

SB 109

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# 7



Issued November 16, 1917

# NEW PLANT INTRODUCTIONS

DESCRIPTIONS OF IMPORTED SEEDS AND PLANTS  
WHICH WILL BE SENT TO EXPERIMENTERS

SB 109

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no. 7

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## SEVENTH ANNUAL LIST

1917-18

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**SPECIAL NOTICE.** THOSE WHO DESIRE  
TO EXPERIMENT  
WITH ANY OF THESE SEEDS OR PLANTS SHOULD  
APPLY WITHOUT DELAY, AS SHIPPING ARRANGE-  
MENTS ARE NOW BEING MADE. THE PLANTS  
ARE ALLOTTED AS THE REQUESTS  
ARE RECEIVED

U. S. OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION  
BUREAU OF PLANT INDUSTRY  
UNITED STATES DEPARTMENT OF AGRICULTURE

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WASHINGTON  
GOVERNMENT PRINTING OFFICE  
1917

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#### Collaborators:

Aaron Aaronsohn, *Haifa, Palestine*.  
Thomas W. Brown, *Cairo, Egypt*.  
H. M. Curran, *Laurel, Md.*  
M. J. Dorsey, *University Farm, St. Paul, Minn.*  
Dr. Gustav Eisen, *New York City*.  
E. C. Green, *Serviço do Algodão no Brazil, Rio de Janeiro, Brazil*.  
A. C. Hartless, *Scharunpur, India*.  
Barbour Lathrop, *Chicago, Ill.*  
H. Nehrling, *Gotha, Fla.*  
Miss Eliza R. Scidmore, *Washington, D. C.*  
Charles Simpson, *Little River, Fla.*  
H. P. Stuckey, *Experiment, Ga.*  
Dr. L. Trabut, *Director, Service Botanique, Algiers, Algeria*.  
H. N. Whitford, *School of Forestry, New Haven, Conn.*  
E. H. Wilson, *Arnold Arboretum, Jamaica Plain, Mass.*

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F. S. &amp; P. I.—3.

## NEW PLANT INTRODUCTIONS, 1917-18.

## INTRODUCTORY NOTE.

This catalogue describes more than 500 species or varieties of foreign plants, most of which have not been grown to any extent in this country. Our familiarity with them is consequently very limited, and they are not like standard seeds and plants, the behavior of which can be predicted with more or less certainty.

They have been imported for trial because of some direct or indirect use which it is believed can be made of them by Americans. They are introduced primarily for use by the experts of the United States Department of Agriculture and the State experiment stations of the country, but many of them will be available to such private experimenters as have the necessary facilities and desire to test them.

Since these plants must ultimately be grown by private individuals before their commercial success is assured, it may be well to point out that private experimenters who test these problematical new plants are assisting in a very practical way in the plant-introduction work of the country even though they are not paid for their work. It is often around the successful cultivation of a new introduction by some private individual that a new plant industry begins.

The plants imported by the United States Department of Agriculture through this office are in most cases so little known to experimenters that their scientific or even common names alone would convey little idea of their character. To distribute them under a name simply, depending upon the experimenter to look them up in a catalogue, entails a burden upon the investigator which often results in his being at the close of the year ignorant of the uses of the new plant. To enable him at any time to refresh his memory as to the use of any one of these introductions, special labels have been devised, upon which are printed about sixty words of description. These descriptive labels are attached to the plants when they are sent out. This catalogue is made up of descriptions almost identical with those which will appear upon the labels.

The information on the labels consists of the Seed and Plant Introduction (S. P. I.) number, under which the plants are known at all times, of the scientific name, a common name (when one has been

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adopted for this country), a brief description of the plant with its uses, and, where possible, a suggestion of the general region to which the plant is likely to be adapted.

In some instances few or no plants of the exact number given in the description may be available for distribution, but in such cases plants of the same species and variety under another introduction number may be substituted.

With this catalogue is sent a complete check list of all plants ready for distribution during the season of 1917-18. This includes not only those plants of which descriptions appear in the catalogue, but a large number which are not so described, either because only a few plants are now available for distribution or because the data available regarding them are too meager to warrant the preparation of a label.

Requests for material in this catalogue should be made by checking the plants wanted in the check list sent out with the catalogue and after filling out the blanks on the front of that list returning it *promptly* to the Office of Foreign Seed and Plant Introduction. It will aid this office in its distribution work if each experimenter will fill out all blanks, check the list carefully, and *make no other notes or requests on the check list itself*. Requests for plants not on the check list or notes on plants received heretofore should be made in a separate letter.

The number of plants available for distribution under many of the numbers listed is quite limited, and it will therefore be impossible to fill all requests.

All seeds and plants imported by this office are examined by the inspectors of the Federal Horticultural Board upon arrival, and the plants grown from these original importations are further inspected before being sent out. Every effort is being made to insure the distribution only of seeds and plants which are perfectly healthy and do not harbor any injurious plant diseases or insect pests.

Since the electrotypes slugs of all descriptions in this and previous catalogues are kept in stock in this office, experimenters having plants growing from previous distributions who desire to relabel them can secure new labels by sending in a twig of the plant the label of which is lost and furnishing information as to the year in which it was sent and any other available data.

DAVID FAIRCHILD,  
*Agricultural Explorer in Charge.*

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION,  
Washington, D. C., September 1, 1917.



## DESCRIPTIVE LIST.

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27810. **ABELMOSCHUS ESCULENTUS.** **Okra.** From F. N. Meyer, Erivan, Caucasus, Russia. A native Caucasian variety of okra, said to be of good quality. To be tested under irrigation in the hot-summered, arid, and semiarid sections of the United States.

**ACACIA SCORPIOIDES.** **Gum arabic tree.** A small white-flowered, hardwood tree, with spiny stipules. It is from this tree that the gum arabic of commerce is obtained. Requires a dry, warm climate.

40710. **ACANTHOPANAX LEUCORRHIZUS.** From F. N. Meyer, Chishan, Kansu, China. Ornamental araliaceous shrub, of erect, rather open habit, with attractive foliage and fruit. The leaves are digitately 3 to 5 foliolate, bright green, 3 to 5 inches long. The umbels of small greenish flowers are followed by masses of black berries. Of possible value as a cover shrub under trees or for shady corners.

42821. **ACER BUERGERIANUM.** **Maple.** Seedlings grown from seed collected at Ningkwofu, Anhwei, China. Small, deciduous tree with 3-lobed leaves,  $1\frac{1}{2}$  to  $3\frac{1}{2}$  inches long, shiny dark green above, somewhat paler and dull beneath. Flowers small, in downy umbel-like clusters. Native of China and Japan. Reported to grow well at Kew, England, and is probably hardy throughout most of the United States. Sometimes known as *A. trifidum*.

18578. **ACER TRUNCATUM.** **Maple.** From F. N. Meyer, Weitsan Mountains, near Peking, China. Tree up to 25 feet high, with handsome, dense foliage. The leaves are  $2\frac{1}{2}$  to 4 inches across, with usually five narrow lobes, light green when mature, but purplish when unfolding. One of the most beautiful of the Chinese maples. Half hardy in Ottawa.

**ACHRADELPHA VIRIDIS.** **Injerto.** From Guatemala. Finer tree than the true sapote (*A. mammosa*). Adapted apparently to cooler climate. Deserves trial in Florida. Fruit yellowish green, with russeted ends; sweetish, smooth, tender, yellow pulp, tinged with brown, with no astringency. Will be liked by those who like Japanese persimmons.

37382. **ACROCOMIA SCLEROCARPA.** **Macaúba palm.** Collected by Messrs. Dorsett, Shamel, and Popenoe, Lavras, Minas Geraes, Brazil. Beautiful pinnate-leaved palm; strong, rapid grower. Produces clusters of fruit weighing 60 to 80 pounds. Fruits consist of a hard kernel surrounded by white, starchy, mucilaginous material. Hogs prefer them to corn and fatten on them.

42683. **ACTINIDIA CALLOSA HENRYI.** From Vilmorin-Andrieux & Co., Paris, France. Ornamental climbing plant, with fragrant white flowers. The persistent leathery leaves are of a bronze-red color, passing into a metallic green and changing in the autumn to a beautiful reddish color. Introduced by E. H. Wilson from central China, where it had been discovered earlier by Aug. Henry.

**ACTINIDIA CHINENSIS.** **Yangtaw.** Deciduous, trailing vine, with handsome white flowers, occurring wild in eastern China. Dioecious; the pistillate plants produce fruits resembling small plums in size and shape, with delicate gooseberry flavor. Eaten raw; makes delicious jelly. For testing for porch decoration and fruiting in the mild-wintered regions of the United States.

**ADANSONIA DIGITATA.** **Baobab tree.** Central African tree up to 60 feet high, with enormous trunk, said to reach 30 feet or more in diameter. Wood soft, leaves somewhat resembling those of the horse-chestnut. The bark furnishes an extremely strong fiber often used for rope making. The fruits are called "monkeys' bread." They are 8 to 12 inches long and have cells filled with slightly acid, agreeable pulp. The leaves are said to be used for medicinal purposes.

42355. **ADENANTHERA PAVONINA.** **Coral or Circassian bean.** From Mr. Eugene Jaeglé, Ivoloïna, Madagascar. Large, handsome, ornamental tree which yields a hard, durable wood sometimes used in India as a substitute for red sandalwood. Also yields a dye. The beans are used as food by the natives of India; also as beads. Native of tropical Asia.

10727. **ADENOCARPUS FRANKENIOIDES.** From Alaricus Delmard, Monte, Canary Islands. Evergreen leguminous shrub, with velvety branches, delicate, hairy leaves, and yellow flowers produced in terminal racemes. Very ornamental for planting in shrubbery.



39837. **ADENOPHORA VERTICILLATA.** From Mr. L. S. Palen, Harbin, Manchuria. A Campanulalike border perennial with whorled leaves and pale-blue bell-shaped flowers arranged in irregular clusters near the top of the stem or along the lower part of the stem in whorls. Said to make delicious early greens for stewing and to possess an excellent flavor superior even to spinach.

**AESCHYNOMENE ELAPHROXYLON.** **Ambash** or **pith tree.** Ornamental leguminous shrub or small tree of tropical Africa. A very rapid grower with spiny branches, compound locustlike leaves, and brilliant orange pealike flowers  $1\frac{1}{2}$  inches deep. The wood is exceedingly light and is used for rafts, etc. The tree grows in or near the water, often rapidly pushing out from the shores. Of possible value for paper pulp.

**ALBIZZIA AMARA.** Moderate-sized ornamental and timber tree, with graceful, leathery foliage and globular heads of yellow flowers with long, exserted, pinkish stamens. Wood strong, fibrous, close grained, and durable. Sapwood large; heartwood purplish brown, beautifully mottled, extremely hard, with alternate light and dark bands. The tree also yields a good gum not very much known. Native of Abyssinia and western India.

**ALBIZZIA CHINENSIS.** A tall, fast-growing subtropical shade tree, with graceful, leathery foliage. The gum is considered very valuable as a size in the manufacture of Nepal paper. The dark-colored wood of this species is much softer than that of other species of the genus. Hardy in subtropical countries. Known also as *A. stipulata*.

**ALEURITES FORDII.** **Tung** or **wood-oil tree** of the Yangtze Valley, China. The large seeds borne in fruits the size of small apples yield 28 per cent of one of the best drying oils known, large importations of which are made into America. Deciduous tree with white flowers; stands frost; 7-year-old tree near Tallahassee, Fla., bore one bushel of fruit; seed not edible.

**ALEURITES MOLUCCANA.** **Lumbang.** A tropical euphorbiaceous tree with grayish green leaves, usually 3 to 5 lobed. The hard-shelled seeds yield an oil that is used in soap making and for other purposes. The roasted kernels are sometimes eaten to a very slight extent, though they are usually rather strongly purgative. Native of Pacific islands.

**ALEURITES TRISPERMA.** **Soft lumbang** or **balukanad.** A tropical euphorbiaceous tree much resembling the true lumbang (*A. moluccana*), but with leaves more nearly entire, and usually strongly cordate. The seeds are soft shelled and much more easily broken than those of *A. moluccana*, which is sometimes distinguished as the "hard lumbang." The seeds yield a drying oil said to be scarcely distinguishable from tung oil. Native of the Philippines.

43413. **ALIBERTIA EDULIS.** From Mr. H. M. Curran, Tierras de Loba, Bolivar, Colombia. Tropical American rubiaceous shrub with leathery leaves, small clusters of white flowers, and edible yellow fruits. The fruit, which is about the size of a small lemon, is said to have a very agreeable flavor. It is called *marmeladinha* by the Brazilians; and the entire plant is called *puruhy*.

41056. **ALLIUM CEPA.** **Onion.** From Col. J. N. Merrill, Teheran, Persia. A very large onion found in western Persia at an altitude of 4,000 feet, in gravelly soil. The onions are as much as 6 inches in diameter by 4 inches in depth. Their flavor is highly esteemed by the Persians, who eat them raw.

**ALLIUM FISTULOSUM.** **Chinese onion** or **winter leek.** Sometimes known as the Welsh onion. Somewhat similar to the common onion, *A. cepa*; but having no distinct bulb, the base or crown being merely slightly enlarged. It possesses some variation in flavor and length of the crown, and is probably open to modification under various cultural methods.

33750. **AMPELODESMA BICOLOR.** From Dr. L. Trabut, Algiers, Algeria. A **bunch grass** which is very abundant on poor soil in Algeria. Reported as possibly the grass which is so extensively gathered in that country for paper making. Grows in bunches; has long, tough leaves.

**AMPELOPSIS ACONITIFOLIA.** From F. N. Meyer, China. A very handsome vine, related to the Virginia creeper, with finely cut, light-green leaves, downy on the veins; dull-yellow berries. It is reported to be of considerable value as a porch, arbor, or pergola vine, especially in semiarid regions. It grows rapidly and is comparatively hardy.

21907. **AMPELOPSIS HUMULIFOLIA.** From F. N. Meyer, Pangshan, Chihli, China. A woody vine, bearing large, deeply lobed leaves and small clusters of bluish white berries. Grows in dry, rocky situations. May be of use as a cover plant for large rockeries or for planting on terraces where the branches can hang down.

**AMYGDALUS COMMUNIS. Jordan almond.** An important commercial variety of almond, of finest quality, annually imported from Spain in large quantities and used extensively in the manufacture of the best grades of confectionery. On California rich soils the nuts produced are coarser than on thin, light soils of the Spanish Sierras. On *A. davidiana*.

28801. **AMYGDALUS COMMUNIS. Almond.** From F. N. Meyer, Batum, Caucasus. Seedling of a very small almond, remarkable for its thin shell and good flavor. Believed to have originated in Persia. Some good horticultural varieties may result from the fruiting of this collection of untested seedlings.

29217. **AMYGDALUS COMMUNIS. Almond.** From F. N. Meyer, Kokand, Russian Turkestan. A small, very prolific, soft-shelled variety of almond, called *Khandak badam*. As this variety is cultivated in a semiarid climate with long, hot summers and moderately cold winters and on decidedly alkaline soils, it may prove hardier than almonds introduced from southern Europe.

30408. **AMYGDALUS COMMUNIS. Almond.** From F. N. Meyer, Yarkand, Chinese Turkestan. A hard-shelled variety of almond imported from northern India and sold in the bazaars there. May be of value as a stock. Budded on *A. davidiana*.

33216. **AMYGDALUS COMMUNIS. Esperanza almond.** From Granada, Spain, through Walter T. Swingle. A variety recommended for culture by Pedro Giraud, nurseryman, of Granada, who points out that almonds give best results on warm, rocky, limestone soils. Grafted on the wild Chinese stock (*A. davidiana*). For trial in the California and Arizona almond regions.

33217. **AMYGDALUS COMMUNIS. Dela P. almond.** From Granada, Spain, through Walter T. Swingle. A large, early, hard-shelled variety, recommended by Pedro Giraud, nurseryman, of Granada, who points out that almonds give best results on warm, rocky, limestone soils. Grafted on the wild Chinese stock (*A. davidiana*). For trial in California and Arizona.

33218. **AMYGDALUS COMMUNIS. Desmayo almond.** From Granada, Spain, through Walter T. Swingle. Recommended by Pedro Giraud, nurseryman, as more resistant to frost than other hard-shelled varieties. The peculiar attachment of the flower turns it downward, and corolla and sepals protect organs and insure fertility when other varieties lose their crops from frost. On *A. davidiana*.

**AMYGDALUS DAVIDIANA.** From F. N. Meyer, Tientsin, China. Important wild dry-land peach used commonly as stock for stone fruits in China. Resists severe droughts and is not affected by quite alkaline soils. Strong, vigorous grower; hardier than the *Chili* peach in central Iowa; is an especially early stock in California.

**AMYGDALUS FENZLIANA.** From Tiflis, Caucasus. Shrubby ornamental almond, producing attractive white flowers in early spring. Recommended for testing as stock for almonds and other stone fruits in mild-wintered regions of this country; also for breeding experiments to obtain a dwarf drought-resistant strain of almonds for similar climatic conditions.

**AMYGDALUS MIRA.** **Wild Chinese peach.** From E. H. Wilson, of the Arnold Arboretum. Thirty-foot tree, discovered north of Tatsienlu, China, at an altitude of 9,000 feet. Fruit 1 inch in diameter; fuzzy, with smooth stone; edible. Shows tendency to bloom late in the spring; may prove useful for breeding purposes or as stock. Apparently hardy in Massachusetts. Hitherto distributed as *Prunus mira*.

**AMYGDALUS PERSICA.** **Sutter Creek peach.** A peach of large size and good quality; ripens a little later than the well-known *Elberta*, which it closely resembles. Its chief value, however, lies in its remarkable resistance to peach leaf-curl.

24807. **AMYGDALUS PERSICA.** **Peach.** Obtained by Prof. N. E. Hansen in Tashkend, Turkestan. A small, round, white, free-stone peach; white at pit, apex pointed. A very good peach for table purposes, its flesh being juicy and melting; but it is too small for commercial use.

24915. **AMYGDALUS PERSICA.** **Chinese peach.** From Canton, China, through Mr. G. W. Groff. Coming from South China, which has a hot, humid climate where ordinary peaches fail, this variety may prove valuable for subtropical regions, although the fruit produced in California was too strong in flavor and too astringent to make the variety valuable there.

33219. **AMYGDALUS PERSICA.** **Vainqueur peach.** From Sr. Pedro Giraud, Granada, Spain. One of the earliest peaches to ripen. A medium-sized peach with white skin flushed with red. Flesh white, soft, and juicy; pit pink. Not a good shipper, but will prove an excellent home fruit.



36485. *AMYGDALUS PERSICA*. **Shalil**. From Consul H. D. Baker, Kurram Valley, Northwest Frontier Province, India. The shalil grows like a peach, which it much resembles in fruit and blossom. The flesh is yellow and sweet, but it is not so juicy as that of the peach. It is said to be particularly valuable for cooking or canning, owing to the hard flesh. Of interest to breeders.

36717. *AMYGDALUS PERSICA*. **Peach**. From Mr. Alfred Welhaven, Unsan, Chosen (Korea). Bud wood obtained near Pingyang, Chosen, where the best blood-red peaches are said to grow.

36724. *AMYGDALUS PERSICA*. **Peach**. From Mr. F. N. Meyer, Kalgan, Chihli, China. Reported as a small but hardy peach, cultivated in sheltered localities in the northern parts of Chihli Province. To be tested in regions north of the peach belt proper.

*AMYGDALUS PERSICA NECTARINA*. **Crosby nectarine**. From Rev. P. J. P. Hendriks, Kashgar, Chinese Turkestan. As fruited in America, a juicy, good, rather thin-skinned, medium-sized nectarine, suited to short, hot summers. Not a good keeper. Like all nectarines, more subject to brown-rot than the peach. Careful spraying is necessary to ripen a crop.

*AMYGDALUS PERSICA NECTARINA*. **Quetta nectarine**. From Lieut. W. L. Maxwell. Seedling from the best nectarine tree in Quetta, British Baluchistan. Spreading, vigorous tree bearing immense quantities of large fruits, green tinged with red. Fruited in California. Pronounced by experts to be exceptionally fine and worthy of wide dissemination because of its large size and good color, notwithstanding the thin skin. Budded on *A. davidiana*.

26503. *AMYGDALUS PERSICA NECTARINA*. A large, freestone **nectarine** from E. Cotes, Simla, India. Said to have come from Chinese Turkestan. Fruit creamy yellow, with red blush. Flesh creamy white, red at stone. Juicy, crisp, subacid, and of very good quality. Skin rather tough, but parts readily from the flesh. A good shipper.

30648. *AMYGDALUS PERSICA NECTARINA*. **Nectarine**. From Mr. F. N. Meyer, Guma, Chinese Turkestan. A small, late nectarine with white fruits. Said to have a fresh, sweet taste and to possess good keeping qualities. Especially fit to be grown in arid or semiarid regions under irrigation.

37559. **AMYGDALUS PEDUNCULATA.** From Mr. M. M. Timogowitsch, Chita, Transbaikalia, Siberia. A bushy, wild peach,  $1\frac{1}{2}$  to  $6\frac{1}{2}$  feet high, small oblong, strongly dentate leaves, and solitary pale-red flowers. A very desirable hardy shrub found in the extremely cold region around Lake Baikal, Siberia, and in northeastern Mongolia. Character of fruit unknown, but may have value for breeding purposes.

**AMYGDALUS TANGUTICA.** Tangutian almond. From Kansu, China. A very compact, bushy shrub, with tortuous spiny branches, usually 4 to 10 feet high but often attaining a height of 20 feet in sheltered places. Fruits very variable; skin thin, downy; stones ranging in size from that of a cherry to that of a large apricot. Very hardy, strongly drought resistant. Possibly of value as a stock.

40001. **AMYGDALUS** sp. **Wild peach.** Seedlings from seeds purchased on the streets of Sianfu, Shensi, China, by F. N. Meyer. A low, bushy form of spreading habit when wild, but sometimes a 20-foot tree when cultivated. Leaves much smaller, darker green, and more slender than those of the cultivated peach. Varieties appear to be free from disease and prolific; fruit small; used successfully as a stock and as an ornamental.

**ANACARDIUM OCCIDENTALE.** **Cashew nut.** Medium-sized, evergreen tree producing kidney-shaped nuts 1 inch long, which are delicious when roasted and command a high price in European markets. The fleshy receptacle contains a juicy, slightly astringent meat, which is eaten raw or preserved and is also used as an ingredient for a refreshing, pleasant drink. The dark-brown volatile oil from between the two layers of the shell sometimes causes serious skin irritation similar to *Rhus* poisoning.

**ANNONA CHERIMOLA.** **Cherimoya.** Medium-sized shrub or dwarf tree, with evergreen foliage and small yellowish flowers. Fruits roundish, conical, or heart shaped, 3 to 6 inches in diameter, with pleasantly flavored, sweetish pulp of the consistency of ice cream, with black seeds irregularly embedded in it. One of the most delicious fruits of the Tropics and the best of the *Annonas* for shipping purposes. Has proved well adapted to cultivation in southern Florida and California.

**ANNONA GLABRA.** **Alligator-apple.** A small to medium sized evergreen tree, sometimes attaining a height of 45 feet, bearing inedible fruits, the size of a *Yellow Bellflower* apple, with a smooth, leathery skin, green at first, turning yellow. A swamp-loving tree of the American Tropics, introduced for trial as a stock for other edible-fruited *Annonas*.



42988. **ANNONA MARCGRAVIA.** From Mr. H. M. Curran, El Banco, Colombia. Wild annonaceous tree of medium size, somewhat resembling the sour-sop, *A. muricata*. The fruit is about 6 inches in diameter, more or less spheroidal, and edible; but the slightly acid, somewhat bitter taste of the pulp and peculiar odor render it unpleasant to some people. Native of tropical South America.

