet, is not great enough to insure unusual hardiness in a variety, and pending a test in the United States it can only be assumed that this avocado is of about average hardiness for the Guatemalan race.

"The flowering season is from the latter part of February to the end of March. According to the owner of the tree, it always bears at least a few fruits, but it is to be expected that a tree which produces such a crop as this one did in 1917 will not bear heavily the following year. While an accurate count was not made, the crop this season was estimated at 300 to 400 fruits. The normal size of the fruit is between 2 and 3 pounds, but owing probably to the large number on the tree many do not develop to a greater size than 1 pound. Probably good culture and thinning would result in a crop of uniformly large fruits. The season of ripening is earlier than some, most of the fruits being fully ripe in February and March.

"In form this avocado is broadly oval, usually somewhat oblique. The surface is deep green and rather rough, while the skin is thick and woody. The

flesh is rich cream yellow in color, smooth and entirely free from fiber or discoloration. The flavor is of the very best, rich, bland, and pleasant. The seed, while large, is not large in comparison to the great size of the fruit, and the proportion of flesh to seed is quite satisfactory.

"Those who are interested in large avocados should by all means give this variety a trial. Its only visible defect is the tendency to produce weak branches, but if pruning and good culture can produce a reasonably shapely and vigorous growth the variety seems likely to prove of great value in the United States.

"A formal description of the fruit follows:

"Form broadly oval, sometimes oblong-oval, and always more or less oblique; size extremely large, perfectly developed fruits weighing 36 to 45 ounces and measuring 5½ to 6 inches in length by 4½ to 5 inches in breadth; stem rather short and very stout, inserted obliquely without depression; base slightly flattened obliquely, not decidedly so; apex rounded to obliquely flattened; surface heavily pebbled in most instances, occasionally lightly pebbled, deep green in color, with numerous irregular, large, yellowish dots; skin moderately thick, one-sixteenth of an inch toward the base of the fruit and one-eighth of an inch toward the apex, separating readily from the flesh, coarsely granular and brittle; flesh firm, oily, smooth, rich cream yellow, tinged with green toward the skin, free from fiber or discoloration and very rich, pleasant flavor; quality excellent; seed medium sized, roundish conic or oblate-conic, weighing 4 ounces, tight in the cavity with both seed coats adhering closely." (*Popenoe.*)

44441 and 44442.

From Tucuman, Argentina. Presented by Mr. E. F. Schultz, horticulturist, Tucuman Experiment Station. Received March 27, 1917.

44441. CAESALPINIA MELANOCARPA Griseb. Cæsalpiniaceæ. **Guayacán.**

"The *guayacán* is a very hard-wooded tree, tall and spreading, with smooth white bark. The heavy lumber is used in the manufacture of heavy 2-wheeled carts and for similar objects. It is also cut for railroad ties and for fence posts, lasting in this capacity 30 years and more. It is frequently difficult to drive nails into even the green wood. The seed pods contain a great deal of tannin and are used for ink manufacture." (*Schultz.*)

44442. ZIZIPHUS MISTOL Griseb. Rhamnaceæ. **Mistol.**

A spiny tree from Argentina, up to 30 feet in height, with oval, leathery, hoary pubescent leaves about an inch long and edible black fruits one-third of an inch in diameter, with large stones. The wood is red and hard, but is not known to be of commercial use.

See S. P. I. No. 40853 for previous introduction.

44443. PERSEA AMERICANA Mill. Lauraceæ. **Avocado.**

(*P. gratissima* Gaertn. f.)

From Guatemala, Guatemala. Seeds purchased by Mr. Wilson Popenoe, Agricultural Explorer for the Department of Agriculture. Numbered March, 1917.

A collection of seeds sent in for stock purposes.

44444 and 44445. PERSEA AMERICANA Mill. Lauraceæ. **Avocado.**
(*P. gratissima* Gaertn. f.)

From Antigua, Guatemala. Seeds collected by Mr. Wilson Popenoe, Agricultural Explorer for the Department of Agriculture. Received March 7, 1917. Quoted notes by Mr. Popenoe.

The plants grown from these seeds are not to be budded, but will be distributed as seedlings to those who wish to plant a seedling tree of good parentage on the possibility of obtaining a valuable new variety.

44444. "(No. 88a. From the Finca el Manchen, February 16, 1917.) The variety is very productive. The fruit is pyriform, about a pound in weight, deep purple in color and slightly rough on the surface; the skin is thick and the flesh of deep yellow color and rich flavor. The seed is moderately small, tight in the cavity."

44445. "(No. 89a. Avocado No. 16. From the Finca Santa Lucia, February 16, 1917.) This is a fruit of good large size, with a rather small seed. It is a productive variety, the parent tree, which is about 20 feet high with a slender crown and little fruiting wood, carrying 100 fruits this season.

"Form oblong-spherical; size above medium to large, weight 15 to 17 ounces, length 4¼ inches, breadth 3¾ inches; base flattened, with the stem inserted slightly to one side in a shallow, flaring cavity; apex obliquely flattened; surface smooth to undulating, deep purple in color, almost shining, with numerous rather large yellowish dots; skin moderately thick, slightly over one-eighth of an inch, coarsely granular, separating readily from the flesh, but very brittle; flesh pale cream color, tinged pale green toward the skin, of mild, pleasant flavor; quality good; seed small in comparison to size of fruit, decidedly oblate, weighing about 2½ ounces, tight in the cavity, with both coats adhering closely. Season February to June."

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