**ANNONA PURPUREA.** A small tree up to 25 feet high, bearing large, nearly spheroidal, edible fruits, 6 to 8 inches in diameter, covered with a brownish feltlike coat and bearing numerous pyramidal protuberances. Pulp fleshy, fibrous, fragrant, possessing a flavor something like that of a mango. The fruits differ considerably in flavor, but are undoubtedly capable of improvement by careful selection. Native of the Tropics.

**ANNONA SQUAMOSA.** **Sugar-apple.** Indigenous to the Malay Islands, but now cultivated throughout the Tropics and subtropics. Superior varieties are readily propagated by budding on seedlings of the same species. The roundish fruits, about 4 inches in diameter, contain a soft, granular pulp of pleasant, sweet flavor, inclosing numerous seeds. More difficult to ship than the cherimoya.

41384. **ANNONA** sp. From Mr. W. S. Curley, Cajabon, Guatemala. A small-fruited anona probably allied to *A. sericea*. Fruits yellow, corrugated, of excellent flavor, but containing many seeds. Called *tzumuy pac* in the Indian language of Guatemala. Probably tender.

42723. **ANNONA** sp. **Guanarvito.** From Mr. H. M. Curran, San Martin de Loba, Bolivar, Colombia. Low shrub with glossy, ornamental leaves. The small fruit is orange-red, and the flesh is said to be rather dry as compared with the cultivated varieties. Found forming dense thickets in the lowlands. Suggested as possibly a good hedge plant.

**ANTIDESMA BUNIA.** **Bignay.** From the Philippine Islands. A small, handsome, euphorbiaceous tree, with dark evergreen leaves of bitter flavor. Fruit about the size of a pea, dark red in color, ripening to black, sweet subacid in flavor, produced in long racemes like the currant. It is used in Java for preserving, but is also eaten raw.

**ARALIA CORDATA.** **Udo.** A Japanese vegetable suitable for wide cultivation for its blanched, edible shoots. Plant 3 to 4 feet apart. Plants grow bushy and yield edible shoots for nine years. To blanch shoots, mound with earth or cover with closed draintile in early spring. Peel, slice into ice water, and serve with French dressing, or stew and serve like asparagus.

**ARRACACIA XANTHORRHIZA.** **Arracacha.** A perennial herb, 2 to 3 feet high, with deeply divided leaves and small heads of purple flowers. The large and fleshy roots, which have a peculiar pleasant flavor and are slow to reach maturity, form a most important article of food in South and Central America. Cooked like parsnips, which they resemble. For the Gulf States and California.

42791. **ARTEMISIA CINA.** **Wormseed.** From the Jardin Botanique, Tiflis, Caucasus, Russia. Source of the drug *santonica*. Low, straggly undershrub, abounding in the deserts of Turkestan. The drug is composed of the dried, unexpanded flower heads, and forms a yellowish green (at length, greenish brown). somewhat glossy mass having a strong, somewhat camphorlike odor and a bitter taste. Used as an anthelmintic.

23015. **ASPARAGUS FILICINUS.** From F. N. Meyer, Soochow, Kiangsu, China. Very ornamental, hardy perennial of graceful, feathery appearance suggesting a delicate fern. Often grown as an ornamental pot plant. Much resembles the so-called "asparagus fern," *A. plumosus*, which is a popular decorative plant.

42773. **ASPARAGUS SCANDENS.** From the Botanic Gardens, Madrid, Spain. Slender climbing vine, up to 6 feet, with freely branching green stems, the branches with twigs and leaves (cladodes) in one plane. This ornamental asparagus thrives best in an intermediate house. Good as a pot plant; also for table decoration when grown on strings.

42775. **ASPARAGUS TRICHOPHYLLUS.** From the Botanic Gardens, Madrid, Spain. Hardy herbaceous perennial vine from northern Asia, twining to a height of 6 feet. It has leaves (cladodes) very similar to those of ordinary asparagus.

23014. **ASPARAGUS** sp. **Asparagus.** From F. N. Meyer, Hangchow, Chekiang, China. A very small, herbaceous cypress-like asparagus attaining a height of only 3 to 5 inches; used in China as an edging along pathways in gardens. Requires a shady situation. This seems to be a new species, but it has not yet flowered in America.

23016. **ASPARAGUS** sp. **Asparagus.** From F. N. Meyer, Shanghai, Kiangsu, China. Reported as a plummy, herbaceous asparagus, used by the Chinese as an ornamental pot plant and as greenery in floral bouquets. Requires a shady situation. An undescribed species, related to *A. schoberianus*, which has not yet flowered in America.

43999. **BAILEYA MULTIRADIATA.** From Dr. David Griffiths, Santa Rita Mountains, Ariz. A very handsome ornamental plant, related to cosmos. Densely woolly biennial or perennial, with alternate, compound leaves and long-stalked heads of bright-yellow flowers. Common on the mesas of the Southwest in early spring; often continues flowering until late in the fall.

**BAMBOS TULDA. Bamboo.** One of the most useful plants of Bengal, found growing in great abundance, flowering in May. Tender young shoots, 2 feet high, are pickled and used for food. Fiber used for mats, baskets, window blinds, and fans; wood used for scaffolds, roofing, etc. Injured but not killed by a temperature of 20° F.

**BARLERIA CRISTATA.** A small blue-flowered shrub, cultivated in the Philippines as a hedge plant. Said to be the best in the Tropics for this purpose and to flower all the year through. Often used as a garden shrub in India, where it is native, because of its showy, dense spikes of blue (sometimes purplish or white) flowers. Roots and leaves are used in India to reduce swellings. Seeds supposed to be an antidote for snake bites.

42381. **BAUHINIA CANDICANS. Caoba.** From Señor Benito J. Carrasco, Buenos Aires, Argentina. Beautiful ornamental tree with light-green bifid leaves and showy cream-colored flowers over 3 inches across. Said also to yield excellent timber. Native of Uruguay and temperate Argentina.

22614. **BERBERIS CHINENSIS. Barberry.** Through F. N. Meyer, from Shinglungshan, Chihli, China. A low barberry of very spreading habit. The scarlet berries remain on the shoots for a long time. Recommended for trial as a sand and bank binder in very dry regions.

36737. **BERBERIS CHINENSIS. Barberry.** From F. N. Meyer, Hsiao Wutaishan, Chihli, China. A shrub of low growth, 1 to 3 feet high, found between boulders and rocks at altitudes of 4,000 to 6,000 feet. Becomes very showy toward the end of summer, when the berries, which are produced in great abundance, assume a bright coral-red color. Of value as an ornamental for rockeries, etc., in the Northern States.

**BERBERIS FREMONTI. Barberry.** An ornamental and fruit-bearing shrub, native of southern and central Texas. In some localities where the species is very abundant, jellies made from the dark-blue berries are offered for sale on the markets. Exceedingly variable bush, 4 to 12 feet in height, with spiny leaves and small oval fruits about the size of currants.

40208. **BERBERIS GLAUDESCENS.** **Barberry.** Presented by the Botanic Garden, Nancy, France. Shrubby barberry, native of Uruguay and southern Brazil, with 3-parted brownish yellow spines, one-fourth to two-thirds of an inch long; nearly sessile, entire, smooth but slightly whitened leaves; and globose flowers about the size of those of the common barberry, *B. vulgaris*.

32920. **BERBERIS GLOBOSA.** **Barberry.** From La Mortola Garden, Ventimiglia, Italy. Ornamental shrub, 6 to 8 feet in height, with very dark, reddish brown branches; 3-parted spines; rigid, clustered, very narrow leaves; and flowers about the same size as those of the common barberry, *B. vulgaris*. Native of the Andean region in Colombia and perhaps spreading farther south.

27119. **BERBERIS PACHYACANTHA.** **Barberry.** From the Royal Botanic Gardens, Kew, England. Ornamental shrub, up to 6 feet in height; with brown thorns, three-fourths of an inch long; somewhat leathery, finely toothed, bright-green leaves, 3 inches or more in length, and small racemes (2 inches long) of rather large yellow flowers. Native of the slopes of the Himalayas, at an altitude of about 10,000 feet.

40681. **BERBERIS POTANINI.** **Barberry.** From F. N. Meyer, Hsiku, Kansu, China. A shrub 3 to 5 feet high, with rather stout branches. Very spiny, glistening foliage, bearing a profusion of scarlet berries nearly half an inch long. Remarkable for its large fruit and scarlet leaves in the fall. Very drought resistant.

28380. **BERBERIS THUNBERGH**  $\times$  **VULGARIS ATROPURPUREA.** **Hybrid barberry.** Produced by Dr. Walter Van Fleet. Very handsome yellow-flowered shrub of somewhat more open habit than *B. thunbergii* and possessing slightly larger leaves, which, however, retain the beautiful deep-purple color of *B. vulgaris atropurpurea*. A very promising ornamental, deserving trial as a park, lawn, or garden shrub.

**BERBERIS WILSONAE.** **Mrs. Wilson's barberry.** A dwarf, much-branched shrub, densely clothed with gray-green leaves about half an inch long, which turn a beautiful crimson in the fall. Spines nearly an inch long. Flowers a rich golden. Noteworthy for its nearly round, coral or salmon red, somewhat translucent fruits, which are borne very abundantly. Discovered by E. H. Wilson in western China.



40687. **BERBERIS** sp. **Barberry**. From F. N. Meyer, Kangoba, Kansu, China. An ornamental barberry of very low growth, being only 1 to 3 feet high. The leaves are very small and the very ornamental bright-scarlet berries are produced in great profusion. Found along embankments at altitudes of 6,000 to 10,000 feet. Of value as a border shrub in the colder sections of the United States.

42726. **BIXA SPHAEROCARPA**. **Achuete**. From Mr. H. M. Curran, San Martin de Loba, Colombia. Large quick-growing shrub or small tree closely allied to the arnotto, *B. orellana*, from which it differs in having spherical fruits and leaves covered on the under side with small scales. The seed yields a dye which is said to be indistinguishable from arnotto dye. Native of Venezuela and Colombia.

**BOMBAX MALABARICUM**. **Red silk-cotton tree**. A beautiful, semitropical, deciduous, Indian shade tree, the bark of which furnishes a good fiber for cordage and the seeds a silky cotton used for stuffing pillows, etc.

**BRASSICA PEKINENSIS**. **Pe-tsai** or **Chinese cabbage**. From various sources in North China. A fall cabbage, *not suitable for spring planting*, as it goes to seed. Sow in July in rows; begin manuring heavily when 4 inches high. Harvest after first light frost; heads long, cylindrical, not very firm. By cutting off all green leaf tips it can be cooked free from the penetrating cabbage odor.

**BUCHANANIA LATIFOLIA**. **Piyar**. Anacardiaceous tree about 30 feet high, bearing small drupes with edible kernels nearly the size of almonds, which they somewhat resemble in taste. They are the source of chironiji oil. The bark and fruits furnish a natural varnish. The tree, also, exudes a gum, "peal" or "pial," which is said to resemble Bassora gum, to have adhesive properties like inferior gum arabic, and to be suitable for dressing textiles.

44531. **BUDDLEIA DAVIDII**. From La Mortola Garden, Ventimiglia, Italy. Handsome ornamental shrub, 3 to 8 feet in height, with variable, sessile, dark-green leaves, 4 to 10 inches long, and rather lax panicles of clear lilac-colored flowers with an orange eye. This species is very variable in the shape of its leaves, in the compactness of its flower clusters, and in the size of its flowers. Native of China.

43677. **BUDDLEIA DAVIDII SUPERBA.** From the Arnold Arboretum, Jamaica Plain, Mass. Ornamental loganiaceous shrub, 8 to 10 feet high, with rather thick, slightly wrinkled leaves and pale rose-colored flowers in dense panicles, which appear from the axils of the uppermost leaves. This shrub is found in central and western China.

43678. **BUDDLEIA DAVIDII VEITCHIANA.** From the Arnold Arboretum, Jamaica Plain, Mass. Large ornamental loganiaceous shrub of erect habit and with 4-angled shoots. The flowers are bright mauve, with orange-yellow throats, and they occur in rather dense panicles. This variety has a more erect habit and denser flower clusters than the typical species.

41960. **BUNCHOSIA** sp. From Mr. Carlos Wercklé, El Coyolar, Costa Rica. A tropical American shrub or tree, closely allied to *Malpighia*, with fleshy edible fruits which are said to resemble the *Yemon* variety of the Japanese persimmon in consistency and taste, but to be nearly vermilion in color.

**BYRSONIMA CRASSIFOLIA.** **Nance.** Collected by Wilson Popenoe at 4,000 feet altitude in Guatemala. Common dooryard tree in villages on west coast of Guatemala. Erect, slender trunk, 35 feet tall; bright-yellow fruits, borne in racemes, resemble cherries in size, and have single stone like cherry pit; flavor acid, sometimes rather strong. Grows in rich loam soil. May succeed in southern California and Florida.

**CACARA EROSA.** **Yam bean.** Climbing leguminous vine of rampant growth; producing, on slender underground roots, a succession of large tuberous roots. May supersede arrowroot for starch production, as return in starch is greater. Can be planted at any season; matures roots in five months. The beans are poisonous when raw, but delicious when cooked. Fresh roots are used in curries or boiled like potatoes.

**CAESALPINIA MELANOCARPA.** **Guayacan.** Tall spreading timber tree, with smooth, white bark, finely divided pinnate leaves, and showy yellow flowers. The wood is very hard and durable; used for wagon making, posts, railway ties, etc. The seed pods contain a great deal of tannin and are used in the manufacture of ink. Native of Argentina.



**CAESALPINIA PECTINATA.** **Tara.** Tall, erect, spiny shrub or small, handsome tree with deep-green, shiny foliage. Flowers inconspicuous, but numerous bright-scarlet pods are produced, which were formerly used for black dye and ink. These form an attractive contrast with the dark foliage. The erect growth of the shoots tends to make a close, effective hedge or windbreak.

**CAILLIEA NUTANS.** Ornamental African shrub or small tree, closely allied to Mimosa and Acacia. Usually very spiny and much contorted. The dense flower spikes, composed of sulphur-yellow perfect flowers above and pink or rosy lilac neuter flowers below, occur singly or in pairs in the axils of the acacialike leaves. Also known as *Dichrostachys nutans*.

32924. **CAJUPUTI CUTICULARIS.** From Mr. Alwyn Berger, La Mortola, Ventimiglia, Italy. Tall shrub or small tree with tortuous, somewhat rigid branches, bark that is deciduous in paper-like layers, and opposite thick leaves one-fourth to one-half inch long. Male flowers usually in terminal heads; the perfect flowers occasionally in dense oblong or cylindrical spikes, yellow. Native of Dutch East Indies. Formerly known as *Melaleuca cuticularis*.

**CAJUPUTI LEUCADENDRA.** **Cajaput tree.** A rapid-growing myrtaceous tree closely allied to the Eucalyptus; reaches a height of 80 feet. It can be grown on the edges of salt-water swamps where no Eucalyptus will survive. The wood is hard, close grained, and almost imperishable underground. Native of India and Australia.

42829. **CALPURNIA AUREA.** Presented by the Department of Colonization, Asmara, Eritrea, Africa. Tall, ornamental shrub, related to Sophora, which it resembles somewhat in its foliage and the arrangement of the inflorescences. The bright-yellow pea-shaped flowers are, however, much showier than the nearly white blooms of Sophora. Blossoms in winter. Native of subtropical Africa.

43679. **CAMPYLOTROPIS MACROCARPA.** From the Arnold Arboretum, Jamaica Plain, Mass. Ornamental leguminous shrub up to 6 feet in height, with compound grayish green leaves and purple pealike flowers in axillary clusters 3 inches long. Native of northern and central China. Also known as *Lespedeza macrocarpa*.

**CANARIUM INDICUM.** **Java almond.** A large handsome Malayan tree with buttressed trunk. Bears an abundance of purple fruits the size of small plums. The kernels are edible and resemble almonds in flavor. Oil expressed from the seeds is used in cooking. Desirable for avenue planting. Thrives in hot, moist districts; suitable for extreme South only.

41321. *CANNA* sp. **Achira.** Collected by Mr. O. F. Cook, in the Urubamba Valley, Peru. A wild species found at altitudes of 6,000 to 8,000 feet. It is said to resemble closely the cultivated *Canna*, but does not have enlarged fleshy rootstocks. The flowers are of subdued yellowish and pinkish hues, with the middle of the petals nearly orange-chrome. The calyx inclines to pinkish.

**CARAGANA ARBORESCENS.** **Siberian pea tree.** Hardy ornamental shrub or small tree up to 20 feet high, with pale or bright yellow flowers three-fourths of an inch long. Extensively grown in Russia; trimmed low for ornamental hedges. Very drought resistant; used by the Russian Government as a nurse tree in dry, young timber tracts. For testing as an ornamental and as a windbreak in cold regions.

**CARAGANA FRUTEX.** From the Royal Botanic Gardens, Kew, England. A deciduous, leguminous shrub, up to 10 feet in height, having long, supple branches, not much divided except near the ends. The leaves are each composed of two pairs of leaflets. Flowers bright yellow. A shrub graceful in habit and very handsome when in flower.

42187. *CARAGANA MICROPHYLLA.* **Altagana.** From the Royal Botanic Gardens, Kew, England. Ornamental leguminous shrub of graceful habit, 6 to 10 feet high. It is easily distinguished from all other caraganas by its leaves, which are composed of six to nine pairs of very small dull grayish green leaflets, these being only from one-eighth to one-third of an inch long. It forms a bush much wider than high, which is very attractive when dotted with the numerous yellow flowers three-fourths of an inch long.

42282. *CARAGANA PYGMAEA.* **Dwarf pea tree.** From Kief, Russia. Deciduous, ornamental shrub, with light-green compound leaves, the four leaflets being almost digitate in their arrangement. The yellow bell-shaped flowers are fully an inch long. This species and *C. aurantiaca*, which it closely resembles, are usually considered the prettiest of the genus. Native of the Caucasus, Siberia, and western Tibet.

40711. *CARAGANA* sp.\* From F. N. Meyer, Taochow, Kansu, China. Spiny shrub of low, dense growth, found in dry loess soil and in pebbly banks at altitudes of 9,500 feet and over. Used in China as a hedge plant. Able to withstand low temperatures and great drought; of value as a hedge plant for the dry, colder sections of the United States.

44001. **CARDIOSPERMUM HIRSUTUM.** Presented by Mr. P. D. Barnhart, Los Angeles, Cal. Ornamental sapindaceous vine, native of Africa. Useful perennial plant with densely hairy stems, deeply toothed leaves (the under side of which is hairy), and numerous axillary clusters of small white flowers. In southern California it is said to bloom continuously.

**CARICA CANDAMARCENSIS.** Mountain papaya. Colombian tree, smaller than *C. papaya*; presumably hardier, with much smaller, more angular fruits of a flavor too acid for dessert, though very agreeable when stewed; also used for jams and preserves. Ripe fruit has a pleasant, applelike odor. Introduced for test of papain quality and for hybridization with *C. papaya*.

**CARICA PAPAYA.** Papaya. Rapid-growing fruit tree, reaching 25 feet; in 10 months bears numerous melon-shaped fruits on its trunk. Good varieties deliciously sweet, with characteristic flavor; relished as a breakfast fruit. Easily digested, containing powerful papain ferment. For trial as an annual in northern Florida and Texas. Easily grown in hothouse. Both sexes required.

**CARISSA CARANDAS.** A small apocynaceous tree or large shrub, with sharp, rigid, forked thorns and oval leaves. The fruit when ripe much resembles a damson; is smaller than that of *C. grandiflora*. In India it is made into a pickle just before it is ripe, and is also used in tarts and puddings. When ripe it makes a very good jelly. Not so attractive a hedge plant as *C. grandiflora*, but may prove hardier.

**CARISSA GRANDIFLORA.** South African amatungulu. A handsome apocynaceous spiny shrub, with glossy green leaves, white fragrant flowers, and ovoid scarlet fruits an inch long. Useful home garden fruit, with a flavor when stewed peculiarly like that of cranberries. Fruit may be dried like prunes. A most attractive evergreen hedge plant. Stands clipping well, and its spines make it quite impenetrable.

34153. **CARISSA OVATA.** From the Botanic Gardens, Brisbane, Queensland. Native of Queensland and New South Wales. A small bush, producing a white oval-shaped fruit about half an inch long, which has an agreeable flavor.

40159. **CARMICHAELIA FLAGELLIFORMIS.** From the Royal Botanic Gardens, Kew, England. A peculiar leguminous shrub with erect, flattened, green branchlets which serve as leaves, these being absent or very small. Flowers purplish lilac, pealike, in short, dense clusters. Native of New Zealand. Can be grown out of doors only in the Southern States.

44123. **CASSIA BICAPSULARIS.** From the Horticultural Division, Ministry of Agriculture, Gizeh Branch, Cairo, Egypt. Ornamental leguminous shrub, often trailing, from tropical and sub-tropical America. The short compound leaves and few-flowered clusters of long, yellow, nearly regular flowers are attractive. Known in Porto Ricc as *sen del pais* and *hoja de sen*.

43773. **CASSIA BONARIENSIS.** From the Horticultural Division, Ministry of Agriculture, Gizeh Branch, Cairo, Egypt. Handsome ornamental leguminous shrub with large clusters of rich yellow flowers and attractive compound leaves with narrow leaflets. Native of South America. Not hardy in the Northern States.

43649. **CASSIA DIDYMOBOTRYA.** From the Horticultural Division, Ministry of Agriculture, Gizeh Branch, Cairo, Egypt. Ornamental tropical African shrub, 7 to 10 feet high, with compound leaves, 6 to 12 inches long, and long racemes of bright-yellow flowers, solitary or from two or three to six or eight collected about the ends of the branches and equaling or overtopping the long leaves.

**CASSIA EREMOPHILA.** Handsome ornamental shrub; native of Australia. Erect bush, sometimes slightly hoary, with compound leaves composed of two pairs of very narrow, thick leaflets about an inch long and rather dense clusters of small bright-yellow flowers. In Australia, both the pods and the leaves are eaten by stock.

42362. **CASSIA SIAMEA.** From Mr. Eugene Jaéglé, Ivoloïna, near Tamatave, Madagascar. Medium-sized Malaysian tree, valuable as an ornamental because of its erect terminal panicles of bright-yellow flowers and gray-green compound leaves. The nearly black heartwood is very hard and very durable and is said to be used largely for mallets and helves in Burma. Grows well in Cuba.

43254. **CASSIA sp.** From Mr. H. M. Curran, San Martin de Loba, Bolivar, Colombia. Reported as an ornamental yellow-flowered shrub. Collected in the lowlands in the vicinity of San Martin de Loba.

**CASTANEA MOLLISSIMA.** Chinese chestnut. From North China. Collected by F. N. Meyer from old trees in a region where the chestnut bark disease has probably existed for centuries. High degree of resistance, but entire immunity not probable. Hardy tree, not valuable for timber, being only 40 feet tall and low branching. Nuts larger than American, but not so sweet.



**CASTANEA PUMILA** × **CRENATA**. **Hybrid chestnut**. A hybrid between the American chinkapin and the Japanese chestnut, produced by Dr. Walter Van Fleet. Good producer and strongly resistant to the chestnut bark disease. Nuts of fair quality, intermediate in size between the chinkapin and Japanese chestnut.

40035 and 40036. **CASTANEA** sp. **Chestnut**. From F. N. Meyer, Huihsien, Kansu, China. A species of medium tall growth; trunk more slender and bark smoother than in *C. mollissima*; also the leaves, burs, and nuts are smaller. Prefers well-shaded situations and damp soil. Of value as a nut-bearing tree.

44664. **CATALPA BUNGEI**. From Prof. Joseph Bailie, Nanking, China. Ornamental Chinese tree, up to 100 feet in height, somewhat resembling the ordinary catalpa or bean tree, *C. bignonioides*, of the Eastern States. It has much smaller leaves and somewhat smaller flowers, white with purple dots. Has proved hardy at the Arnold Arboretum. The strong, light, and durable timber is said to be in much demand. Native of northern China.

24714. **CATHA EDULIS**. **Khat**. From Mr. T. Gerolimato, Harrar, Abyssinia. The khat tree of Arabia and Abyssinia, where its culture is an important industry. The leaves are chewed by the Arabs for the stimulating effect produced by the alkaloid which they contain. Distributed under special restrictions by the department for investigative purposes only.

40017. **CEPHALOTAXUS DRUPACEA SINENSIS**. From F. N. Meyer, Kwanyintang, Shensi, China. Evergreen conifer, growing into a tall shrub or rarely a small gnarled tree. Somewhat resembles *C. fortunei*, but of more dense growth. Especially beautiful when young, and the sucker growth is even more compact than young plants. Withstands much shade and thrives on rocky land. Of value as an ornamental in mild-wintered parts of the United States.

**CHAENOMELES LAGENARIA CATHAYENSIS**. From F. N. Meyer, China. A shrub or small tree, the fruits of which are prized for their strong, pleasant aroma. Used in China for perfuming rooms; also for preserves. Leaves turn rich scarlet in the fall. Possibly not hardy north of Philadelphia except in sheltered locations. Known also as *Cydonia cathayensis*.

40550. **CHAETOSPERMUM GLUTINOSUM.** From William S. Lyon, Manila, Philippine Islands. A Philippine tree allied to Citrus and recommended for trial in semiarid regions as a stock for the cultivated citrus fruits. Occurs on gravelly hillsides almost devoid of rainfall during seven months of the year. It is probably susceptible to damage by frost.

41705. **CHAMAEDOREA TEPEJILOTE.** **Palm.** From Dr. C. A. Purpus, Zacuapam, Vera Cruz, Mexico. Said to be a handsome ornamental palm, with pinnate leaves composed of 20 to 30 crowded, sword-shaped leaflets. The showy, yellow inflorescences are said to produce an excellent vegetable, the undeveloped flowers forming a favorite article of diet throughout Vera Cruz. Native of Mexico.

**CHAYOTA EDULIS.** **Chayote or mirliton.** Perennial, rampant, climbing cucurbit, bearing annual crops of green or white pear-shaped fruits, more delicate in flavor than squash. Excellent creamed, stewed, as salad, or baked with meats. Good shipper. A promising truck crop on well-drained, fertile, sandy loam soils. Fruits prolifically in Florida, southern California, and around New Orleans.

**CHENOPODIUM QUINOA.** Tall annual, largely cultivated on the dry slopes of the Andes for its nutritious but acrid seeds, used in soups or prepared similar to rice in several changes of water. Recommended for trial as a substitute for spinach, for which purpose its leaves have long been used in France during the hot offseason for this vegetable. Its culture is similar to mustard.

42202. **CHILOPSIS LINEARIS.** **Mimbres.** Collected by Dr. David Griffiths, of the Bureau of Plant Industry. Handsome flowering tree related to the catalpa, which it resembles only in its smaller purple-tinged flowers. Its leaves are willowlike. The tree is quite open in habit, but it stands pruning and can be easily shaped as desired. Native from western Texas to California and southward.

**CHIONANTHUS RETUSA.** **Chinese fringe tree.** One of the most attractive and distinguished of hardy deciduous shrubs. Somewhat resembles the American fringe tree (*C. virginiana*), but has the abundant shorter and broader panicles erect, and flowers on the young shoots of the year. Flowers snow white, the corolla having four strap-shaped petals three-fourths of an inch long. The whole shrub is usually a mass of bloom in June and July.



**CHORISIA INSIGNIS. Palo borracho.** Ornamental flowering tree with a very thick trunk, related to the "silk-floss tree" which is cultivated in southern California. Flowers yellowish, striped with brown, about the size of those of the flowering dogwood (*Cornus florida*). Native of northern Argentina.

**CITRULLUS VULGARIS. Watermelon.** Melon seeds, even from excellent fruits, are so apt to give disappointing results, either through having been cross-pollinated or because of the new environment, that descriptions of them are likely to be misleading. Seeds from Chinese, Roumanian, Siberian, and Caucasian sources are on hand and will be supplied to experimenters under name and number on request.

37804. **CITRUS GRANDIS. Grapefruit.** From Surinam, through Mr. James B. Rorer. The *alamoen*, apparently a native of Surinam, comes true to seed. Fruits irregular, flattened, with rather thick rind, but with a lusciousness of pulp not surpassed by any commercial sort. Practically no rag, and it does not squirt when eaten with a spoon. The melting character of its flesh is quite remarkable.

23028. **CITRUS LIMONIA. Lemon.** From F. N. Meyer, Fengtai, China. Dwarf, ornamental lemon, cultivated by the Chinese as a decorative plant in the winter. Small pot plants are frequently observed with a dozen large lemons on their branches. Readily propagated from cuttings. For testing as an ornamental and for breeding experiments in this country.

**CITRUS MEDICA. Citron.** Shrub or small tree, with long, irregular branches that root wherever they touch the ground. Flowers large with the petals white above, reddish purple below. Fruits large, 6 to 10 inches by 4 to 6 inches. The candied peel is much used in confectionery and cakes. Very sensitive to cold.

44818. **CLEOME sp. Alcochoffi.** From Mr. Wilson Popenoe, Purula, Baja Verapaz, Guatemala. An herbaceous plant found in the mountains at an altitude of about 6,000 feet. It sends up slender stems to a height of about 6 feet and produces large numbers of pale blue and white flowers. The leaves and stems when crushed have a pungent odor.

43021. **CLERODENDRUM CYRTOPHYLLUM.** From F. N. Meyer, Mokanshan, Chekiang, China. Spreading ornamental shrub, 2 to 5 feet high; of somewhat weedy tendencies, but of use for large parks and estates and as a cover shrub for sandy and waste places in mild climates. Leaves opposite, light green. Flowers small, white, but enveloped by large attractive rosy bracts. Berries blue.

40066. **CLETHRA BARBINERVIS**. From Japan, through E. H. Wilson. A deciduous shrub of the heath family, up to 6 feet high. Leaves often clustered at the end of the twigs, oval or obovate, 2 to 5 inches long. Flowers white, produced from July to September in a rather compact terminal panicle 4 to 6 inches long, covered with white, starry down. Not so hardy as our native *C. alnifolia*.

**COCCOLOBIS DIVERSIFOLIA**. Palobobo. West Indian shrub or small tree, 10 to 20 feet high, with edible fruit. Related to the sea-grape, *C. uvifera*. The leathery, shiny, bright-green leaves are very variable in shape. The small white or greenish white flowers are borne in spikes 4 to 6 inches long. The fruits are drupes about the size of small cherries, with purple flesh and a peculiar flavor.

42724. **COCCOLOBIS** sp. From Mr. H. M. Curran, San Martin de Leba, Bolivar, Colombia. Small ornamental tree with rounded head, related to the sea-grape, *C. uvifera*. The fruits are said to be edible.

44114. **COCCOLOBIS** sp. Jarra. From Mr. Carlos Wercklé, El Coyolar, Costa Rica. Small fruit-bearing tree closely allied to the sea-grape, *C. uvifera*. Tree small, dense, with small light-green leaves and pleasantly subacid fruits. The seeds are said to be from one-third to two-fifths the size of the mature fruit. Native of tropical America.

40524. **COCCOTHRINAX ARGENTEA**. Palm. Presented by Mr. Charles T. Simpson, Littleriver, Fla. Attractive Cuban palm, with a stem diameter up to 4 or more inches and a height of 2 feet. The dark-green leaves are silvery beneath, their bases being beautifully netted with large, strong meshes. Grows in a variety of soils in shade or sunshine.

**COLOCASIA ESCULENTA**. Dasheen. From various West Indian and East Indian sources. Large-leaved aroid, related to the taro and the elephant-ear, producing numerous small tubers around a large central one. These, when cooked, are as palatable as potatoes, richer in protein, and with a nutty flavor.

28288. **COMBRETUM COMOSUM**. Presented by Mr. G. Regnard, Port Louis, Mauritius. Tropical African ornamental, growing and flowering as a small shrub in Florida, but in its native habitat it is said to be "a magnificent climber, whose vast panicles of blood-red flowers give a gorgeous appearance to the forests." Grown in England as a greenhouse vine. Although specimen at Miami had leaves killed by 26.5° F., it quickly recovered.

40988. *CORDIA ALBA*. *Ateje*. From Wilson Popenoe, Trinidad, Cuba. A large bushy shrub, 15 feet high, branching close to the ground, sending up long, stiff shoots well furnished with dark-green foliage. The flowers, which are pale yellow, about one-half inch across, are borne in broad, flat-topped corymbs sometimes a foot across. This is apparently a good honey plant and of considerable ornamental value.

37224. *CORDIA OBLIQUA*. From Dr. L. Trabut, Algiers. A medium-sized tree, 40 to 50 feet high, native of India, where it is found at an altitude of 5,000 feet. Its wood is used in boat building, in the making of agricultural implements, and as fuel. The tree is vigorous in its growth and forms a handsome rounded crown with dense bright-green foliage.

40808. *CORNUS MACROPHYLLA*. From the Yokohama Nursery Co., Yokohama, Japan. Small, handsome ornamental Himalayan tree, noteworthy for its fine foliage. The opposite, bright-green leaves, whitened below, are nearly oval, 4 to 7 inches long, and taper at the apex to a slender almost taillike point. The yellowish white flowers are produced profusely in early summer. Fruit blue.

22468. *CORYLUS AVELLANA*. *Filbert*, var. *Du Chilly*. Introduced from France by Mr. Felix Gillet, Nevada City, Cal. One of the largest filberts grown on the Pacific coast. Nuts broad, compressed cylindrical (1 by three-fourths inch) with moderately thick shell, and sweet, full-flaked kernel of fine quality. Best grown as low standard.

22471. *CORYLUS AVELLANA*. *Filbert*, var. *Bysance*. From Mrs. Felix Gillet, Nevada City, Cal. The strongest and most vigorous grower of all the filberts. Differs considerably from the others in leaf characters and in possessing a rather corky bark. Valuable as grafting stock. Originally imported by Mr. Felix Gillet from the Mediterranean region.

22472. *CORYLUS AVELLANA*. *Filbert*, var. *D'Alger*. From Mrs. Felix Gillet, Nevada City, Cal. Tree of the *Barcelona* type, bearing somewhat smaller nuts of similar flavor, but said to outbear the better known variety. Has been grown successfully in the State of Washington. First introduced by Mr. Felix Gillet from the Mediterranean region.

22473. *CORYLUS AVELLANA*. *Filbert*. French variety known as *Geante des Hautes*, introduced by Mr. Felix Gillet of Nevada City, Cal., who for many years was recognized as an authority on the culture of the hazelnut in America.

22476. *CORYLUS AVELLANA*. **Filbert**, var. *Avelline Grosse Ronde*. From Mrs. Felix Gillet, Nevada City, Cal. Medium-sized tree, producing fair-sized, symmetrical, wedge-shaped nuts, which are cherry red at the shoulder, with a gray covering that becomes more dense toward the apex. Originally introduced from France by Mr. Felix Gillet.

22480. *CORYLUS AVELLANA*. **Filbert**, var. *Montebello*. From Mrs. Felix Gillet, Nevada City, Cal. Tree resembling the *Barcelona*, with smaller, more regular, rather long nuts and long husks. Reported to outbear the *Barcelona*. Said to have been originally imported from Sicily by the Bureau of Plant Industry.

22484. *CORYLUS AVELLANA*. **Filbert**, var. *Grosse Blanc of England*. From Mrs. Felix Gillet, Nevada City, Cal. Large vigorous tree similar to the well-known *Barcelona*. Good producer, reported as bearing the largest nuts in the smallest clusters of any of the filberts cultivated in Oregon. Originally introduced by Mr. Felix Gillet.

22485. *CORYLUS AVELLANA*. **Filbert**. From Mrs. Felix Gillet, Nevada City, Cal. A medium-large French variety called the *Daviana*. Introduced by Mr. Felix Gillet, who for many years contributed much to the literature on hazelnut culture in this country.

22486. *CORYLUS AVELLANA*. **Filbert**, var. *Barcelona*. From Mrs. Felix Gillet, Nevada City, Cal. Tree of upright medium growth. Good producer. Blooms about the first week in January in Oregon. The husk is short hispid; the nut large, ovate, slightly compressed; shell moderately thick and rather hard, but well filled by the kernel, which is of very good quality.

33234. *CORYLUS AVELLANA*. **Filbert**, var. *Rouge Ronde*. From Mr. Pedro Giraud, Granada, Spain. A red-kerneled variety not well known, but seemingly very similar to the *Barcelona* and *Avelline* varieties.

22474. *CORYLUS COLURNA*. **Filbert**, var. *Noce Lunghe*. From Mrs. Felix Gillet, Nevada City, Cal. Originally introduced from Istria by David Fairchild, S. P. I. No. 6139. The best variety of the Rovigno hazelnuts. A small tree, 12 to 15 feet high, with handsome trunk and graceful branches. Nuts reported to be of the finest quality. Said to withstand a temperature of 14° F. and probably lower.



35689. **CORYPHA ELATA.** **Palm.** From Manila, Philippine Islands, through O. W. Barrett. Large tropical fan palm related to the famous *Talipot* palm of Ceylon. Grows 70 feet tall, and then produces immense bloom and dies. Leaves of very large size, used for fans, etc. A very decorative palm for regions like Panama, Porto Rico, and possibly the Isle of Pines. Coryphas do poorly in Florida.

22436. **COTINUS COGGYGRIA PUBESCENS.** **Smoke tree.** Collected by F. N. Meyer in the grounds of the Changnantse Temple, west of Peking, Chihli, China. A variety of the European and Asiatic smoke tree (commonly known as *Rhus cotinus*), differing only in the leaves, which are somewhat hairy beneath. Hardy as far north as Massachusetts.

**COTONEASTER** spp. Ornamental shrubs used extensively in small gardens, for training against walls and over rocks, and for plantings near stone steps, etc., because of their attractive foliage, white flowers, picturesque form, and especially because of the masses of red, yellow, brown, or black fruits which they bear.

**CRATAEGUS PINNATIFIDA.** Large-fruited **Chinese hawthorn.** From F. N. Meyer. Dense low-branching, well-rounded tree of 20-foot spread; ornamental in spring and fall. Cultivated in orchards by the Chinese, who make delicious jelly similar to crab-apple jelly from the bright-scarlet fruits. Probably very hardy. Deserves trial along with native large-fruited American species. On *C. arnoldiana*.

**CROTALARIA CANDICANS.** A leguminous plant of erect habit of growth, 3 to 4 feet tall, bearing masses of ornamental bright-yellow flowers. The plants thrive best in a light, rich soil and are recommended as cover crops and soil renovators and for trial as ornamentals. Native of British India.

**CRYPTOSTEGIA GRANDIFLORA.** Rubber-producing vine, native of Madagascar, but already naturalized on the Everglades and keys of Florida. The vine is too rank to be especially beautiful. Flowers large and attractive. If a method of extracting its rubber were devised, it might have commercial importance, as the rubber is of good quality. Fibers attached to seeds have been utilized for filling life preservers.

**CUCURBITA PEPO.** **Japanese squash.** Known as *Oherimen*. Nearly round, somewhat flattened, orange-red, deeply scalloped; weight about 5 to 8 pounds. Flesh bright yellow, of excellent quality, and said to have better flavor than the *Hubbard*. Keeps well. Requires culture similar to that given ordinary varieties.

34493. **CUDRANIA TRICUSPIDATA.** **Che** or **tcho sang.** From central China, collected by E. H. Wilson. Close relative of the Osage orange, with which a very vigorous hybrid has been made in France. Leaves considered superior to mulberry for silkworms, making finer silk. Fruits pink, size of large plums; edible, sweet, but without much character. Has fruited in Georgia.

41690. **CUPRESSUS GLABRA.** **Smooth cypress.** From Mr. J. F. Derrick, Sedona, Ariz. Tree 25 to 30 feet high, with thin, smooth, dark purple-red bark; bright blue-green, glaucous foliage; and small spherical cones. Resembles *C. arizonica* Greene, but is more compact.

**CYDONIA OBLONGA.** **Quince.** From Pedro Giraud, Granada, Spain. *Antequera*, oblong variety, smooth and well formed, with fine, mellow flesh, considered the best of all varieties of quinces. Spanish quinces are famous for their high quality and the best are said to come from Antequera.

**CYPHOMANDRA BETACEA.** **Tree tomato.** Large-leaved, half-woody plant, often the size of a small tree, cultivated for its orange or reddish egg-shaped fruits, the flesh of which is firm and sweetish, somewhat resembling a tomato in taste and texture. Reported excellent for fruit salads or preserves. Can be fruited in the greenhouse, possibly even outside, south of Atlanta, Ga. Native of Brazil.

42203. **DASYLIRION WHEELERI.** **Sotol.** Ornamental flowering plant related to the yuccas, which it somewhat resembles. The short thick trunk and gracefully drooping narrow flat leaves form, however, a pleasing contrast to the stiff habit of the century plants. The flower stalks often reach a height of 8 to 10 feet and produce myriads of small white flowers in a spindle-shaped inflorescence about 4 feet in length.

39178. **DENDROCALAMUS HAMILTONII.** **Bamboo.** From Mr. G. H. Cave, Darjiling, India. One of the giant bamboos, often 80 feet high, with stems 4 to 7 inches in diameter, much branched above, pubescent, with long white hairs when young; internodes 12 to 20 inches long and  $2\frac{1}{2}$  inches wide; lower branches usually seated on woody knobs.

43683. **DEUTZIA DISCOLOR.** From the Arnold Arboretum, Jamaica Plain, Mass. Upright ornamental shrub, 5 to 6 feet in height; native of central and western China. The dense, hemispherical clusters of attractive white to rosy flowers are borne profusely among the dull green leaves. These are narrowly oval and up to  $4\frac{1}{2}$  inches long. Has proved fairly hardy in sheltered positions at the Arnold Arboretum.



**DIOSPYROS KAKI. Japanese persimmon.** A most remarkable new variety, considered one of the very best by the Japanese horticulturists. No astringency in fruit even when it is crisp and hard. It is smooth, bright reddish yellow, sweet and juicy, and of delicious flavor; texture fine and soft. Originated in the village of Ikura.

21910. **DIOSPYROS KAKI. Persimmon.** From F. N. Meyer, Pangshan, Chihli, China. Reported to be rare; fruit flat, of medium size, 2 to 3 inches in diameter; color orange-red; skin thin; quality good; a good keeper but not a good shipper.

22350. **DIOSPYROS KAKI. Persimmon.** From F. N. Meyer, Shifengtse Temple, west of Peking, China. Apparently a larger fruited variety of the valuable flat, seedless Tamopan persimmon previously introduced (S. P. I. 16921). As the trees were growing in a very well sheltered valley, this large-fruited quality may be due to the location. Chinese name *Ta shih tzü*.

22362. **DIOSPYROS KAKI. Persimmon.** From F. N. Meyer, Poliping, west of Peking, Chihli, China. Bears a large, flat, seedless fruit, about  $4\frac{1}{2}$  inches across and of a bright-orange color. An excellent shipper if picked not too ripe; can be kept indefinitely in a frozen state and thawed out just before eating without losing its fine flavor. Chinese name *Ta shih tzü*.

22365. **DIOSPYROS KAKI. Persimmon.** From F. N. Meyer, Taijatsoa, west of Paotingfu, Chihli, China. A large, very flat persimmon of orange-red color, found growing in great orchards in the mountain valleys.

22366. **DIOSPYROS KAKI. Persimmon.** From F. N. Meyer, Taijatsoa, Chihli, China. A small, flat, seedless persimmon of orange-red color, 2 to 3 inches in diameter. Chinese name *Hsiao mo pan shih tzü*.

22367. **DIOSPYROS KAKI. Persimmon.** From F. N. Meyer, Taijatsoa, Chihli, China. Small-fruited seedless persimmon, not quite flat, bearing an equatorial suture and two transverse sutures. These vary greatly in different fruits. The tree grows much larger than those of the ordinary flat-fruited varieties. Local Chinese name *Lien hua shih tzü*, or "lotus-flower persimmon."

22368. **DIOSPYROS KAKI.** **Persimmon.** From F. N. Meyer, Taijatsoa, west of Paotingfu, Chihli, China. A rare, small-fruited yellow persimmon of slow growth. The trunk has a whitish bark.

40178. **DIPELTA VENTRICOSA.** Ornamental flowering shrub from western China, discovered by E. H. Wilson. Differs from *D. floribunda* (which resembles the Weigela) in having smaller belled corolla. Flowers rose colored. Shrub 6 to 15 feet high. Hardy in England.

36757. **DUCHESNEA FILIPENDULA.** Collected by F. N. Meyer in the Hsiao Wutaishan, Chihli, China. Wild plant closely related to the strawberries (*Fragaria* spp.), found on the northern slopes of mountains and in alpine meadows at 6,000 to 9,000 feet altitude. Fruit fairly large, carmine red, slightly elongated. Said to be of delicious flavor. Possibly of value in hybridization experiments.

**ELAEAGNUS ANGUSTIFOLIA.** **Oleaster.** Very ornamental deciduous shrub or small tree, from western Asia, with narrow, willowlike leaves and small, fragrant yellow flowers. The sweet, edible fruits are reddish brown and slightly resemble a small date.

**ELSHOLTZIA STAUNTONI.** Late-flowering plant belonging to the mint family. Collected by F. N. Meyer in Shensi, China. Semiwoody plant with opposite mint-scented leaves, dark green above, pale below, and large branched inflorescences composed of crowded clusters of small purplish pink flowers. Propagated easily by cuttings of the young growths. Rather weedy tendencies.

43270. **EMBOTHRIUM COCCINEUM.** **Fire bush.** Brilliant red-flowered evergreen shrub or low tree, reaching a height of 30 feet or more. The foliage is dark glossy green, somewhat leathery; the clusters of nearly scarlet flowers, about 2 inches long, are produced in great profusion. Native of southern Chile. Hardy only in the South. Sometimes treated as a greenhouse plant.

**ENTEROLOBIUM CYCLOCARPUM.** A fine, leguminous tree, extensively used in Cuba as a shade tree for avenues. The tree grows to a considerable height, forming a symmetrical, rounded head, which, with deep-green foliage, gives a fairly dense shade and presents a very attractive appearance. The wood is said to be insect proof and is in demand for making boxes and trunks.

31819. **ERUCA SATIVA.** Received through F. N. Meyer, Oasis of Sandju, Chinese Turkestan. *Sa-un*, a variety of rape seed, the oil of which is used both for culinary and illuminating purposes. To be tested as a possible crop for the intermountain regions.

31820. *ERUCA SATIVA*. From F. N. Meyer, Karawag, Chinese Turkestan. The seeds yield an oil which is used both for culinary and illuminating purposes. The acrid leaves are said to be used in salads in southern Europe. Grown as a field crop in the more elevated portions of Turkestan. Deserves to be experimented with at high altitudes in the Rocky Mountain region.

*ERYTHRINA VESPERTILIO*. **Bat's-wing coral.** Small ornamental leguminous tree, 30 to 40 feet high. Sometimes cultivated as a shrub in warm houses for its showy racemes of red flowers and long pods with large red seeds, resembling the better known coral beans (*Erythrina* spp.). Native of Australia, where the aborigines use the exceedingly light spongy wood for making their hielamans, or shields.

43957. *EUCALYPTUS MARGINATA*. **Jarrah.** From Dr. J. H. Maiden, Sydney, New South Wales, Australia. An Australian timber tree with persistent fibrous bark; lanceolate leaves, 3 to 6 inches long; and thick, hard, smooth, nearly globular fruits. The timber is easily worked, takes a fine polish, and is used in England for street paving and in Australia for piles, telegraph poles, etc.

40698. *EUONYMUS NANUS*. From F. N. Meyer, Taochow, Kansu, China. A small species of **spindle wood** of decumbent habit, found in shady places amongst scrub and moss, at altitudes of 7,000 to 9,000 feet. Leaves small, lanceolate, apparently evergreen. The scarlet-coated seeds hang gracefully from the large fruits. Of value as a rockery plant.

37541. *EUONYMUS RADICANS ACUTUS*. From Nantotchu, near Sianfu, China, through F. N. Meyer. A variety of *Euonymus* climbing against walls and tree trunks. Leaves glossy green and bronze-red, persistent through winter. Stands some shade but will grow in full sun. Of value as a wall cover plant for the base of city houses in mild-wintered regions.

40581. *EUONYMUS RADICANS ACUTUS*. From the Hon. Vicary Gibbs, Elstree, Herts, England. A *Euonymus* from western China which resembles *E. radicans*, but is easily distinguished by its large, thinner leaves, which are distinctly veined beneath. The plant lies flat on the ground, forming a mat of green. Suitable for planting under trees. Hardy.

38237. *EUONYMUS* sp. From F. N. Meyer, Changpai, Shensi, China. Shrub, or, when not molested, small to medium-sized tree. It is an excellent bank binder and withstands drought to a remarkable extent. Also able to withstand some alkali. Deserves trial as a bank and soil-binding plant in the semiarid sections of the United States.

40719. *EVODIA RUTAECARPA*. From F. N. Meyer, near Chanlienli, Shensi, China. Medium-sized tree with handsome pinnate leaves, bearing large umbels of whitish flowers followed by bunches of dark-red fruits. Found in somewhat stony places. For trial as an ornamental tree in sections of the United States where the winters are mild.

41720. *FICUS LACOR*. From Mr. E. Widler, Chungking, China. Large Indian shade tree, 150 feet high and 12 feet in circumference, with thin leaves. Grows best among rocks in a subtropical climate; requires about 15 to 20 years to mature in good soil. It is used principally by the Chinese as a shade tree along the high roads and in temple yards. The bark is said to yield a fair fiber.

44116. *FICUS PADIFOLIA*. From Mr. Carlos Wercklé, El Coyolar, Costa Rica. A very large, dense, evergreen tree with pale yellowish bark and rather slender branches. The leaves are very variable, ranging from lanceolate to broadly ovate, and are bright or yellowish green in color. Reported as one of the handsomest of the tropical American species of *Ficus*.

36020. *FICUS SAEMOCARPA*. From Wilson Popenoe, Serharunpur, India. Evergreen shrub with glossy deep-green leaves 3 to 9 inches long and inconspicuous flowers. Native of northeastern and eastern India. Considered of value as an ornamental shrub for the Southern States; probably tender.

42537. *FICUS SUBTRIPLINERVIA*. **Gomero**. From the Botanic Gardens, Buenos Aires, Argentina. Large tree with fairly dense head and smooth, leathery leaves 2 to 3 inches long and three-fourths to 1½ inches broad on very short stalks. Native of Brazil and Argentina. For trial as a shade tree.

*FICUS SYCOMORUS*. **Egyptian fig**. The sycamore of Scripture. Planted in arid, nearly frostless regions for its hard wood and small edible fruits, resembling figs, which it produces in great quantities. They harbor a fig insect like the caprifig. Three crops per year are produced. Boys with special thimbles ending in a sharp blade cut off the top of each fruit, after which it sweetens. Hogs are extremely fond of them.



35449. **FICUS ULMIFOLIA. Fig.** From Mr. C. F. Baker, Los Banos, P. I. Very good edible Philippine fig, especially adapted for moist, hot regions. Fruits sweet and palatable, axillary, nearly all solitary with short stems, globose, hairy, or hispid in young state, eye half open and scaly.

29359. **FICUS UTILIS. M'pamah,** from Lourenco Marques, Portuguese East Africa, through O. W. Barrett. Medium-sized tree of the open bush, preferring sandy land. If cut near the ground it produces clean young coppice branches of rapid growth; the bark is removed from these and when beaten forms the native cloth in the M'Chopes district. This cloth is softer than the South Sea "tapa." Injured but not seriously by 26° F.

42721. **FRAGARIA VESCA. Strawberry.** From Mr. Abelardo Pachano, Ambato, Ecuador. Native Andean plant called *fresa*, closely related to the species usually found on the market, known as *frutilla*, *F. chilensis*. The fruit is much smaller and rather acid in taste, but the plant is highly ornamental and well adapted for garden borders and as a ground cover in dry locations.

42838. **FRAXINUS OXYCARPA. Ash.** From Kief, Russia. Handsome ornamental tree, 60 to 70 feet in height. It is very similar to the narrow-leaved ash of southern Europe, *F. angustifolia*, but differs in having the leaflets somewhat downy beneath, and it is of a more easterly range, reaching to Persia, the Caucasus, and Asia Minor.

44132. **FRAXINUS sp. Imoden ash.** From Mr. George MacCartney, Kashgar, Chinese Turkestan. A tall-growing timber tree, which is able to withstand considerable drought and alkali. Of probable value as a shade and timber tree in those sections of the United States where the summers are hot and dry and the winters are not too cold.

44134. **FRAXINUS sp. Ash.** From Mr. George MacCartney, Kashgar, Chinese Turkestan. Ornamental shade tree from the hot, dry, and mild-wintered country about Kashgar. Possesses a fairly high degree of resistance to drought and alkali. Should be tried in the mild-wintered dry sections of the United States.

42367. **FUNTUMIA ELASTICA.** From Mr. Eugene Jaeglé, Ivoloïna, near Tamatave, Madagascar. A tall apocynaceous rubber tree, up to 100 feet in height, with cylindrical trunk; pale spotted bark; nearly oblong wavy margined leaves; and dense, many-flowered clusters of white or yellowish flowers. This tree yields the Lagos caoutchouc. Native of western Africa.

42085. *GARCINIA EPUNCTATA*. From Mr. Henry O. Stewart, Mount Coffee, Liberia. Tree up to 20 or 30 feet high, bearing edible fruits. Related to the mangosteen, *G. mangostana*. Leaves opposite, somewhat leathery but thin. Flowers bright yellow.

*GARCINIA MULTIFLORA*. Chinese bush related to the mangosteen (*G. mangostana*). The fruits are said to be entirely wholesome and to possess a pleasant subacid taste something like an orange. Introduced for trial as a stock for the mangosteen.

43655. *GENISTA RAETAM*. **Retem**. From the Horticultural Division, Ministry of Agriculture, Gizeh Branch, Cairo, Egypt. Ornamental, densely branched shrub, 4 to 10 feet in height, with very narrow leaves and white flowers in clusters of one to five scattered along the twigs. Abundant among the sand dunes in North Africa.

39463. *GYNOPOGON ILICIFOLIUS*. From Mr. James Pink, Wellington Point, near Brisbane, Queensland, Australia. A shrub growing about 6 feet high, producing a profusion of berries of bright orange-scarlet color. Reported as possibly a valuable ornamental plant for decorative purposes.

*HAEMATOTOXYLUM CAMPECHIANUM*. **Logwood**, or **campeche wood**. Tall, leguminous tree with racemes of handsome yellow flowers rich in honey. The brownish red heartwood is useful in turning. Its principal economic product is the valuable black dye extracted from it. Recommended for trial as a shade tree.

41489. *HALESIA CAROLINA MONTICOLA*. **Mountain silver-bell tree**. From Prof. C. S. Sargent, Arnold Arboretum, Jamaica Plain, Mass. Ornamental tree, up to 80 or 90 feet in height and 3 feet in diameter, from the high Appalachians. Related to the silver-bell of the South, it differs in its peculiar habit and its much larger leaves and flowers. Trees less than 10 feet high produce flowers in abundance and are clean stemmed with narrow pyramidal head. It is likely to prove one of the handsomest flowering trees in the Northern States.

*HALIMODENDRON HALODENDRON*. Spiny shrub, occurring on sandy and alkaline places in the deserts of Turkestan where the moisture is not too far below the surface. Succeeds in partial shade. Recommended for testing as a hedge plant in cold-wintered regions where long, hot, and dry summers prevail.

44103. **HELIANTHUS ANGUSTIFOLIUS.** From Dr. David Griffiths, Arkansas. A selected variety of the native wild form. Perennial plant of pleasing habit, with flowers somewhat resembling yellow cosmos and narrow drooping glossy foliage. The main stem and branches are long and graceful, each bearing six or more flowers on long, arching flower stalks. Will stand cutting. May be used, much as the cosmos is, for cut flowers and for tall, mass effects.

36706. **HELICTERES OVATA.** From Messrs. Dorsett, Shamel, and Popenoe, Rio de Janeiro, Brazil. A malvaceous shrub somewhat resembling an abutilon in general appearance. Leaves heart shaped, about 4 by 5 inches, hairy, bright green. The chief point of interest in this plant lies in its seed pods, which are about the size of almonds and are twisted spirally. Native of central Brazil.

41325. **HESPEROMELES** sp. **Lengli.** From Mr. O. F. Cook, Pinasniocj, Peru. Ornamental tree related to the hawthorns, *Crataegus* spp., and resembling them somewhat, especially when growing in unfavorable places. Reaches a height of 30 to 40 feet in sheltered places. The deep green foliage, reddish brown below, is very attractive, as are the persistent fruits. These have the appearance of clusters of small apples and change from green through pink to scarlet, ultimately becoming nearly black.

42832. **HIBISCUS LUNARIFOLIUS.** **Mallow.** Presented by the Department of Colonization, Asmara, Eritrea, Africa. An undershrub with roundish or sometimes slightly 3 to 5 lobed long-stalked leaves and terminal flower clusters of large yellow flowers 2 to 3 inches across. Related to the "marsh mallows" (*Hibiscus* spp.). Possibly of value as an ornamental in the South.

**HIBISCUS SABDARIFFA.** **Roselle or Jamaica sorrel.** Biennial, 3 to 5 feet high, commonly cultivated in warm countries. Produces an abundance of large bright-red calyces in autumn. These, as well as the young leaves, by many are considered superior to cranberries for sauce and jelly making. Very ornamental when in bloom and in fruit. Sensitive to frost.

40715. **HIPPOPHAE RHAMNOIDES PROCERA.** **Sea buckthorn.** From F. N. Meyer, near Paodji, Kansu, China. Tree reaching a height of 40 feet, with a trunk 2 feet in diameter; leaves larger than in the species; berries of pale waxy color; very sour. Occurring in mountain ravines and on pebbly creek bottoms, sometimes to the exclusion of almost everything else. Of value as an ornamental park tree.

**HOMIOCELTIS ASPERA.** A Japanese ornamental tree, up to 60 feet high, having the appearance of a hackberry (*Celtis* spp.), with the slender branches forming a dense head, rather inconspicuous, greenish flowers, and small black drupes. Cultivated for its foliage and sometimes planted as a shade tree. Not hardy north of Georgia.

42189. **HYDRANGAEA BRETSCHNEIDERI.** From the Arnold Arboretum, Jamaica Plain, Mass. Ornamental shrub, 8 to 10 feet in height, forming a sturdy bush with flaky bark, nearly oblong, dull green, slender-pointed leaves, and clusters of white flowers 4 to 6 inches across. The sterile flowers are three-fourths to  $1\frac{1}{4}$  inches across. Flowers in July. Almost hardy in the North. Collected by Dr. Bretschneider in northern China.

43689. **HYDRANGAEA ROSTHORNII.** From the Arnold Arboretum, Jamaica Plain, Mass. Ornamental flowering shrub, up to 12 feet in height, with slender-pointed leaves, 4 to 9 inches long, and flower clusters 4 to 7 inches across. The sterile flowers are white or purplish and 1 to  $1\frac{1}{2}$  inches across. Blooms in July. Native of western China.

43690. **HYDRANGAEA XANTHONEURA.** From the Arnold Arboretum, Jamaica Plain, Mass. Hardy ornamental flowering shrub, up to 15 feet high, with close chestnut-brown bark, bright green, elliptical leaves, marked with yellow veins and smooth or slightly hairy on the veins beneath; and rather loose flat-topped flower clusters. Fertile flowers dull white; sterile flowers creamy,  $1\frac{1}{4}$  to 2 inches across. Native of western China.

43691. **HYDRANGAEA XANTHONEURA SETCHUENENSIS.** From the Arnold Arboretum, Jamaica Plain, Mass. Hardy ornamental flowering shrub up to 15 feet high, with close, light-brown bark, bright-green elliptical leaves, very hairy on the under side, and rather loose flat-topped flower clusters. Fertile flowers dull white; sterile flowers creamy white,  $1\frac{1}{4}$  to 2 inches across. Native of western China.

**HYMENAEA COURBARIL.** Handsome tree with curious compound leaves consisting of two leaflets. Similar to *Bauhinia*, but leaflets not united. The thick woody shells of the large pods contain a resin said to be used in the manufacture of varnish. Seeds packed in a thick layer of grayish powdery substance tasting like licorice root; commonly eaten, and often sold in the markets. Native of tropical America.



43692. **HYPERICUM PATULUM HENRYI.** From the Arnold Arboretum, Jamaica Plain, Mass. Ornamental evergreen shrub of spreading habit. The purplish branches are numerous, arching, and 2-winged; leaves nearly ovate, 2 to 3 inches long, deep green above, whitish beneath; flowers bright golden yellow, 2 inches across, borne in clusters at the ends of the shoots. This variety is hardier and more vigorous than the species which is better known. Native of China.

34836. **ILEX CORALLINA.** **Holly.** From Messrs. Barbier & Co., Orleans, France. Ornamental, evergreen shrub, said to reach a height of 9 to 12 feet. Rather bushy, but reported as very graceful in habit. Leaves thin, somewhat leathery, brilliant deep green above, light green below. The small coral-red fruits are borne in dense masses. Seemingly fairly hardy. Native of western China.

39668. **ILEX INTRICATA.** **Holly.** From the Royal Botanic Garden, Sibpur, India. Low, rigid, straggling shrub, forming a matted mass of interlaced woody branches. The spreading, thick, leathery, bright-green leaves are narrowed into very short leafstalks. The very small, white flowers and the globose red fruits form its chief attractions.

**ILEX PARAGUARIENSIS.** **Yerba maté.** Small evergreen tree resisting temperatures as low as 14° F. Used in preference to tea by millions of South Americans; prepared in similar fashion. Contains some stimulating alkaloid and much less harmful oil than tea. Brazil alone in one year exported \$10,000,000 worth of maté manufactured by scorching, drying, and powdering the leaves and young twigs.

44243. **INODES EXUL.** **Palmetto.** From Mrs. Martin O'Connor, Victoria, Tex. Reported as a really magnificent palmetto with stately crown of large vivid green leaves firmly supported on massive green petioles. The trunk is also said to appear green, for the sheathing leaf bases retain their color. The crown is more ample than in most palms, thus lending an appearance of extreme vigor and luxuriance.

42280. **INODES TEXANA.** **Palmetto.** From Dr. David Griffiths. The native palmetto of the Rio Grande delta. A species of very local distribution, recommended for the same uses as the fan-leaf palms. It appears more hardy than these subtropical forms. It may thus serve to extend somewhat the regions of possible palm culture.

**IRIS ENSATA. Iris.** From F. N. Meyer, China. A vigorously growing strain found in the gardens around Kalgan, where the leaves are used as an ever ready and handy garden tying material. Recommended for trial in the drier sections of the United States as a border plant and for its fibrous leaves.

43022. **IRIS** sp. From F. N. Meyer, Mokanshan, Chekiang, China. An iris forming big clumps, found in a garden, but said to occur wild in mountain ravines; flowers reported to be purplish.

43468. **IRIS** sp. From Mr. R. E. Cooper, through Bees Ltd., Liverpool, England. Dwarf Himalayan iris found growing on sloping turf at an altitude of 10,000 to 12,000 feet. Leaves thin, narrowly sword shaped.

38154. **JASMINUM FLORIDUM. Jasmine.** From La Mortola Garden, Ventimiglia, Italy. Nearly evergreen shrub of rambling habit, with smooth, angled branches and alternate leaves of three to five nearly oval leaflets, one-half to 1½ inches long. Flowers golden yellow, borne in terminal cymose clusters, usually produced from July until late in the fall. Black fruits are about the size of small peas. Native of China. Hardy as far north as Washington.

40705. **JASMINUM GIRALDI. Jasmine.** From F. N. Meyer, Hsiku, Kansu, China. Small ornamental shrub of erect growth, 2 to 4 feet high, with small terminal clusters of yellow flowers, each three-fourths of an inch long, followed by showy black berries. Foliage pinnate, the leaflets in five pairs, each three-fourths of an inch long and half as wide (except the terminal one, which is twice as large). Of value for gardens and parks in dry, mild-wintered regions.

39120. **JASMINUM HUMILE. Jasmine.** From G. H. Cave, Darjiling, India. Diffuse shrub, attaining a height of 20 feet in the South, but in glass houses usually grown as a pot bush. Branches glabrous, angled. Leaflets three to seven, nearly oval. Bright-yellow flowers borne in open clusters. This plant is somewhat hardier than *J. floridum*, but is very similar in appearance. Blooms in summer and fall. Needs cool house if grown under glass.

43807. **JASMINUM SINENSE. Jasmine.** From La Mortola Garden, Ventimiglia, Italy. Climbing ornamental shrub from central and northern China, with papery compound leaves—the leaflets being nearly oval and up to 6 inches long—and dense, somewhat flattened clusters of white flowers, 1½ inches long.

28473. **JUGLANS CORDIFORMIS × REGIA. Hybrid walnut.** From Dr. Walter Van Fleet, by whom this cross between the Japanese and English walnuts was produced.

27482. **JUGLANS NIGRA. Black walnut.** From Mr. Geo. C. Roeding, Fresno, Cal. An unusual form of the common black walnut, known as the *Peanut* variety because most of the nuts are very slender, pyriform, with a single nearly cylindrical kernel. The shell is thin and easily cracked, and the kernel, which is in the larger end of the nut, comes out entire. The kernel is white and of a delicate flavor.

**JUGLANS REGIA. Walnut.** From F. N. Méyer, China. This tree has been erroneously called the "Manchurian walnut," because it is found near the Great Wall of China. It is really merely a strain of the English or Persian walnut. Preliminary tests indicate that it is hardier than the strains from southern Europe and north-western Asia, and can possibly be utilized farther north.

19732. **JUGLANS RUPESTRIS. Walnut.** From Mr. E. E. Risien, San Saba, Tex. A nut and ornamental tree, up to 50 feet in height. The upright-growing branches covered with a dark yellow-green foliage form a narrow, rather stiff crown of decidedly ornamental appearance. The nuts are rather small, three-fourths of an inch or less in diameter, but the kernels have a very pleasant, sweet flavor.

**JUNIPERUS CEDRUS. Canary Island juniper.** From Teneriffe, Canary Islands. A tall tree, formerly abundant in the subalpine districts and higher valleys of the Canary Islands, but now quite rare there, having been cut for its excellent timber. Very similar to *Juniperus oxycedrus*, but possibly better adapted to cultivation in southern California and in Florida.

38803. **JUNIPERUS CHINENSIS. Chinese juniper.** A North China form of tall, graceful growth collected by F. N. Meyer, Nantotchu, Shensi, China. As it is able to withstand considerable drought and alkali, it is recommended as an ornamental evergreen for parks and gardens in the mild-wintered, semiarid sections of the United States.

39992. **JUNIPERUS LITORALIS. Juniper.** From the Arnold Arboretum, Jamaica Plain, Mass. A hardy, ornamental evergreen, closely allied to the handsome *J. rigida*, but prostrate, with long, trailing branches. The stiff, narrow leaves are yellow-green in color, one-half to 1 inch long, and closely crowded. The fruit, which is berrylike, is dark violet in color and somewhat larger than that of *J. rigida*. Native of Japan.

**JUNIPERUS PROCERA. East African cedar.** Tall conifer, 100 feet high, from high altitudes of British East Africa, with straight trunk, yielding durable and valuable timber similar to that used in lead pencils. For testing as an ornamental shade tree.

23023. **JUNIPERUS** sp. **Juniper.** From F. N. Meyer, Tientsin, Chihli, China. A rare ornamental juniper with foliage of a deep bluish color. In China this variety is said to be grafted on *Thuja orientalis*. It is reported to have come from southwestern Shantung. Chinese name *Tsui po*.

43658. **KALANCHOE MARMORATA.** From the Horticultural Division, Ministry of Agriculture, Gizeh Branch, Cairo, Egypt. A very stout, low-branching shrub, with oval, succulent, crenate leaves tinged with orange and spotted with red when young, turning pale green with purple blotches. The large creamy white flowers, over 2 inches long, are borne in dense compound panicles. Native of Abyssinia.

39586. **KALOPANAX RICINIFOLIUM.** From the Arnold Arboretum, Jamaica Plain, Mass. Ornamental tree, up to 80 feet in height, valued largely for the striking, tropical effect of the large-lobed leaves, 9 to 14 inches across—the five to seven lobes being slightly shorter than the total breadth. The small greenish flowers are borne in large compound umbels and are followed by small black fruits. Native of Japan. Known also as *Acanthopanax ricinifolium*.

**KOELREUTERIA FORMOSANA.** An indigenous Formosan tree related to *K. bipinnata*, but differing from that species in having subentire leaflets. A small ornamental tree, with handsome compound foliage and spreading terminal clusters of yellow flowers. Propagation by seeds or root cuttings.

**LAGERSTROEMIA SPECIOSA.** **Crape myrtle.** From the Philippine Islands. A shrub or tree 10 to 25 feet high, of the loosestrife family. It produces an abundance of pink, fringed flowers in spring and summer. Valued as an ornamental throughout the Tropics and warmer temperate regions. Also considered valuable for its wood. Strong grower; known also as *L. flos-reginae*.

41931. **LANTANA CAMARA NIVEA.** From Mr. H. M. Curran, Rio de Janeiro, Brazil. Small ornamental shrub, 1 to 4 feet in height, somewhat hairy, and often armed with short hooked prickles. The rather thick, rough leaves are dark green. The dense, nearly flat-topped clusters of flowers are white, occasionally bluish around the edges. Native of tropical and subtropical America.

33319. **LARIX DAHURICA.** **Larch.** From D. D. Romanoff, Torchok, Russia, through F. N. Meyer. Forms large forests in Manchuria and eastern Siberia. A valuable timber and ornamental tree, reaching 80 feet in height. It can be clipped and pruned for use in formal gardens.



39995. **LARIX DAHURICA PRINCIPIS RUPPRECHTII.** **Larch.** Ornamental, deciduous conifer, of value for its timber and, like most other species of the genus, extremely hardy. Of regular pyramidal habit when young; up to 70 feet in height. Leaves linear, about  $1\frac{1}{2}$  inches in length. Native of northern China.

39994. **LARIX KURILENSIS.** **Larch.** From the Arnold Arboretum, Jamaica Plain, Mass. Ornamental, timber, and forest tree, up to 70 feet in height, of regular pyramidal habit. Branches wide spread; the branchlets somewhat purplish. Leaves rather broad and somewhat rigid. Closely allied to and somewhat resembling *L. leptolepis*, which is generally considered the most beautiful of the genus. Hardy. Native of northern Japan.

33645. **LARIX SIBIRICA.** **Siberian larch.** From Mr. M. von Sivers, Roemershof, Russia. Ornamental deciduous conifer valued for its erect, regular habit and bright-green foliage. It is closely allied to the European larch, *L. decidua*, but has longer, more slender leaves, and more concave scales. Native of Siberia and north-eastern Russia. Hardy in the Northern States.

**LEPARGYRAEA ARGENTEA.** **Buffalo berry.** Large shrub or small tree with edible red or yellow fruits the size of a currant. These are not considered very palatable raw, but make a very superior jelly. Fruits are gathered when they begin to shrivel, by shaking the trees, the berries being caught on sheets. Much resembles the so-called Russian olive (*Elaeagnus* spp.) in foliage. Native of the Missouri River valley and westward. Collected by Dr. David Griffiths.

39681. **LEPTODERMIS OBLONGA.** From the Arnold Arboretum, Jamaica Plain, Mass. Hardy rubiaceous shrub, up to 3 feet in height, with slender spreading branches, small opposite entire leaves, and slender tubular violet-colored corollas about three-fourths inch long. Native of northern China. Hardy at the Arnold Arboretum but apparently short lived.

43694. **LIGUSTRUM ACUTISSIMUM.** **Privet.** From the Arnold Arboretum, Jamaica Plain, Mass. Ornamental shrub with handsome foliage and white flowers produced in great profusion. Of spreading habit, the branches extending almost horizontally. The leaves are narrowly oval with slender-pointed tips, and the white flowers are borne in short dense panicles. Native of Central China.

22988. **LIGUSTRUM QUIHOUI.** **Privet.** From F. N. Meyer, Soochow, Kiangsu, China. A dwarf form, of spreading habit. The clean dark-green foliage, comparative freedom from insects, and their adaptability to almost any kind of soil render plants of this genus desirable for hedges, etc. Easily cultivated and can be rooted easily from cuttings. Should be tested in comparison with California privet.

22627. **LILIUM CONCOLOR BUSCHIANUM.** **Lily.** From F. N. Meyer, Shinglungshan, Chihli, China. Beautiful slender-stemmed lily, 1 to 3 feet high, of graceful upright habit, with narrow, lanceolate leaves about 2 inches long and bright-scarlet unspotted flowers in clusters of one to six. A very thrifty plant, reported as being among the easiest of lilies to grow. Good as cut flowers.

42575. **LIMONIUM FRUTICANS.** From Dr. George V. Perez, Teneriffe, Canary Islands. Beautiful ornamental shrub, with somewhat leathery leaves and large hemispherical clusters of light-blue flowers dotted with yellow. The showy part of the flower is the large calyx, the small yellow corolla simply dotting the light blue of the massed calyces with bright points of color. Also known as *Statice arborea*. Native of Teneriffe.

43583. **LINOMA ALBA.** **Palm.** From Mr. Eugene Jaeglé, Ivoloïna, near Tamatave, Madagascar. Slender, spineless, Arecalike palm found in tropical Asia, where it grows to a height of 30 feet or more with a diameter of 8 to 9 inches. The leaves are 8 to 12 feet long. It is said to be the best of the palms sometimes known as the genus *Dictyosperma*, and when young it is a very desirable house and table palm.

42822. **LIQUIDAMBAR FORMOSANA.** From Rev. Joseph Bailie, Nanking, China. Ornamental Chinese tree up to 120 feet in height, resembling the sweet gum, *L. styraciflua*, to which it is closely allied. It has, however, smaller leaves, which are usually only 3 lobed. The Chinese are said to use the timber for making tea chests. Native of southeastern and central China.

42540. **LITHRAEA MOLLEOIDES.** From Señor Benito J. Carrasco, Buenos Aires, Argentina. Evergreen ornamental shrub, closely related to the so-called California pepper-tree, *Schinus molle*. Up to 12 feet in height. Foliage compound; the three to five leaflets, narrow,  $1\frac{1}{2}$  to 3 inches long. The small, clustered flowers are followed by whitish, lustrous, cherrylike fruits, said to be used for making a tonic beverage. Native of southern Brazil and Argentina.

43696. **LONICERA FERDINANDI.** **Honeysuckle.** From the Arnold Arboretum, Jamaica Plain, Mass. A very robust, deciduous, ornamental shrub, of open, spreading habit, attaining a height of 8 or 9 feet. The oval dull-green leaves are hairy on both sides,  $1\frac{1}{2}$  to 4 inches long. The yellow flowers, three-fourths of an inch long, are produced in June and are followed by red berrylike fruits. Native of central and northwestern China.

43698. **LONICERA MAACKII ERUBESCENS.** **Bush honeysuckle.** From the Arnold Arboretum, Jamaica Plain, Mass. Low, spreading ornamental shrub with broadly oval leaves, dark green above, paler beneath, and large pink-tinted flowers which are followed by rich dark-red fruits. A very desirable species, being the latest of the bush honeysuckles to bloom, and holding its fruits well into November. Native of northeastern Asia and central Japan.

42692. **LONICERA SIMILIS DELAVAYI.** **Honeysuckle.** From the Vilmorin-Andrieux Company, Paris, France. Said to be a very vigorous honeysuckle from western China, with long, climbing branches and very velvety leaves. The young branches are covered with fragrant white flowers (turning yellow), borne in pairs. In bloom from June until frost, with abundant flowering in autumn. Closely allied to the Japanese honeysuckle, *L. japonica*.

40695. **LONICERA** sp. **Honeysuckle.** From F. N. Meyer, Sanszemiau, Kansu, China. Erect bushy shrub found on open stony places at 7,000 to 8,000 feet altitude. Of value as an ornamental for the cooler regions of the United States.

22982. **LOROPETALUM CHINENSE.** **Chuck mei.** From F. N. Meyer, Socchow, Kiangsu, China. A shrub or small tree related to the witch-hazel and recommended for dooryards, parks, and gardens. Its branches are covered in spring with masses of delightfully fragrant white flowers. These have narrow, ribbonlike petals. In China the foliage is evergreen.

41330. **LUPINUS** sp. **Tarhui.** From O. F. Cook, Ollantaytambo, Peru. A handsome species with blue and white flowers, marked with yellow on the standard, and with very thick, fleshy pods. Commonly cultivated in Peru at altitudes of 9,000 to 11,000 feet; apparently a native species. Not especially prolific, but considered a delicacy. The seeds are ground into meal and soaked in running water to extract the bitterness.

**MACADAMIA TERNIFOLIA.** **Queensland nut.** Slow-growing, evergreen tree, 40 to 60 feet in height, with very harsh foliage, which in Florida has withstood uninjured a temperature of 26° F. Bears in about seven years perfectly round, light-brown nuts with hard shells which contain attractive cream-white kernels with a rich agreeable flavor somewhat like hazelnuts. Has fruited in California and Florida. A very promising new table nut.

**MALUS ARNOLDIANA.** **Flowering crab apple.** From the Arnold Arboretum, Jamaica Plain, Mass. One of the most beautiful of crab apples. This is a hybrid of *M. floribunda*, the common flowering crab apple, with one of the hybrids of *M. baccata*, the Siberian crab apple. It appeared spontaneously at the Arnold Arboretum several years ago. A smaller tree than *M. floribunda*, its beautiful pink flowers are twice as large, and its long spreading and arching branches are much more graceful.

28489. **MALUS BACCATA** × **SYLVESTRIS.** A very promising hybrid of the *Siberian* crab with the *Baldwin* and *Yellow Transparent*, by Dr. Walter Van Fleet. Trees very prolific. Fruits 1½ to 2 inches in diameter, slightly flattened at both flower and stem ends; yellow, streaked with red; flesh firm and crisp with strong crab-apple flavor. Promises well as shipper and keeper.

27108. **MALUS BACCATA MANDSHURICA.** From E. C. Parker, Mukden, Manchuria. Common in Manchuria as far north as 45°. Very hardy and healthy. Attains a height of 15 feet and bears small fruits one-half to three-quarters of an inch in diameter, resembling thorn-apples. Valuable in America for grafting or budding purposes only. Grafted on apple stock.

42760. **MALUS GLAUDESCENS.** **Flowering crab apple.** From Mr. John Dunbar, Rochester, N. Y. Small tree or shrub, 15 to 18 feet in height, closely resembling *M. coronaria*, the American crab apple, but differing chiefly in its less distinctly lobed leaves and shorter, stouter leafstalks. *M. glaucescens* also flowers about a week earlier than *M. coronaria* and ripens its fragrant, yellow fruits two to three weeks earlier. Native of eastern North America.

**MALUS SARGENTI.** **Crab apple.** A Japanese shrub of bushy habit, 3 to 5 feet high, with pure white flowers an inch across, produced in clusters of five or six each. The fruit is orange shaped, bright red in color, and about half an inch through. It is distinct among the crab apples because of its bushy habit, and ranks as one of the most beautiful of flowering shrubs. Hardy in New England.



43704. *MALUS SIEBOLDII ARBORESCENS*. From the Arnold Arboretum, Jamaica Plain, Mass. Ornamental shrub or small tree, with slightly pubescent oval-oblong leaves that turn red in the fall. The flowers are nearly white, often slightly tinged with pink, and are followed by red or yellow fruits about the size of large peas. In Japan, where it is native, the fruits are preserved, and the trees are grown both as ornamentals and as stocks.

27060. *MALUS SYLVESTRIS*. **Afghasian apple**. From F. N. Meyer, Caucasus, Russia. Large, grayish green apple with one cheek narrowly streaked with red, fresh subacid flavor. Picked in late October or early November, the fruits ripen slowly and keep well until late spring. May prove of value for the warmer sections of the United States, especially for the Gulf regions.

27061. *MALUS SYLVESTRIS*. **Apple**. From F. N. Meyer, Dioscuria, near Sukhum Kale, Caucasus, Russia. A Circassian apple indigenous to the Caucasus. Reported as being a very fine fruit. Suitable for mild-wintered sections of the United States. Not yet fruited in America.

27152. *MALUS SYLVESTRIS*. **Apple**. From F. N. Meyer. Kopetnari, Caucasus, Russia. Trees obtained from a native Mingrelian orchard; able to stand high summer temperatures but require mild winters. Said to produce large red apples of fine quality. To be tested in the Southern States.

27153. *MALUS SYLVESTRIS*. **Apple**. Received through F. N. Meyer, from near Kopetnari, Caucasus, Russia. A white apple, said to grow very large, some fruits weighing several pounds each. The trees are able to endure high summer temperatures, but require mild winters. To be tested in the southern sections of the United States.

30326. *MALUS SYLVESTRIS*. **Apple**. From Khotan, Chinese Turkestan, through F. N. Meyer. A large variety of the so-called *Muzalma* apple (S. P. I. 30309). This latter is of medium size, yellowish green; peculiar glassy texture; sweet taste, somewhat insipid; good keeping qualities, ripening in autumn; able to withstand considerable drought and alkali. Introduced for trial in the Southwest.

30327. *MALUS SYLVESTRIS*. **Apple**. From F. N. Meyer, Khotan, Chinese Turkestan. A variety of apple called *Kizilalma*. Because of its ability to stand drought, soil alkali, and neglect it may prove of value under irrigation in the hot desert regions of our Southwest. Fruits medium large, of red color throughout, sweet, somewhat insipid.

30328. *MALUS SYLVESTRIS*. **Akalma apple.** From F. N. Meyer, Khotan, Chinese Turkestan. Variety with medium-sized fruits, often large, white, of subacid, fairly good flavor. Small tree, but able to stand drought, alkali, and neglect. For experiments in the hot, arid desert regions of the Southwest under irrigation.

30353. *MALUS SYLVESTRIS*. **Muzalma apple.** From Karawag, Chinese Turkestan, through F. N. Meyer. Variety thought to be identical with S. P. I. No. 30309, from Khotan, with medium-sized yellowish green fruits of peculiar glassy texture; taste sweet but somewhat insipid; good keeping qualities; ripening in autumn; able to withstand considerable drought and alkali. Becomes spreading when old.

30635. *MALUS SYLVESTRIS*. **Apple.** From F. N. Meyer, Kashgar, Chinese Turkestan. An apple called *Kizilalma*, with large red fruits of fresh, sweet taste. Ripens in July. May prove to be suitable for hot, dry regions where other apples do not thrive.

31653. *MALUS SYLVESTRIS*. **Apple**, var. *Wainwright*. From W. J. Newberry, curator, Botanic Gardens, Pietermaritzburg, Natal, South Africa. A good subtropical apple.

35636. *MALUS SYLVESTRIS*. **Apple.** From Svend Lange, Novo Nikolayefsk, Siberia. A variety called *Liestnaya Antonoffka*, from southern Russia.

39829. *MALUS SYLVESTRIS*. **Limoncello apple.** Best variety grown in Italy for general market. Presented by Dr. Gustav Eisen, Rome. Lemon-yellow, with light flush; flesh crisp, white, juicy; flavor strong, suggesting Cabernet grapes; fine shipper; especially adapted to warm, dry climates. Not to be preferred to best apples from Northern States, but reported to be superior to any grown in the central and southern plains of California.

43705. *MALUS ZUMI*. From the Arnold Arboretum, Jamaica Plain, Mass. Usually a low, much-branched tree, with rounded head, up to 20 feet in height; but sometimes 40 feet tall and of more pyramidal habit. It much resembles both *M. sargentii* and *M. sieboldii*, but differs in its oblong leaves on slender petioles and larger flowers, opening pink but becoming pure white. The red fruits,  $1\frac{1}{2}$  inches in diameter, are an added attraction to the general ornamental appearance of this tree. Native of central Japan.

39338. **MANIHOT DICHOTOMA.** **Maniçoba.** From Dr. V. A. Argollo Ferrão, Bahia, Brazil. One of the Brazilian rubber trees, the source of Jequié rubber. The tree is exceedingly variable in leaf and growth. It will not stand frost, and requires a rainy season in summer. It ordinarily requires a year's growth before being tapped.

39337. **MANIHOT GLAZIOVII.** **Ceara rubber.** From Dr. V. A. Argollo Ferrão, Bahia, Brazil. A small, rather spreading, quick-growing tree, 25 to 40 feet high, yielding a rubber second in quality only to that of *Hevea brasiliensis*. The latex coagulates rapidly without the addition of acid. Withstands a drier climate than Hevea, may be planted closer, and is tappable at an earlier age. File ends of seeds before sowing.

39340. **MANIHOT HEPTAPHYLLA.** **Rubber tree.** From Dr. V. A. Argollo Ferrão, Bahia, Brazil. Tree 20 to 25 feet high, with dark-brown bark and purplish twigs. Seeds larger and paler than those of the Ceara rubber (*M. glaziovii*). Reported as producing a very good quality of rubber. One of the so-called *Maniçoba* rubber trees, native of South America.

39339. **MANIHOT PIAUHYENSIS.** **Remano maniçoba rubber tree.** From Dr. V. A. Argollo Ferrão, Bahia, Brazil. Tree described as reaching a height of 8 to 16 feet; branches forked two to three times. Reported superior to Ceara rubber (*M. glaziovii*) in yield and quality of product. Seeds are larger than those of the former species, less hard and horny, and germinate more readily.

42851. **METROSIDEROS ROBUSTA.** **Rata.** From Mr. H. R. Wright, Auckland, New Zealand. Ornamental and timber tree allied to the Eucalyptus. One hundred feet or more in height, with leathery, gray-green leaves and gorgeous masses of red flowers. The wood is hard and very durable; said to be largely used by wheelwrights. Native of New Zealand.

43659. **MICROCOS LATERIFLORA.** From the Horticultural Division, Ministry of Agriculture, Gizeh Branch, Cairo, Egypt. Small tiliaceous tree allied to the American linden or basswood (*Tilia americana*), which it somewhat resembles in its foliage and larger yellow flowers. The small, dark, purple "berry" or drupe has a pleasant acid flavor and is said to make good sherbet.

41809. **MIMUSOPS ELENGI.** From G. Regnard, Port Louis, Mauritius. A tropical tree related to the sapodilla, bearing a small, sweet, edible fruit. In India the sapodilla is grafted on some species of *Mimusops* in preference to its own roots, and this species may prove of value in Florida for the same purpose.

**MORINGA OLEIFERA.** **Horse-radish tree.** Very attractive, small ornamental tree, 15 to 20 feet high, with pinnately compound leaves of pleasing light-green color and masses of slightly fragrant white flowers arranged in axillary panicles 6 to 8 inches long. The slender triangular seed pods are often a foot in length. Considered an antidote for manchineel poisoning. Native of India, but established in the West Indies and Mexico.

43859. **MORUS ACIDOSA.** **Cliff mulberry.** From the Arnold Arboretum, Jamaica Plain, Mass. Broad shrub, 3 to 16 feet high; occasionally forming a small tree, up to 25 feet, with broad, very variable leaves, and shining, black, or dark-red edible fruits. The leaves are not used for feeding silkworms. Common in Hupeh and Szechwan, China, especially in rocky places.

27048. **MORUS ALBA.** **White mulberry,** var. *fastigiata*. From Leon Chenault, Orleans, France. A rare variety of white mulberry, valuable as an ornamental pyramidal tree.

40215. **MORUS ALBA.** **Mulberry.** From seeds taken from dried fruits received from the Ameer of Afghanistan, Kabul, through A. C. Jewett. The dried fruits of this mulberry are said to form the principal food of the poor people of the mountainous regions where it grows.

30330. **MORUS NIGRA.** **Black mulberry,** *Shatoot*. From F. N. Meyer, Khotan, Chinese Turkestan. Berries large, of dark violet color; very persistent, fresh subacid flavor; ripening from early August to late September. Trees grafted usually 1 meter above ground, so fruit may be picked easily. Recommended as a home fruit in desert regions under irrigation. Probably hardy in protected places in New York and New England.

41057. **MYRCIARIA FLORIBUNDA.** **Guava berry tree.** From Mr. Longfield Smith, St. Croix, Virgin Isles. Myrtaceous tree, 30 to 40 feet in height, with papery leaves, small, white flowers, and small, edible, black, reddish, or yellow fruits, which have a pleasantly acid, aromatic flesh. They are said to make a delicious preserve. Native of the West Indies, Guiana, and Brazil.



41256. **MYRICA RUBRA.** **Yang mae.** From F. N. Meyer, Hangchow, Chekiang, China. Seedlings of a rare and interesting evergreen Chinese fruit tree, of which many inarched varieties are grown in Chekiang. Fruits of grafted varieties are very showy, the size of small crab apples, dark purplish in color, and have a pleasant, vinous flavor of their own. Trees difficult to transplant.

27812. **OCIMUM BASILICUM.** **Sweet basil.** From F. N. Meyer, Erivan, Caucasus. Dwarf annual labiate profusely branching, with handsome white flowers producing small black seeds. The aromatic leaves are widely used for seasoning soups and meats. Sow in April or May in seed bed and transplant, or in permanent rows 2 feet apart. Culture similar to parsley.

42834. **OLEA CHRYSOPHYLLA.** **Golden-leaved olive.** Small ornamental tree with slender branches and narrow leaves, 2 to 4 inches long, bright green above and golden or sometimes drab colored beneath. The copious panicles of small, inconspicuous flowers are followed by rather large blackish drupes somewhat resembling those of the common olive (*O. europaea*). The fruits are, however, not used. Native of tropical Africa.

12569. **OLEA EUROPAEA.** **Barouni olive.** From Susa, Tunis, Africa, through T. H. Kearney. The largest fruited olive of the Tunisian region. Culture confined exclusively to Sahel and Kalaa Srira. One of the best of the green table olives.

12684. **OLEA EUROPAEA.** **Bidh el Hammam olive.** From T. H. Kearney, Zaouia du Mornag, near Tunis, North Africa. Second largest olive of the Tunisian region and said to be one of the best of the table olives.

12910. **OLEA EUROPAEA.** **Chitoui olive.** From T. H. Kearney, Tunis, North Africa. The principal oil-producing olive of northern Tunisia, but not so well adapted to the drier, hotter regions as other sorts, like the *Chemlali*.

13257. **OLEA EUROPAEA.** **Grosse Aberkan olive.** From Dr. L. Trabut, Mustapha, Algeria. Rather large, somewhat curved fruits, ripening somewhat earlier than the *Mission*. The trees seem to be very vigorous and strong growers. The foliage is not so dense and is of lighter hue than the other African varieties.

13567. **OLEA EUROPAEA.** **Chemlali olive.** From Tunis, North Africa, through T. H. Kearney. Small oil-producing olive, grown in immense plantations around Sfax, where only from 5 to 10 inches of rain falls; irrigated for first two or three summers only. Orchards created by planting pieces of wood from bases of old trees. Promising variety for California because of its robust growth.

27172. *OLEA EUROPAEA*. **Olive.** From F. N. Meyer, Nikita, Crimea. Hardy variety of large-fruited olive from a tree several centuries old which has successfully withstood 2° F. below zero, at which temperature other varieties were frozen to the ground.

27173. *OLEA EUROPAEA*. **Olive.** From F. N. Meyer, near Gagri, Caucasus, Russia. A wild bushy olive tree said to be very resistant to drought. Found growing plentifully on dry mountain slopes and cliffs along the Caucasian shore of the Black Sea.

22324. *OLEA FERRUGINEA*. **Himalayan olive.** From Lieut. Col. G. C. French, Fort Sandeman, Baluchistan. Valuable timber tree, 30 to 50 feet in height, with lanceolate, entire leaves, deep glossy green above, covered with a dense coating of red, or occasionally gray, scales beneath—2 to 4 inches long. Flowers whitish, small, in short clusters. Fruit with scanty pulp. Heartwood olive-brown to nearly black, often beautifully mottled, and extremely hard; highly prized for turning and for agricultural implements.

*OLEA VERRUCOSA*. **Wild olive.** From South Africa. Wild relative of the cultivated olive, for which it has been successfully used as a stock. The tree grows 20 feet high, with a trunk 18 inches in diameter. Fruit small, one-fourth of an inch long, dry. Possibly the olive, which refuses to fruit in Florida and Texas, may bear there if grafted on this stock.

*OPHIOPOGON JAPONICUS*. A small, low-growing, ever-green plant, related to the lily of the valley, with grasslike leaves, 12 inches long, and racemes of lilac to whitish flowers. Used in Japan and everywhere in the Mediterranean region as a ground cover on the shady side of the house and under trees where it is too shady for grass to grow. Suitable for border edgings; needs no clipping; hardy as far north as Washington.

40033. *OSTEOMELES SCHWERINAE*. From F. N. Meyer, Kwatsa, Kansu, China. Dense shrub 2 to 5 feet high, found on dry rocky cliffs and waste places. Said to produce an abundance of white flowers in spring; bears small bluish black berries in late fall.

36731. *OSTRYOPSIS DAVIDIANA*. From F. N. Meyer, Hsiao Wutaishan, Chihli, China. Low, spreading, ornamental shrub, resembling in habit the hazelnuts, *Corylus* spp., or even more closely both in foliage and habit the American hop hornbeam, *Ostrya virginiana*, from which it differs in having a three-parted fruit. Native of China.

**PARMENTIERA CEREIFERA.** **Candle tree.** A remarkable tree, native to Panama. It grows to a height of 30 to 40 feet, and produces from the trunk and older branches a profusion of almost sessile, bell-shaped, white or greenish flowers. The long, fleshy fruits, a foot or more in length and only one-half to three-fourths of an inch in diameter, closely resemble wax candles in color and appearance. They are edible and are delightfully fragrant.

**PASSIFLORA LIGULARIS.** A perennial vine, with evergreen heart-shaped leaves and strikingly handsome green and purple flowers. Fruits medium sized, roundish or oval, with soft, edible, sweetish pulp embedding numerous small seeds. Used in the preparation of cooling drinks, fruit sirups, and desserts. For fruiting and breeding experiments.

**PASSIFLORA MALIFORMIS.** **Passion fruit.** From Bogota, Colombia. A climbing vine with attractive flowers, known in Colombia as the "yellow curuba." Fruit is about 2 inches in diameter, dingy yellow color when ripe, with a hard coat nearly one-fourth of an inch thick and filled with seeds and a very agreeable pulp, which is eaten without preparation or is often made into delicious sherbets.

42033. **PASSIFLORA** sp. **Passion flower.** From Mr. Ludovic Söderström, Quito, Ecuador. Reported as a fruit much cultivated by the Indians of the Zambiza Valley, northeast of Quito. The fruit is said to be small, very sweet, but somewhat seedy.

**PAULOWNIA FORTUNEI.** Medium-sized ornamental tree valued for its large, handsome, white or lilac-tinged flowers spotted with purple. Able to withstand drought and a certain amount of alkali. It is often planted on sandy land as a soil binder and wind-break. The wood is very light and is used by the Chinese for furniture, bowls, jars, children's toys, etc. Native of southeastern China. Valuable only in mild-wintered sections of the United States.

43661. **PAVONIA SPINIFEX.** From the Horticultural Division, Ministry of Agriculture, Gizeh Branch, Cairo, Egypt. Ornamental shrub related to *Althaea*, with a slender stem, few upright branches, alternate, oval, heart-shaped leaves, hairy on both sides, and large, yellow, odorless flowers. Native of South America. Not hardy.

**PERILLA FRUTESCENS.** Annual plant similar in growth to *Coleus*. Extensively cultivated in Japan for oil, of which the seeds contain 17 per cent. Oil principally used in making the remarkable oil papers of Japan. Considered superior to linseed oil for many purposes. Requires long season to mature seeds, which are inclined to shatter badly.

26690. **PERSEA AMERICANA.** **Butler avocado.** Obovate, about 15 ounces in weight, light green in color, with rich yellow flesh of excellent quality. A prolific and regular bearer. A very promising summer-fruited variety for southern Florida; ripens in August.

26698. **PERSEA AMERICANA.** **Avocado.** An unnamed seedling of the West Indian type; originated at Fort Myers, Fla. Fruit long and slender, weighing 10 to 16 ounces, with a very thick green skin and abundant flesh of good quality. The seed is small in proportion to size of fruit. Ripens in August and September.

26710. **PERSEA AMERICANA.** **Taylor avocado.** A promising winter-fruited variety of Guatemalan type, grown at Miami, Fla. Fruit pear shaped, about 1 pound in weight, with thick, woody skin, rough and deep green on the surface. Flesh creamy yellow, of very rich flavor; seed medium size and tight in the cavity. Ripens January to March at Miami. Budded on Mexican stock which was uninjured by 25° F.

36270. **PERSEA AMERICANA.** **Avocado.** Unnamed seedling of the West Indian type; originated at Miami Plant Introduction Garden. Fruit oblong-oval, about 24 ounces in weight, bright green, with deep yellow dry flesh of very rich flavor; seed medium to small. Season. August to September. A very prolific and promising variety, strongly resembling *Pollock*, but smaller and more productive.

36603. **PERSEA AMERICANA.** **McDonald avocado.** Guatemalan type. Buds from tree introduced as seed by Admiral Beardslee into Honolulu, 1890. Medium size, skin olive-green to purple, woody; flesh fine, texture smooth, flavor rich. Seed fairly large. Fruits remain hard on tree until April. Keep two weeks after picking. Foliage only slightly injured at Miami by 1917 freeze; temperature 26.5° F. Productiveness still unknown.



36687. *PERSEA AMERICANA*. **Avocado**. From the Indian village of Lagas, western Mexico. Discovered by Postmaster General Burleson during a hunting trip in Mexico and recommended to the department as a variety of considerable value. Consul Hamm reports the seeds from which these trees were grown as coming from the village described by Mr. Burleson situated on a plateau at an elevation of 5,000 feet, 175 miles southwest of Durango. Cuttings of the original seedling grafted on Mexican stock.

43431. *PERSEA AMERICANA*. **Avocado**. From Mr. Wilson Popenoe, Guatemala City, Guatemala. A curious variety said to have come from Antigua. Possibly a cross between the Guatemalan and some other type. Of possible value as a stock for commercial varieties. The fruit is very small, with pale green flesh of rich flavor, and a very large seed. The skin is fairly thin. Not recommended as a fruit.

44710. *PHASEOLUS VULGARIS*. **Mulatinho bean**. From Dr. V. A. Argollo Ferrão, Bahia, Brazil. A Brazilian bush variety of the kidney bean. It is much cultivated in the coastal states, especially in Sao Paulo, where it matures in sixty days, thus allowing the harvesting of two crops a year. These beans contain 36 per cent starch and are used for human food in much the same manner as the kidney bean.

44242. *PHELLODENDRON SACHALINENSE*. **Cork tree**. From Mr. R. C. Berckmans, Augusta, Ga. Hardy ornamental tree with stout spreading branches, forming a round, broad head. The large compound leaves turn yellow in the fall and are very attractive. The inconspicuous greenish flowers are followed by clusters of black, berrylike fruits, which remain on the tree long after the foliage has fallen. Native of Sakhalin, Chosen, northern Japan, and northern China.

24760. *PHYLLOSTACHYS BAMBUSOIDES*. **Madake bamboo**. From Nagasaki, Japan, through William D. Hills. Best timber bamboo in Japan, growing to 60 feet eventually; planted there in large groves on well-drained, rich soil. Spreads underground, but easily controlled by ditches. Timber used for every conceivable purpose—ladders, basketry, fencing, stakes, crates, irrigating pipes, etc.

23234. **PHYLLOSTACHYS NEVINII HUPEHENSIS.** **Mao chu bamboo.** From F. N. Meyer, Tangsi, Chekiang, China. Large timber bamboo for grove planting in the South, attaining ultimately 100 feet; prefers rich, red-loam mountain slopes; responds quickly to manure; requires continual mulch to induce grove formation. Most useful plant for temporary structures, ladders, fruit-tree poles, vine stakes, pipes.

24759. **PHYLLOSTACHYS PUBESCENS.** **Moso bamboo.** From Nagasaki, Japan. The largest of the three most valuable timber bamboos of Japan, the other two being *P. bambusoides* and *P. puberula*. It reaches a height of 80 feet and a diameter of 8 inches. The young shoots furnish a tasty vegetable, commonly eaten by the Chinese and Japanese.

23261. **PHYLLOSTACHYS** sp. **Chu tse bamboo.** From Fengtai, near Peking, China, through F. N. Meyer. Suitable for timber plantings southward, but deserves trial as an ornamental as far north as Philadelphia. Valuable for ladders, furniture, tree props, stakes, fences, basketry; spreads rapidly by rhizomes, requiring deep ditches to check it. Requires continual mulch, good soil, and careful planting.

**PHYSALIS PERUVIANA.** **Cape gooseberry.** Dwarf perennial, cultivated in warm countries for its edible, slightly acid, yellow fruits. These are used for desserts, or made into delicious jams by boiling with equal quantities of sugar. Start in coldframe and treat like tomatoes. Plant 2 by 3 feet apart. Widely cultivated throughout the Tropics.

39040. **PICEA SMITHIANA.** **West Himalayan spruce.** From Mr. L. J. Mackintosh, Darjiling, India. Tall, evergreen conifer, 100 to 120 (and occasionally 200) feet high, with horizontal branches but pendulous branchlets. It is easily distinguished from other spruces by its longer leaves and weeping habit. The wood is rather hard and is in much demand in India for planking, packing cases, etc. Not hardy in the North.

**PINUS SINENSIS.** The **hard pine** of northern China. Withstands long drought, cold, and alkali. Of extremely picturesque habit when grown singly. Extensively used in temple courts and palace gardens. Produces medium-sized, straight trunks in forest plantings. Wood close grained and durable. Distinct from *P. densiflora*.

**PISTACIA CHINENSIS.** **Chinese pistache.** Tall deciduous, dioecious tree, strikingly ornamental, with large pinnate leaves, wine-red when young, changing to vivid green in summer and flaming scarlet and yellow in fall. Berries inedible. Highly recommended as a shade and ornamental tree. Trunk attains 16 feet in circumference.

**PISTACIA VERA.** **Pistache** or **pistachio.** Small deciduous tree, cultivated in the Mediterranean region for its nuts, with characteristic green meat and delicate flavor, used extensively in confectionery; becoming a very popular table nut. The best varieties bearing large nuts grafted on special stock are to be tested under supervision. Promising new dry-land tree crop.

39420. **PITHECOLOBIUM TORTUM.** **Vinhatico de espinho.** From J. T. Roig, Cuban Agricultural Station, Santiago de las Vegas, Cuba. Leguminous tree with bipinnate leaves and racemose inflorescences of white flowers, resembling the honey locust. Valuable for its golden-colored timber, used extensively for interior work, tool handles, cabinetwork and for posts and fences.

42177. **PITTOSPORUM FAIRCHILDI.** From Mr. H. R. Wright, Avondale Nursery, Auckland, New Zealand. Ornamental evergreen shrub, closely resembling *karo*, *P. crassifolium*, but it is more dense and has broader leaves. Bush 15 feet or more in height with medium-sized leathery leaves, covered with white or pale brown felt beneath. Flowers dark purplish to nearly chocolate. Said to be an excellent hedge shrub. Native of New Zealand.

**PONGAM PINNATA.** Ornamental leguminous tree. Native of British India, Malaysia, Polynesia, and Australia. Usually an erect tree (up to 40 feet high), but sometimes a climber. The bright-green compound leaves and clusters of pink and white, locustlike flowers render it very attractive. The seed yields a thick red-brown oil which is used as a remedy for cutaneous diseases.

26614. **POPULUS BEROLINENSIS.** **Poplar**, var. *Rossica*. From F. N. Meyer, Liesnoi, Russia. A very hardy variety of the ordinary Berlin poplar, widely planted in and around Petrograd as a shade tree; mostly closely pruned there, but of open habit of growth under ordinary conditions.

43862. **POPULUS MAXIMOWICZII.** **Japanese poplar.** From the Arnold Arboretum, Jamaica Plain, Mass. A magnificent large poplar, said to be the largest in eastern Asia—up to 100 feet in height. The pale-brown branchlets are densely hairy, and the nearly circular leaves are whitish or rusty beneath. Its attractive foliage and shapely head make it a very desirable tree. Native of eastern Siberia and northern Japan. Hardy in the Northern States.

22363. **POPULUS SIMONII.** **Poplar.** From F. N. Meyer, Shiling, Chihli, China. Forma *fastigiata*. One of the balsam poplars, the odor of which is particularly noticeable when the young leaves are developing. This form looks somewhat like the Lombardy poplar, but makes a more pleasing impression. Thrives in sandy soil. Hardy at Arnold Arboretum, near Boston, Mass.

26812. **POPULUS SINENSIS.** **Poplar.** From F. N. Meyer, Orianda, Crimea, Russia. Stately white-trunked tree, often attaining a height of 80 feet or more, with a remarkable pyramidal habit. Old trees branch out and lose their pyramidal shape. Of value in the Western States for windbreaks and as an ornamental park tree.

22861. **POPULUS SUAVEOLENS.** **White-barked poplar.** From F. N. Meyer, Wutaishan, Shansi, China. Grows at high altitudes and is valuable for sand binding. Frequently planted along ravines to prevent erosion and damage to lands below. Suggested for similar use and avenue planting in this country. The young bark of the tree is green.

39900. **POPULUS SUAVEOLENS PRZEWALSKII.** **Poplar.** Collected by F. N. Meyer near Kagoba, Kansu, China. Tall, stately tree with trunk of ashy gray color, quite distinct from any of the common poplars; leaves large, somewhat grayish beneath. Found usually where soil retains its moisture; of value as an avenue or park tree for mild-wintered sections of the United States.

38232. **POPULUS sp.** **Poplar.** From F. N. Meyer, Beetchi, Shansi, China. Poplar of remarkable fastigiate growth found growing on dry loess table-lands. Seemingly very drought resistant. May possibly prove of value as a windbreak for drier parts of the United States. Should be tested on the loess soils of Iowa and Nebraska.

41260. **PREMNA MICROPHYLLA.** Ornamental deciduous shrub collected by F. N. Meyer, Mokanshan, Chekiang, China. Bush 8 to 10 feet high, with glossy green leaves, resembling those of a lilac, and panicles of white flowers, which later are supplanted by small black drupes. Thrives in semishady places. Of possible value as a hedge shrub for mild-wintered locations.



**PRINSEPIA UNIFLORA.** Ornamental Chinese shrub with edible fruits. Spiny bush, up to 4 feet in height, with slender, spreading, light-gray branches, narrow bright-green foliage, and white or rose-tinted flowers in clusters of one to three appearing with the leaves in early spring and followed by dark-red or black, cherrylike fruits, which vary greatly in size and flavor. Perfectly hardy at the Arnold Arboretum, Jamaica Plain, Mass., but the flowers sometimes suffer from the cold.

42719. **PROSOPIS CHILENSIS.** From Mr. H. M. Curran, Colombia. Small tree resembling in habit and foliage the screw bean (*P. pubescens*) of the Southwestern States, to which it is closely related. The pods, however, are straight, but somewhat thickened, as are those of the screw bean. It should be tried as a forage plant in the South.

43282. **PROSOPIS SPICIGERA.** Presented by Mr. A. C. Hartless, Seharunpur, India. Small, leguminous tree with or without thorns; somewhat resembling the mesquite (*P. glandulosa*) of the Southwest, to which it is closely allied. The pods are used for fodder quite as are those of *P. dulcis* in Hawaii, and the tree exudes a gum similar to mesquite gum. Native of southern Asia.

43386. **PROSOPIS STROMBULIFERA.** From Dr. J. N. Rose, Mendoza, Argentina. A low shrub, not over 12 inches in height as found growing in the Mendoza desert, but said to reach 5 to 8 feet in favorable localities. Somewhat resembles the mesquite of the Southwest in habit, foliage, and flower. The peculiar screw-shaped pods are said to look like bright-yellow flower spikes at a short distance; they hang on long after the leaves have fallen.

17154. **PRUNUS ARMENIACA.** **Apricot.** From F. N. Meyer, Chaching, China. A large red apricot of good quality. Budded on *Amygdalus davidiana*.

20072. **PRUNUS ARMENIACA.** **Apricot.** From F. N. Meyer, Liaoyang, Manchuria. A red apricot grown in the gardens of Liaoyang. It is of medium size and of very sweet flavor.

32833. **PRUNUS ARMENIACA.** **Apricot.** From F. N. Meyer, Russian Turkestan. A native central Asian variety of apricot called by the natives *Bairam Ali*. Said to be of excellent quality. Grafted on *Amygdalus davidiana*.

32834. **PRUNUS ARMENIACA.** **Apricot.** From F. N. Meyer, Imperial Estate Murgab, Bairam Ali, Oasis of Merv, Russian Turkestan. A central Asian variety of apricot, called *Murgab*. Reported to be of fine quality. Budded on *Amygdalus davidiana*.

34269. *PRUNUS ARMENIACA*. **Apricot**. From Dr. Gustav Eisen, Rome, Italy. A very large, rounded-oblong apricot, without points, of orange color, ripens evenly all around; known as the *Crisomelo*.

38281. *PRUNUS ARMENIACA*. **Apricot**. A Chinese variety, collected by F. N. Meyer in the village of Tachingko, near Taianfu, Shantung, China. Said to be a variety with very large yellow fruits, with strong red blush on one side and sweet, juicy flesh. Chinese name *Ta shui hsing*, meaning "large water apricot."

40012. *PRUNUS ARMENIACA*. **Apricot**. From F. N. Meyer, Lantsai, Kansu, China. Wild form collected in the mountains, 5,000 to 9,000 feet altitude. Boiled kernels, though somewhat bitter, are eaten by the natives. Of possible value in extending apricot culture farther north; also as a stock for stone fruits in semiarid regions and as a hardy spring-flowering park tree in the cooler parts of the United States.

40013. *PRUNUS ARMENIACA*. **Apricot**. From F. N. Meyer, Kwatsa, Kansu, China. Wild form of possible value as a hardy spring-flowering park tree in the cooler portions of the United States, as a stock for stone fruits in semiarid regions, and as a hardier strain capable of being grown north of the apricot belt proper.

33222. *PRUNUS AVIUM*. **Cherry**, var. *Garrafal*. From Pedro Giraud, Granada, Spain. Purchased at the request of W. T. Swingle, of the Bureau of Plant Industry. A giant cherry having firm, sweet flesh. Should be tried in the cherry regions of the Pacific coast.

33223. *PRUNUS AVIUM*. **Cherry**, var. *Garrafal le Grand*. From Pedro Giraud, Granada, Spain. Purchased at the request of W. T. Swingle, of the Bureau of Plant Industry. A large variety of cherry, possibly of French origin. Said to ripen in June. Should be tested in the Pacific coast cherry region.

32751. *PRUNUS DOMESTICA*. **Prune**. From Felix Wenger, Langenbuhl, Thun, Berne, Switzerland. This prune resembles the Italian, but is much larger and contains more sugar. It is locally known as the "grafted prune." To be tested in the northwestern section of the United States.

33224. *PRUNUS DOMESTICA*. **Plum**, var. *Ciruela de Fraile*. From Pedro Giraud, Granada, Spain. Purchased at the request of W. T. Swingle, of the Bureau of Plant Industry. Fruit said to ripen in June, and reported to be of excellent quality.

34267. *PRUNUS DOMESTICA*. **Papagone prune.** From Rome, Italy. Presented by Dr. Gustav Eisen, San Francisco, Cal. Fruits average  $2\frac{1}{2}$  by  $1\frac{1}{2}$  inches, often 3 by  $1\frac{3}{8}$  inches, elongate-ovoid, greenish yellow, darker on shaded side; fine gray bloom; very thin, smooth skin; stalk short, one-half inch or less; seed very thin and remarkably small for size of fruit; flesh firm, sweet, and highly flavored.

34268. *PRUNUS DOMESTICA*. **Prune.** From Rome, Italy. Presented by Dr. Gustav Eisen, of the California Academy of Sciences, San Francisco, Cal. Called *Prunaringia*; grown near Naples. Fruit dark green, averaging about  $2\frac{1}{2}$  by  $1\frac{1}{2}$  inches, elongate-ovoid. Very sweet and highly flavored. When ripe has one or more vertical slits on cheek. Can not stand long shipments, but should prove excellent for canning and preserving.

40498. *PRUNUS DOMESTICA*. **Papagone prune.** From Dr. Gustav Eisen, Boscotrecase, near Naples, Italy. Reported as one of the finest of plums. Fruit greenish yellow, oblong, about 3 inches long, with a remarkably long, thin, slender stone. Dr. Eisen says that "the quality of this can not be too highly praised."

38337. *PRUNUS GLANDULOSA*. **Flowering cherry.** From F. N. Meyer, Tsaochowfu, Shantung, China. Ornamental flowering shrub of bushy habit, rarely over 5 feet tall, with nearly oblong leaves and beautiful, large, double flowers, white with pink center. Closely allied to *P. japonica*, from which it differs in its narrower leaves. Sometimes cultivated under the name of "flowering almond." This, however, is an entirely different plant, related to the peaches. Native of China.

37645. *PRUNUS GRAYANA*. **Gray's bird cherry.** Presented by the Botanic Gardens, Petrograd, Russia. Small ornamental tree. Native of Japan, 20 to 30 feet high. Closely resembles the European bird cherry (*P. padus*), but has erect (not drooping) racemes of white flowers about 4 inches long. These appear in June and are followed by the black fruits in August.

*PRUNUS MAXIMOWICZII*. **Korean flowering cherry.** From the Arnold Arboretum, Jamaica Plain, Mass. A distinct and attractive species, up to 20 or 30 feet in height. Leaves oval, bright green, doubly and deeply toothed. Flowers white, about three-fourths of an inch across, appearing with the full foliage. Fruits about the size of small peas, red, turning to black. Native of Korea, Manchuria, Sakhalin, and Japan.

45063. **PRUNUS MUME.** Japanese apricot, var. *Tsukasa-Shibori*. Semidouble, very light pink flowered variety, blooming in Maryland the middle of April. Though spoken of as the "flowering plum of Japan," the "mume" of Japan is really an apricot. The delicate fragrance of its flowers, extremely picturesque habit of its growth and its extreme earliness (April in Maryland) make it worthy of extensive trial. Its fruits rarely set in America. They are sour, but when pickled form a delicious but very sour pickle. Should be sprayed with lime-sulphur before leafing out in the spring.

**PRUNUS PROSTRATA.** Bush cherry. Native of Turkestan and the Levant. An exceedingly variable shrub, ranging from a close stunted bush to a rather free-growing plant 8 feet or more high. Flowers so profusely as to make it of value as an ornamental. The rather small red fruits are sour, but vary greatly in size and flavor. Should be tested for hardiness and as a factor in hybridization work.

18587. **PRUNUS PSEUDOCERASUS.** Tangsi cherry. From F. N. Meyer, Chekiang, China. A distinct species of fruiting cherry, which, though not hardy, deserves study by horticulturists; the true *Prunus pseudocerasus* (a name erroneously applied to the Japanese flowering cherry). Ten days earlier than the earliest variety yet fruited in California. Fruit, size of the *Early Richmond*. Unusually vigorous. May make excellent stock.

43425. **PRUNUS SALICIFOLIA.** Cereza. From Mr. Wilson Popenoe, Mazatenango, Guatemala. A wild cherry brought into the markets from the highlands. The fruit is one-half to five-eighths of an inch in diameter, shiny purplish black, resembling the *English Morello* cherry in size and appearance and the *Oxheart* in flavor, but is slightly bitter. Flesh dark colored, juicy, somewhat meaty in texture. The fruit is used largely fresh and in preserves. The tree is said to be of medium size.

31652. **PRUNUS SALICINA** × **CERASIFERA MYROBALANA.** Plum. From Mr. W. J. Newberry, curator, Botanic Gardens, Pietermaritzburg, Natal, South Africa. *Methley*. A dark-red fruit; flesh dark red, firm; stone medium in size, cling; flavor and quality good; season very early.



45049. **PRUNUS SERRULATA. Japanese flowering cherry.** One of the loveliest of the very double, delicate pink varieties. Late flowering, about May 1. Flowers hang in clusters of two to five on long stems. Buds at first deep pink and truncate as though their tips had been cut off; expand slowly and form wonderful, double, very large ( $1\frac{1}{2}$  inches) flat flowers, with petals a delicate pink, deeper colored at the margins. Flowers in rifts. Tree extremely Japanese. Fairly vigorous. One of the loveliest for small lawn planting. Should be sprayed with lime-sulphur before leafing out in the spring.

45050. **PRUNUS SERRULATA. Japanese flowering cherry, var. Hosokawa.** A very beautiful double-flowered form, with truncate deep pink buds and flat light pink flowers in clusters of two to three on rather long pendent flower stalks. Very floriferous. Resembles closely S. P. I. No. 45049, but tree appears to be less vigorous. Late bloomer (May 1 in Maryland). Should be sprayed with lime-sulphur before leafing out in the spring.

45051. **PRUNUS SERRULATA. Japanese flowering cherry, var. Ojochin.** Flowers very slightly double, large ( $1\frac{1}{2}$  inches), almost pure white on short upright stems, slightly fragrant; late flowering (May 1 in Maryland). Though the flowers are not borne in masses and therefore the trees are not as showy as those of other varieties, the unusual size and beauty of the individual flowers, resembling single roses, make it attractive for dooryards. Foliage bronze and golden in autumn. Tree not particularly vigorous. Should be sprayed every year with lime-sulphur solution before growth starts in the spring.

45052. **PRUNUS SERRULATA. Japanese flowering cherry, var. Daizen.** Single white medium-sized flowers (1 inch) with distinct cherry fragrance; midseason (April 20 to May 1 in Maryland). The flowers are scattered most attractively through the tree, but the green leaves come out early, mixing with them, preventing the tree from being very striking. Not one of the showy varieties, but is an unusually vigorous grower, producing many seeds. Foliage in autumn golden yellow. Should be sprayed early every spring with lime-sulphur solution.

45053. **PRUNUS SERRULATA. Japanese flowering cherry, var. Mikuruma-Gayeshi.** Early flowering (April 10 to 20 in Maryland), quite light pink, semidouble medium large flowers on long upright stems. Very floriferous. Tree vigorous, and because of earliness of flowering a very desirable variety, though the individual flowers are perhaps not so lovely as the very double late-blooming sorts. Should be sprayed early every spring with lime-sulphur solution.

45054. **PRUNUS SERRULATA.** Japanese flowering cherry, var. *Amenogawa*, translated meaning "Milky Way." One of the most striking varieties because of its upright or fastigiate growth. Peculiarly suited for architectural uses. Medium-sized, white to very light pink flowers on short stems, borne in great masses, concealing the branches. Seen from below suggests characteristic name. Tree not very vigorous. Should be sprayed early every spring with lime-sulphur solution.

45055. **PRUNUS SERRULATA.** Japanese flowering cherry, var. *Ussusumi*. Very late variety (May 1) with hanging, very large, very double flowers borne in clusters. Petals are tinged with light brown, giving them a strange, not unattractive appearance. The young leaves, borne at the same time as the flowers, are dark bronze brown in autumn, turning to claret red. Tree a fairly rapid grower but trunk inclined to be tender. Very floriferous. Should be sprayed with lime-sulphur solution every February.

45056. **PRUNUS SERRULATA.** Japanese flowering cherry, var. *Murasaki*. Deep pink semidouble flowers, (1 inch) on short upright stems; very free flowering. Tree low heading, vigorous, flowering in midseason (April 20 to May 1 in Maryland). Young foliage bronze color, in autumn golden yellow. While perhaps not quite so delicate as some of the very double light-pink varieties, this makes a striking show from a distance, and for park use can be highly recommended. Should be sprayed every year with lime-sulphur solution before growth starts in the spring.

45057. **PRUNUS SERRULATA.** Japanese flowering cherry, var. *Choshu*. Very large, deep-pink double flowers ( $1\frac{1}{2}$  inches) borne on long pendent stems in clusters of two to five. Flower buds very deep pink. Late flowering (May 1 in Maryland). Young foliage beautiful bronze, in autumn gold and crimson. Tree not very vigorous nor floriferous. Should be sprayed every spring with lime-sulphur solution.

45058. **PRUNUS SERRULATA.** Japanese flowering cherry, variety undetermined. Single white flowers, borne very profusely in short upright clusters, medium size (1 inch across), not fragrant; midseason (April 10 to 20). Tree vigorous grower. Trunk not easily diseased on fairly fertile soil; forms tree 20 feet tall in 10 years. Very Japanese. (Named evidently incorrectly *Jo Beni*.) Should be sprayed with lime-sulphur in February.

45059. *PRUNUS SERRULATA*. Japanese flowering cherry, var. *Asagi*. A rare double variety with pale-green flowers which when they first open have a strange but very attractive appearance; later the centers of the flowers turn red and are then less attractive. Not showy at a distance, but delicately beautiful for use in house decoration. Petals not striped like those of the *Ukon*. Tree rather delicate; late bloomer. Should be sprayed with lime-sulphur every February or March.

45060. *PRUNUS SERRULATA*. Japanese flowering cherry, var. *Wasemiyako*. Large, semidouble almost pure white flowers, upright on short stems, very attractively arranged on the branches; midseason, i. e., April 20 in Maryland. Tree only fairly vigorous. Suitable for lawn planting and showy from a distance. Should be sprayed early every spring with lime-sulphur solution.

45061. *PRUNUS SERRULATA*. Japanese flowering cherry, var. *Miyakobeni*. Midseason variety (April 10 to 20 in Maryland), with semidouble flowers,  $1\frac{1}{4}$  inches across, borne on short upright stems in clusters of two or three. Buds pointed, quite pink; flowers pale pink when young, turning reddish with age, slightly fragrant. Tree very floriferous and a vigorous grower, attaining a height of 20 feet in 10 years.

45062. *PRUNUS SERRULATA*. Japanese flowering cherry, var. *Toranowo*. Large ( $1\frac{1}{2}$  inches) extremely double flowers, deep pink when in bud, becoming delicate light pink in full bloom, hanging on long stems in clusters of two to five. Buds flat, as though tips had been cut off. Not so free flowering as S. P. I. No. 45049, but with deeper pink flowers and prominent green pistils. Tree fairly vigorous. Should be sprayed with lime-sulphur solution in February or March.

26886. *PRUNUS SIMONII*. Apricot plum. From F. N. Meyer, Tangsi, China. A fruit that looks like an apricot; very fragrant; sour; with downy, dull-yellow skin, rather small in size.

32669. *PRUNUS SPINOSA* × *DOMESTICA*. Plum. From Kozlof, Russia, through F. N. Meyer. A hybrid between *P. spinosa* and *P. domestica*, *Green Reine Claude* variety, originated by I. V. Mijurin at Kozlof. Named by him *Bjeli tjorn*, "white sloe." Fruits almost round, medium size, yellowish white, of good keeping qualities. Trees of medium size, slow growers, but heavy bearers; exceptionally hardy.

32670. *PRUNUS SPINOSA* × *DOMESTICA*. **Hybrid plum.** From Kozlof, Russia, through F. N. Meyer. Hybrid produced by the plant breeder I. V. Mijurin between the *Green Reine Claude* and *P. spinosa*, a hardy spiny bush of Europe, Persia, North Africa, and Siberia. Fruits dark purple, small, sweet, and characteristically spicy. Good keeping qualities. On *Amygdalus davidiana* stock.

32671. *PRUNUS SPINOSA* × *DOMESTICA*. **Hybrid plum.** From Kozlof, Tambof Government, Russia, through F. N. Meyer. Hybrid between the *Green Reine Claude* plum and *P. spinosa*, originated by I. V. Mijurin at Kozlof. Fruits dark purplish, medium in size, very sweet flavor and aftertaste all their own. Trees very productive and vigorous.

32673. *PRUNUS SPINOSA* × *DOMESTICA*. **Hybrid plum.** From Kozlof, Russia, through F. N. Meyer. Hybrid produced by I. V. Mijurin, the Russian plant breeder, between the *Green Reine Claude* and *P. spinosa*. Medium-sized fruit of beautiful yellow color; spherical shape; sweet, spicy, and juicy; of good keeping quality. Tree medium sized, very healthy, cold resistant. On *Amygdalus davidiana* stock.

36086. *PRUNUS TOMENTOSA*. **Chinese bush cherry.** Early flowering deciduous shrub, with flowers three-fourths of an inch across, white tinged with rose, and small sour cherries on short stems. Fruits valuable for preserves. Its extreme hardiness, ornamental character, and probable usefulness for hybridization experiments make it promising for dooryards in the North.

41455. *PRUNUS* sp. **Flowering plum.** From F. N. Meyer, Tsaochowfu, Shantung, China. A flowering shrub much in demand by the Chinese for forcing. It is generally trained in grotesque shapes and is always grafted on *Amygdalus davidiana*, which stands drought and transplanting better than the plum's own roots. Chinese name *Mei*.

42748. *PRUNUS* sp. **Prune.** From Mr. A. Sugden, Chefoo, China. Reported as a "remarkable Chinese variety. Very productive in its natural state. Fruit round, rough, *Mirabelle* color; clear, firm flesh, sweet; juice red. Ripe in August. Very good for tarts, jams, jellies, etc."

*PSIDIUM GUAJAVA*. **Guava.** Well-known tropical fruit, generally utilized for jellies and preserves. Large shrubs with white flowers and round or pear-shaped fruits, 2 to 3 inches in diameter, containing many small hard seeds. The flesh is sweet and of a musky flavor. Stands very little frost.



43762. *PSIDIUM PUMILUM*. From Mr. Alfred Bircher, Matania El Saff, Egypt. Small shrub related to the guava, native of tropical America, but widely cultivated in the Tropics of the Old World. The small yellow fruits are very aromatic, with a much-accentuated strawberry flavor. The leaves resemble the common guava but are broader.

43189. *PTEROCARPUS MARSUPIUM*. **Kino tree**. From Rev. W. P. Elwood, Dindigul, Madura District, South India. Wide-spreading handsome tree, valued for its fine hard timber, for the gum which it exudes, and as an ornamental or street tree in places where the rainfall is not less than 50 inches. The foliage and flower clusters somewhat resemble the locust, but the flowers are pale yellow, very fragrant. Native of central and southern India and Ceylon. Known also as the *Gammalu* tree.

44041. *PYRUS AMYGDALIFORMIS*. **Pear**. From the Arnold Arboretum, Jamaica Plain, Mass. Ornamental, large, rounded shrub or small tree, occasionally 20 feet or more in height. Closely allied to the willow-leaved pear, *P. salicifolia*, from which it differs chiefly in its nearly smooth leaves. Flowers white, 1 inch across, produced in early spring in clusters of 8 to 12. Said to be a quaint and picturesque tree when old. Native of the Mediterranean region.

44043. *PYRUS BRETSCHNEIDERI*. **Pear**. From Dr. C. S. Sargent, Arnold Arboretum, Jamaica Plain, Mass. Small Chinese pear tree, with handsome foliage and flowers. The fruit is globose or subglobose, about 1 inch in diameter, pale yellow, juicy, and of good flavor. Possibly valuable for hybridization purposes. Has proved perfectly hardy at the Arboretum.

30361. *PYRUS CHINENSIS*. **Chinese pear**. From F. N. Meyer, Kashgar, Chinese Turkestan. A pear called the *Kokamoot* or green pear. Of very large size, irregular shape, and green color. Texture gritty. Not edible until it becomes quite soft. A good keeper and shipper. Of possible value in breeding experiments.

38240. *PYRUS CHINENSIS*. **Chinese pear**. From F. N. Meyer, Puchowfu, Shansi, China. A very large variety, the fruits often weighing a pound each. Of peculiar barrel shape and dark-yellow color. Flesh somewhat coarse in texture, but very juicy and sweet. Possesses good shipping and keeping qualities. Of value for hybridization experiments. Chinese name *Chin li*, meaning golden pear.

38241. *PYRUS CHINENSIS*. **Chinese pear.** From F. N. Meyer, Puchowfu, Shansi, China. A variety of medium-large size, round form, and pale-yellow color. Flesh nonmelting, somewhat granular in texture, but juicy and moderately sweet. Of value for hybridization experiments and for canning purposes. Chinese name *Pai li*, or white pear. This is quite distinct from the Pekinese *Pai li*.

38262. *PYRUS CHINENSIS*. **Chinese pear.** From F. N. Meyer, Wulipu, Honan, China. A very large variety of round-oblong shape and dark-yellow color. Flesh somewhat coarse, but juicy and sweet. A good keeper and shipper. Chinese name *Ê li*, swan pear.

38263. *PYRUS CHINENSIS*. **Chinese pear.** From F. N. Meyer, Wulipu, Honan, China. Reported as a very large variety of round-oblong shape and dark-yellow color. Not a good keeper, but of probable value for canning and hybridization work. Chinese name *Pin li*, luscious pear.

38264. *PYRUS CHINENSIS*. **Chinese pear.** From F. N. Meyer, Wulipu, Honan, China. A large, round, pale-yellow pear. Ripens in summer. Not a good keeper. Chinese name *Sha pai li*, brittle or fragile white pear. Of possible value in breeding experiments.

38265. *PYRUS CHINENSIS*. **Chinese pear.** From F. N. Meyer, Wulipu, Honan, China. Reported as a large, round, purplish pear; able to withstand long shipping; keeping until late spring. Chinese name *Tzũ su li*, violet brittle pear.

38266. *PYRUS CHINENSIS*. **Chinese pear.** From F. N. Meyer, Wulipu, Honan, China. Reported as a medium-sized pear of true pyriform shape; sweet, but not a good keeper. Of possible value in breeding experiments. Chinese name *Nai li*, milk pear, or *Yin li*, silver pear.

38267. *PYRUS CHINENSIS*. **Chinese pear.** From F. N. Meyer, Wulipu, Honan, China. Reported as a very sweet, yellow pear of medium size; ripening in summer; not a good keeper. Possibly of value in hybridization work. Chinese name *Huang li*, yellow pear.

38268. *PYRUS CHINENSIS*. **Chinese pear.** From F. N. Meyer, Wulipu, Honan, China. Said to be a large, green pear of sweet taste; ripening in early August; not a good keeper. Of possible value in breeding experiments. Chinese name *Ch'ing p'i t'ien li*, sweet green-skinned pear.

38269. *PYRUS CHINENSIS*. **Chinese pear.** From F. N. Meyer, Wulipu, Honan, China. Reported as a medium-sized, round, sweet pear; ripening in summer; not a good keeper. Of possible value for breeding purposes. Chinese name *Shui pai li*, water white pear.

38270. *PYRUS CHINENSIS*. **Chinese pear.** From F. N. Meyer, Wulipi, Honan, China. Said to be a large, barrel-shaped, sweet pear of pale-yellow color; not a good keeper. Of possible value for breeding experiments. Chinese name *Kao ting pai li*, tall top white pear.

38271. *PYRUS CHINENSIS*. **Chinese pear.** From F. N. Meyer, Wulipu, Honan, China. Reported as a medium-sized, russet-brown pear of rounded-oblong shape; flesh soft and mealy; not a good keeper. Of possible value for breeding experiments. Chinese name *T'ien kua li*, sweet melon pear.

28497. *PYRUS CHINENSIS* × *COMMUNIS*. **Hybrid pear.** A cross between the Chinese pear and the common pear, made by Dr. Walter Van Fleet.

33207. *PYRUS COMMUNIS*. **Pear.** From Pedro Giraud, Granada, Spain. *Favorita* variety; very large pear, with lemon-yellow, buttery flesh, sweet and savory. It ripens the middle of August. Not yet fruited in America. Distributed to find climatic requirements.

33208. *PYRUS COMMUNIS*. **Spanish pear**, known as the *Pera de Roseta*. Purchased from Pedro Giraud, Granada, Spain, through Walter T. Swingle, of the Bureau of Plant Industry. This variety is reputed to be of excellent quality, but has not yet been fruited in America.

43739. *PYRUS COMMUNIS*. **Pear.** From the Central Experiment Farm, Ottawa, Canada. Reported as a particularly blight resistant and very hardy variety known as the *Zuckerbirne*.

44102. *PYRUS COMMUNIS*. **Pear.** From Mr. James Mills, Hamilton City, Cal. Scions of 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 it grew in fairly close proximity to blighted trees.

44047. *PYRUS KORSHINSKYI*. **Pear.** From the Arnold Arboretum, Jamaica Plain, Mass. Large shrub or small tree, up to 20 feet or more in height, with grayish hairy branchlets, nearly ovate, coarsely toothed leaves, small clusters of white flowers, and nearly globose short-stalked fruits (nearly an inch in diameter) crowned by the persistent calyx. Native of the Province of Bokhara, southwestern Asiatic Russia.

44048. *PYRUS MALIFOLIA*. **Pear.** From the Arnold Arboretum, Jamaica Plain, Mass. A hybrid of unknown parentage, first grown in Paris, where the original tree in the Ménagerie du Jardin du Roi grew to a height of 30 feet or more. An interesting and handsome tree resembling the *Bollwyller* pear (*P. auricularis*), but with shorter, broader leaves, and larger flowers (1 to 1½ inches across). Fruit top shaped, about 2 inches long, bright yellow.

44049. *PYRUS MICHAUXII*. **Pear.** From the Arnold Arboretum, Jamaica Plain, Mass. Small tree with rounded head, nearly oval, entire leaves, white flowers in very short clusters, and globose or top-shaped fruits, greenish yellow spotted with brown. Generally considered as a hybrid between *P. amygdaliformis* and the snow pear (*P. nivalis*). It closely resembles the former except that it has entire leaves.

44052. *PYRUS PASHIA*. **Pear.** From the Arnold Arboretum, Jamaica Plain, Mass. Ornamental tree 25 to 35 feet in height. Native of western China and the Himalayas. The young trees have lobed leaves resembling those of the hawthorns, but mature trees have nearly oval, finely toothed leaves, pinkish to white flowers (1 inch across) in very dense short-stalked clusters, and small globose fruits.

30351. *PYRUS SEROTINA*. **Chinese pear.** From F. N. Meyer, Yarkand, Chinese Turkestan. Called *Nanshi'pt*. Fruits rather large, greenish yellow, somewhat blotched with greenish patches; flesh granular, but melting when fully ripe; fresh, sweet taste; late ripener; can be kept for several months. Stands extremes of temperature well. To be tested under irrigation in desert regions.

30352. *PYRUS SEROTINA*. **Chinese pear.** From F. N. Meyer, Karawag, Chinese Turkestan. Fruits large, of rounded-oblong shape and bright-yellow color. Flesh somewhat gritty but sweet and well flavored. A good keeper. Should be tested under irrigation in semiarid regions.



44054. **PYRUS SEROTINA. Pear.** From the Arnold Arboretum, Jamaica Plain, Mass. Ornamental Chinese tree, 20 to 50 feet in height, with nearly oblong, strongly and sharply toothed leaves, white flowers in somewhat umbel-like clusters, and nearly globose, brown fruit. It has been recommended on the Pacific coast as a more or less blight-resistant stock for the European types.

**PYRUS USSURIENSIS. Siberian pear.** Small tree of particular value as a blight-resistant stock for the common types of pear. Prof. Reimer, of Talent, Oreg., after numerous inoculations during the past year, has found this species to be immune to the pear blight. This tree is native of Siberia and northern China.

26489. **PYRUS spp. Pears.** A selection of hardy pears presented by Mr. E. C. Parker, Mukden, Manchuria. Unnamed varieties which have shown considerable resistance to blight.

30308. **PYRUS sp. Pear.** From Khotan, Chinese Turkestan, through F. N. Meyer. *Amoot* variety, medium size, yellow, with knobby exterior; flesh soft and melting, poor keeper; ripens early in August. Suitable for regions having long, hot summers. Not yet fruited in America. Distributed to test its climatic requirements.

37071. **PYRUS sp. Pear.** From Dr. Yamei Kin, Tientsin, China. Reported to be a very large pear with fine white flesh and good flavor. Well-grown fruits said to weigh two-thirds of a pound. Chinese name of variety *Pan Chin*.

40865. **PYRUS sp. Pear.** From Dr. Camillo Schneider, Talifu, Yunnan, China. A cultivated form collected in Talifu market. The fruit is said to be yellow with brown points,  $2\frac{3}{4}$  inches long by slightly over 3 inches broad. Not yet fruited in America. From a mild, temperate climate.

40866. **PYRUS sp. Pear.** From Dr. Camillo Schneider, Talifu, Yunnan, China. A cultivated form collected in Talifu market. The fruit is light brown, flushed with red,  $2\frac{3}{4}$  inches in diameter. Not yet fruited in America. From a mild, temperate climate.

40867. **PYRUS sp. Pear.** From Dr. Camillo Schneider, Talifu, Yunnan, China. A cultivated form collected in Talifu market. The fruit is yellow, with brown points,  $2\frac{3}{4}$  inches long by 4 inches broad. Not yet fruited in America. From a mild, temperate climate.

40868. **PYRUS sp. Pear.** From Dr. Camillo Schneider, Talifu, Yunnan, China. A cultivated form collected in Talifu market. The fruit is said to be yellow, with red blush, and numerous fine, dark points,  $2\frac{3}{4}$  inches long by 3 inches broad. Not yet fruited in America. From a mild, temperate climate.

40869. *PYRUS* sp. **Pear.** From Dr. Camillo Schneider, Talifu, Yunnan, China. A cultivated form collected in Talifu market. The fruit is said to be russet,  $2\frac{3}{4}$  inches long by  $3\frac{1}{4}$  inches broad. Not yet fruited in America. From a mild, temperate climate.

40870. *PYRUS* sp. **Pear.** From Dr. Camillo Schneider, Talifu, Yunnan, China. Cultivated pear obtained in the market of Talifu. The yellow and red fruit is said to be  $2\frac{3}{4}$  inches long by  $3\frac{1}{2}$  inches broad. Not yet fruited in America. From a mild, temperate climate.

*RANDIA ACULEATA*. **Ink berry.** Beautiful, small-leaved shrub or small tree with white flowers resembling those of the common jasmine. The berries yield a permanent blue dye. The wood is very tough and is said to have been used for arrows by the Indians. Widely distributed through the West Indies.

41495. *RANDIA* sp. Ornamental shrub. Presented by Carlos Wercklé, Orotina, Costa Rica. Shrub or small tree with whitish or yellowish flowers, somewhat resembling *Gardenia*. Of possible value as a hedge plant in the Southern States.

44293. *RAPHANUS SATIVUS*. **Radish.** From F. N. Meyer, Ansuhsien, Chihli, China. A large, flat, red, winter radish, called *Têng lung hung lo po*. Lantern red root, referring to the resemblance of the root to a Chinese or Japanese flat lantern. Needs rich, well-drained soil to do well. Sow in summer, not in spring.

43390. *RATIBIDA COLUMNIFERA APPENDICULATA*. From Mr. T. D. A. Cockerell, Boulder, Colo. **Coneflower.** Low, sweet-scented perennial herb, with few branches, pinnatifid leaves, and lanceolate pale-green leaflets. The yellow ray flowers are possessed of appendages forming collarettes similar to those of the dahlia. Discovered by Mr. Cockerell near Boulder, Colo.

36735. *RHAMNUS* sp. **Buckthorn.** From Yingtauiko, China, through F. N. Meyer. A small-foliaged species, having large, jet-black berries. This shrub does not grow tall, but is densely branched and assumes a well-rounded form when not mutilated. Of value as a garden and park shrub and for medium-sized hedges, especially for the drier sections of the United States.

*RHUS JAVANICA*. **Sumac.** Collected by F. N. Meyer, Kansu, China. The most showy of sumacs when in bloom. Late-flowering (August to September), tall shrub or flat-topped tree with large, light-green, compound leaves with winged stalks and creamy white flowers in large, broad panicles, which are followed by deep-red, compressed, hairy fruits. These are covered with a sticky, whitish wax, which burns readily.

32390. **RHUS LANCEA.** From J. Burt Davy, Pretoria, South Africa. The **karree boom** of southwestern Transvaal and adjacent Bechuanaland. Valuable hardwood tree with odd-pinnate leaves; for regions of limited rainfall, 10 to 15 inches in winter. Fruits are edible. Can be grown from poles in same manner as willows. Belongs to the sumac family (Anacardiaceæ).

40717. **RHUS POTANINI.** **Sumac.** Collected by F. N. Meyer in the mountains near Kwanyintang, Shensi, China. Tall shrub or sometimes tree, 60 feet high. Foliage brilliant in fall. A gall insect produces large, inflated galls, called "gall nuts," utilized extensively for black dye, great quantities being exported from Hankow. Cultivation on cheap land might be attempted. Has weedy tendencies.

**RHUS VERNICIFLUA.** **Lacquer tree.** Poisonous to handle. (Antidote, weak alcoholic tincture lead acetate.) Tree 25 to 40 feet high, native of China. From the sap collected from incisions in the bark, the famous lacquer manufacture is one of the important industries in Japan and China. The tree is deciduous and stands considerable frost.

45024 **RIBES SPECIOSUM.** **Gooseberry.** From P. D. Barnhart, Los Angeles, Cal. Showy ornamental shrub, up to 12 feet in height, with fuchsialike bright-red flowers. Said to be evergreen, but is reported to be deciduous and dormant during the dry season at Los Angeles. When the rains set in the new foliage appears—rich, glossy, dark green—soon followed by the bright flowers, pendent all along the stems of the previous year's growth.

**ROLLINIA MUCOSA.** Low tree related to the anonas, with oblong, taper-pointed, smooth leaves and fruit usually about 4 inches in diameter, greenish, somewhat globose, the surface bearing tubercles, edible. Native of Guiana and some of the West Indian islands.

44094. **ROLLINIA** sp. From Mr. M. T. Dawe, Bogota, Colombia. Reported as a shrub bearing orange-colored, edible fruits. The flesh is also said to be of orange color. Found in the tropical parts of the Department of Magdalena.

39593. **ROSA ODORATA GIGANTEA.** From Mr. E. D. Sturtevant, Hollywood, Cal. A rampant climbing rose with usually unarmed flowering branches and solitary, light-pink, single flowers, 5 to 6 inches across. Leaflets usually five, nearly oval, smooth, and firm. *Fortune's Double Yellow* is said possibly to have arisen from crosses with this rose or to be a variety of it. Quite tender except in the South. Too large for greenhouses.

38161. *ROSA RUBUS*. **Rose**. From La Mortola Garden, Ventimiglia, Italy. Climbing but somewhat bushy rose, up to 20 feet in height, with small hooked prickles; leaves composed of usually five sharply toothed leaflets and attractive dense clusters of fragrant white flowers an inch or more across. The small dark scarlet fruits add to its attractiveness in the fall. Native of central China.

22449. *ROSA* sp. **Rose**. From F. N. Meyer, Paotingfu, Chihli, China. A Chinese rose of semiclimbing habit, bearing clusters of pale pink flowers 1 to 1½ inches across. This rose roots readily from cuttings and has proved of great value as a stock for other roses. Cuttings can be budded or grafted and then rooted in a propagating bed.

35989. *ROSA* sp. **Rose**. From Mr. W. F. Wight, Llifén, Chile. Mr. Wight says of this rose: "This has run wild in many localities in southern Chile. The fruits are unusually large; and from them the natives make a most excellent marmalade. This suggests the possibility of improving both this and other species of *Rosa* with large fruits."

36857. *ROSA* sp. **Rose**. Collected by F. N. Meyer, Hsiao Wutaishan, Chihli, China. A very tall and vigorous wild rose found among tall scrub on mountain slopes. Of value as a stock for cultivated roses for the colder sections of the United States.

38821. *ROSA* sp. **Rose**. From F. N. Meyer, Tahuashan, Shensi, China. Reported as a shrubby rose with reddish young twigs bearing very broad reddish spines similar to those of *R. hugonis*. Collected on stony places at an altitude of about 5,000 feet.

40595. *RUBUS IRENAEUS*. Shrubby Chinese *Rubus*. Presented by Vicary Gibbs, Elstree, Herts, England. One of the most striking and remarkable of the simple-leaved forms. The evergreen foliage suggests coltsfoot in size and shape, but has a curious metallic luster on the upper surface. Stems prostrate, covered with dense, gray down; flowers white. Suitable as covering for semishaded slopes. Fruit large, red.

*RUBUS STRIGOSUS*. **Red raspberry**. From Mr. M. J. Dorsey, Manitoba, Canada. Selected strains of wild berries collected in various parts of Manitoba. These forms were chosen for their productiveness as well as for the size and flavor of the fruits.



43438. **RUBUS** sp. **Mora blackberry.** From Mr. Wilson Popenoe, city of Guatemala, Guatemala. A wild species common in the vicinity of San Lucas at an altitude of nearly 7,000 feet. Plants resemble blackberries in habit and fruit. The flavor of the fruit, however, is rather acid, suggesting both the blackberry and the loganberry. The fruit is much used for preserves and for stewing.

22987. **SAGERETIA THEEZANS.** From F. N. Meyer, Soochow, Kiangsu, China. Shrub, almost evergreen, with small, nearly oblong leaves less than an inch long, bearing numerous short panicles one-half to 1 inch long, of very small white flowers and small, sweet, edible fruits. Leaves are said to be used like tea. Grown rarely as dwarfed tree in pots. Chinese name *Chuck mei tsang*. Belongs to the Rhamnaceæ, or buckthorn family.

33135. **SALIX FRAGILIS PENDULA.** **Weeping willow.** From Dr. L. Trabut, Mustapha, Algiers. An ornamental, weeping form of the brittle willow; probably suited best for trial in California and the Southwest. These cuttings may be from a male plant.

29143. **SALIX** sp. **Willow.** From F. N. Meyer, Guldtscha, Russian Turkestan. A moderate-sized, hard-wooded tree with long, very narrow leaves and reddish twigs. Of value for windbreaks and as an ornamental garden and park tree in alkaline sections of the United States. The young twigs are very pliable and may be employed as a tying material.

41596. **SAMBUCUS ADNATA.** **Red-berried Himalayan elder.** From Mr. R. E. Cooper, Bhutan, India. Spreading shrub, 4 to 8 feet in height, somewhat resembling the common elder (*S. canadensis*) in habit and foliage, and bearing nearly flat corymbs, 10 inches across, of fragrant white flowers. The red fruits are globose, about one-sixth of an inch in diameter. Collected at an altitude of 9,000 feet.

43663. **SAPINDUS VITIENSIS.** **Soapberry.** From the Horticultural Division, Ministry of Agriculture, Gizeh Branch, Cairo, Egypt. Tree about 30 feet in height, with the branches covered with warty bark. Leaves compound, the three or four pairs of leaflets shiny green, 3 to 4 inches long. The numerous small white flowers are borne in large terminal panicles. Native of the Fiji Islands.

**SCHINOPSIS LORENTZII.** **Red quebracho.** Argentine timber tree of considerable value. The wood is very hard, and, according to tests reported by the Argentine Railroad, when used as beams, ties, and telegraph posts, keeps in good condition for more than 25 years. The charcoal is very compact, and the extract (tannin) is an important product. The sawdust is said to be much used in tanning.

**SCHINUS TEREBINTHIFOLIUS.** **Pepper tree.** Medium-sized, ornamental, evergreen tree, native of Brazil, with very striking foliage, highly prized for avenue and lawn planting in mild-wintered regions. Similar to *S. molle*, but with stiffer branches and leaves larger and darker green.

40025. **SCHIZANDRA SPHENANTHERA.** From F. N. Meyer, Paoki, Shensi, China. Ornamental vine, with handsome bright-green foliage, long-stalked, cup-shaped, orange-red flowers, and brilliant, scarlet, berrylike fruits in small spikes. Of value as an ornamental cover vine in shady places. Both pistillate and staminate plants must be planted together to get the fruits, which are one of the chief attractions of this vine.

**SCHIZOPHRAGMA HYDRANGEOIDES.** Climbing ornamental shrub which will attach itself to a rough wall almost as effectively as the Virginia creeper. Its almost white flower clusters resemble somewhat those of the hydrangea, being produced in broad, flattish inflorescences, 8 to 10 inches across. These stand out in pleasing contrast against the dark-green, heart-shaped foliage. Native of Japan.

**SOLANUM MURICATUM.** **Pepino.** Erect, half-shrubby plant producing an aromatic fruit the shape of an egg, yellow or whitish with purple blotches. The yellow flesh resembles that of a ripe pear in texture and is said to resemble a blend between a pear and a cantaloupe in flavor. Unripe fruits are sometimes eaten cooked like pumpkins. The ripe fruits form a very good salad. Will stand very little frost. The fruits are generally seedless.

42034. **SOLANUM** sp. **Naranjilla.** From Mr. Ludovic Söderström, Quito, Ecuador. Shrubby or half-shrubby plant, 6 to 8 feet in height, with hairy leaves, and edible, rather acid, fruits about the size of small oranges. The plants are said to be very productive, yielding hundreds of fruits each year. It is reported that the best plantations are to be found in the forest clearings at altitudes of 5,000 to 6,000 feet.

44800. *SOLANUM* sp. From Mr. Henri Pittier, Caracas, Venezuela. Reported as a trailing herbaceous plant bearing edible fruits and desirable for cultivation in cool shady places in a mild climate.

*SOPHORA DAVIDII*. A thorny Chinese leguminous shrub, up to 5 feet high. Sometimes used as a hedge plant. Foliage grayish green, flowers whitish lilac, pods produced in immense quantities. Of possible use as a bee plant.

43727. *SORBARIA ARBOREA*. From the Arnold Arboretum, Jamaica Plain, Mass. Handsome, ornamental shrub, 10 to 20 feet in height, with rather large, bright-green pinnate leaves and small white flowers in large, showy panicles. Closely allied to the spiræas and said to be the most treelike of this group of plants. Native of central China. Hardy as far north as Massachusetts.

41703. *SORBUS DOMESTICA*. **Service tree**. From the Royal Botanic Gardens, Kew, England. Round-headed, ornamental tree 30 to 60 feet in height and practically indistinguishable in habit and foliage from the European mountain ash. The white flowers are much larger, however, as are the yellowish apple or pear shaped fruits. Native of the Mediterranean region.

42195. *SPIRAEA VEITCHI*. From the Royal Botanic Gardens, Kew, England. One of the handsomest of Chinese spiræas. Strong-growing shrub, up to 12 feet tall, with spreading, arching branches, nearly oblong leaves, and dense, nearly flat-topped, clusters of pure white flowers. Resembles closely in habit the well-known *S. canescens*, but it has smooth, entire leaves and is considerably hardier. Hardy as far north as Massachusetts.

*SPONDIAS TUBEROSA*. **Imbú**. Medium-sized tree from the dry lands of eastern interior Brazil, branching 4 to 6 feet above ground, forming a broad, flat-topped, dense head and producing golden-yellow, plumlike edible fruits flavored somewhat like a sweet orange. Large limbs, when freshly cut and used for fence posts, frequently take root and grow.

*STILLINGIA SEBIFERA*. **Chinese tallow tree**. Medium-sized, compact-growing tree, with sharply pointed leaves and small 2 to 4 seeded fruits. The seeds are enveloped by a white odorless wax, employed extensively in China for candle making, and the kernels yield a yellow fixed oil of bland odor and agreeable nutty taste. The tree succeeds well in the South and Southwest.

**STRYCHNOS SPINOSA.** **Kafir orange.** Remarkable East African shrub or small tree with evergreen foliage and short spines. Bears large, round, green fruits with extremely hard shells. When these ripen they turn yellow and scent the room with the fragrance of cloves. The seeds have a small amount of strychnin in them. The flesh is edible, reminding one of a brandied peach.

38828. **SYRINGA AMURENSIS.** **Lilac.** From F. N. Meyer, Tahuashan, Shensi, China. A tree found in great masses on rocky mountain slopes at altitudes of 3,000 to 5,000 feet. Of value as a stock for standard lilacs and for hybridization purposes. Attractive when in flower and useful as a hardy shrub.

40709. **SYRINGA** sp. **Lilac.** Collected by F. N. Meyer near Palitang, Kansu, China. Small bush 3 to 5 feet high, with small leaves. Apparently very floriferous. Found with *Amygdalus davidiana* covering loess slopes at altitudes of 3,500 feet. Of value as a hardy flowering shrub for the dry and cool sections of the United States.

43559. **TACCA PINNATIFIDA.** **Polynesian arrowroot.** Perennial herb, about 2 feet in height, allied to the yams (*Dioscorea* spp.). It produces edible starchy tubers (resembling young potatoes) which yield the Polynesian or East Indian arrowroot. The tubers mature as the plants die down. Inasmuch as they contain a very bitter principle, the tubers are grated into water, which is poured off after the starch settles. This washing is usually repeated several times. The arrowroot from this plant is said to be a superior food for invalids. The natives of Tahiti get an excellent straw for hats from the leaf and flower stalks. The plant thrives even on the sandy shores of tropical countries and may possibly endure a temperate climate.

39856. **TAMARIX APHYLLA.** **Tamarisk.** From Mr. Thomas W. Brown, Cairo, Egypt. Timber and ornamental tree, up to 30 feet high. Said to be by far the best of the Egyptian species for cultivation as a timber tree on desert land. Used as a wind and sand break. Withstands a large amount of chlorin. The terminal panicle of light-pink flowers against the gray green of the tree forms a very attractive contrast.

**TAMARIX CHINENSIS.** **Tamarisk.** From F. N. Meyer, China. Extremely rapid-growing tree or shrub, branching close to the ground, making excellent windbreaks and even hedges. The Chinese make baskets of the twigs. One of the most drought and alkali resistant of all plants; cuttings put in the ground just after a rain grow easily. Recommended for the south side of wind belts on the Great Plains.



34804. **TAMARIX PENTANDRA.** **Tamarisk.** From Novospassko, Syzran-Riazan Ry., Russia, through F. N. Meyer. The facts that the tamarisk can withstand unusual amounts of alkali, is cold resistant, and branches near the ground make it an excellent plant for windbreaks. It can be easily propagated by cuttings. This species from Russia is recommended for the Great Plains.

43741. **TECOMA ARGENTEA.** **Para toda.** From Mr. C. F. Mead, Asuncion, Paraguay. Timber tree; also of possible value as an ornamental. Allied to the yellow elder or yellow bignonia (*T. stans*), which is one of the most attractive flowering trees. The bark is accredited as a remedy similar to quinine by the natives of Paraguay. The timber is said to be valuable for certain construction purposes.

43953. **TETRAZYGIA BICOLOR.** From Mr. Chas. A. Mosier. Litterriver, Fla. West Indian ornamental shrub with handsome foliage, bright green above, golden yellow beneath, and many-flowered panicles of attractive white flowers. The panicles are up to 8 inches in length. Leaves narrowly oblong, sharp pointed.

26166. **THESPESIA LAMPAS.** Procured by Mr. P. J. Wester, Miami, Fla. A small tree with leaves 5 inches in diameter, cordate. 3 lobed, lobes spreading. Corolla campanulate, yellow with a crimson center. Found in the tropical Himalayas of India to Ceylon, Java, and east tropical Africa.

39392. **THRINAX MICROCARPA.** **Silver-top palmetto.** From Mr. David A. Bisset, Pumpkin Key, Fla. An attractive palm, up to 30 feet in height, with pale-green leaves, silvery beneath, up to 3 feet across. The leaves are said not to lose the silvery appearance of the under surface until they have turned quite brown. Native of the shores of Sugar Loaf Sound and some of the southern keys in Florida.

43669. **THRYALLIS BRASILIENSIS.** **Reseda amarelo.** Ornamental Brazilian shrub with reddish, nearly oval leaves, about 1 inch long, and small but attractive bright-yellow flowers in short loosely flowered panicles. In Brazil it blooms from September to December. Known also as *Galphimia brasiliensis*.

**TIPUANA TIPU.** Handsome South American timber tree, related to the locust (*Robinia pseudacacia*), which it somewhat resembles in foliage and flowers (the latter, however, are either bright yellow or purplish); tall and straight trunked. Wood rose color to creamy white, rather soft. It is also said to yield a very fine red resin. Reported to be a fine ornamental. Native of Argentina.

42720. **TOLUIFERA BALSAMUM.** Tolu balsam tree. From Mr. H. M. Curran, Calamar, Colombia. A South American balsam-bearing tree, up to 75 feet or more in height. The foliage resembles that of the locust, as do the white or whitish clusters of pealike flowers. Trunk straight, covered with thick rough bark. The balsam is obtained from incisions in the bark.

41871. **TRACHYCARPUS TAKIL.** Fan palm. From Mr. A. C. Hartless, Seharunpur, India. A lofty Himalayan palm, 40 to 50 feet high, of slender and stately appearance. It much resembles the somewhat smaller Chinese Windmill palm (*T. excelsus*), which has been planted extensively in California. Found at altitudes up to 8,000 to 10,000 feet in the western Himalayas. Fruits are said to be edible.

43580. **TRICONDYLYS MYRICOIDES.** From Mr. H. B. Shaw, Clarence, Blue Mountain, New South Wales. Ornamental shrub, 8 to 10 feet in height, with very narrow lanceolate leaves and terminal or axillary clusters of cream-colored flowers. The wood, which is of value, is very hard, light colored, and beautifully marked.

44415. **TRICONDYLYS OBLIQUA.** From the Jardin Botánico, Buenos Aires, Argentina. Ornamental Chilean shrub with alternate, smooth, slightly toothed leaves, and yellowish white flowers in axillary racemes. It is not unlikely that the wood may be of value in cabinetwork, as is that of other species of this genus.

32831. **ULMUS DENSA.** Charavidny elm. From F. N. Meyer, Oasis of Merv, Russian Turkestan. Divides into several stems immediately above the ground, forming a remarkably dense umbrellalike head. Valuable shade tree for regions with long, hot summers and winters not too cold. Thrives fairly well on alkaline soils.

**ULMUS FOLIACEA SUBEROSA.** Cork-barked elm. Ornamental tree of stiff, spreading, low habit, with corky winged branches and smooth, bright-green obliquely oval leaves. The corky ridges, of which there are usually four, do not appear until the branches are two or more years old. Said to be common in the forests of central Europe, where it is a native woodland tree.

**ULMUS PUMILA.** North Chinese elm. Shade and timber tree, remarkably resistant to droughts, alkali, and severe extremes of temperature. Timber used in China mainly in the manufacture of carts. Of exceptional promise as a shade tree for the semiarid regions of the United States, where it has made phenomenally rapid growth. Deserves trial in shelter belts of the Northwest.

32830. *ULMUS PUMILA ARBOREA*. **Kitaisky elm.** From F. N. Meyer, Bairam Ali, Russian Turkestan. Graceful, small hardy tree valuable as an ornamental in rather dry regions. The slender pinnately branched shoots, often somewhat drooping, render this form especially attractive. Liable to lose its regularity of outline when old unless it has plenty of room. Native of Russian Turkestan.

41392. *UVARIA CALAMISTRATA*. From Mr. W. J. Tutcher, Hongkong, China. A strong-growing creeping vine, closely allied to the American pawpaw (*Asimina triloba*), producing edible fruits somewhat resembling those of the pawpaw in general appearance. The fruit is said to have a very pleasant, slightly acid taste, not greatly unlike that of the Susong calabao (*U. rufa*) of the Philippine Islands. Native of Hongkong.

44091. *UVARIA RUFA*. **Banauac.** From Mr. P. J. Wester, Lamac, Bataan, Philippine Islands. Climbing Javanese shrub. 16 to 20 feet in height, with edible fruits. Leaves nearly oblong, 3 to 6 inches long. Flowers purplish red, solitary or in clusters of two or three. The fruits are borne in clusters; are of an oblong-reniform shape, red when ripe, about  $1\frac{1}{2}$  inches long, and are said to have a very pleasant subacid flavor.

42698. *VIBURNUM DAVIDII*. From the Vilmorin-Andrieux Co., Paris, France. Ornamental Chinese shrub, said to be one of the most distinct and remarkable of the genus. Low bush, with large, shining, persistent leaves resembling those of a rhododendron. The terminal umbels of white flowers are succeeded by steel-blue fruits, ripening in the fall. Native of western China. Said to be hardy.

40198. *VIBURNUM LOBOPHYLLUM*. Presented by the director, Royal Botanic Gardens, Kew, England. Deciduous ornamental shrub with dark, reddish brown branches and flat-topped clusters of small white flowers. The bright-red fruits, one-third of an inch long, are ripe in September and October and form the chief attraction of this shrub. Native of western China. Introduced by E. H. Wilson in 1901.

40201. *VIBURNUM RHYTIDOPHYLLUM*. From the Royal Botanic Gardens, Kew, England. One of the most striking of Viburnums because of its large evergreen foliage, particularly handsome in autumn with its large clusters of fruit changing from red to shining black. Evergreen shrub, up to 10 feet high. Has proved hardy at the Arnold Arboretum and in western New York, but the leaves suffer more or less in exposed situations. Native of central and western China.

43424. **VIROLA SURINAMENSIS.** **White ucuuba.** From Mr. G. H. Pickerell, Para, Brazil. Amazonian timber tree, bearing small fruits which contain 55 per cent of myristin, a waxy substance of the consistency of beef tallow, used in the trade for candles and soap. The wood is used for interior work and general carpentry. Myrtaceous tree, distinguished by the regularity of its branching and its large, leathery, bright-green leaves.

21976. **VITEX NEGUNDO INCISA.** From F. N. Meyer, Shantung, China. Tall perennial, growing on dry, alkaline lands, with delicate blue flowers appearing in terminal panicles and rich in honey. Annual shoots occasionally used by the Chinese in basket manufacture. Recommended for testing as an ornamental in the Southwestern States.

**VITIS DAVIDII.** **Grape.** From central China. Luxuriant, deciduous, ornamental climber with soft spines. Fruit said to be about two-thirds of an inch in diameter, black, and of pleasant flavor. Its adaptability to a tropical climate and apparent disease resistance suggest possible value in production of hybrid grapes suited to the southern Atlantic States.

44060. **VITIS TILIAEFOLIA.** **Mexican grape.** From Mr. Wilson Popenoe, city of Guatemala, Guatemala. A tropical species of vine with very sour fruit, which is said to make a most excellent jelly, resembling that from currants. Found growing in sunny places in brush woods. Suggest crossing with *V. vinifera* and North American species to produce varieties of table grapes for the Tropics.

**WISTARIA VENUSTA.** **Silky wistaria.** Attractive woody vine with clusters of large pea-shaped flowers, said to range in color from white to dark purple. Reaches a height of 30 feet or more. Leaves large, compound, the four to six pairs of leaflets nearly oblong, velvety on both sides. Flower clusters pendulous, about 6 inches long. Flowers large. Native of Chihli Province, China.

43787. **ZEA MAYS.** **Corn.** From Mr. Wilson Popenoe, city of Guatemala, Guatemala. White flint corn purchased in the market of Guatemala and said to have been raised in the near-by highlands. The ears are large, measuring fully 12 inches in length, and taper gradually toward the tip. There are 12 to 14 rows of hard, white, translucent kernels.

43789. **ZEA MAYS.** **Corn.** From Don Manuel Lemus, Director of Agriculture, Guatemala, through Mr. Wilson Popenoe. An interesting variety, called by Sr. Lemus *Zea guatemalensis*. It originated in the Department of Sacatepequez. It is said that this corn contains very little gluten, grows to a great height, and has proved a very valuable strain.



17752. ZIZIPHUS JUJUBA. **Jujube.** From F. N. Meyer, Changli, Chihli, China. Fruit in size and shape very similar to the jujube seedlings commonly grown in Texas, but rather finer flavored, about an inch long; skin thin but tough; flesh of unusual sprightliness of flavor. A heavy bearer.

17892. ZIZIPHUS JUJUBA. **Wild jujube.** From F. N. Meyer, Peking, China. A very spiny bush of weedy tendencies, or occasionally a small tree. Found growing in dry, sterile soil. Commonly occurring on the city walls of Peking and neighboring cities. Fruit small, with a pleasant acid taste. Of possible value as a stock for the large-fruited jujubes or tsaos.

19397. ZIZIPHUS JUJUBA. **Jujube.** From F. N. Meyer, Peasan, China. Medium-sized, deciduous, ornamental, spiny tree, producing roundish or oval fruits, with pleasant, sweetish meat surrounding the seeds. The jujubes are peculiarly drought resistant and will prove quite hardy where the temperature goes to 15° F.

22684. ZIZIPHUS JUJUBA. **Chinese jujube.** From F. N. Meyer, Tsingtze, Shansi, China. Becomes large tree and attains great age. Old trees are very little branched, spineless, and sucker but little. Fruits produced on Texan trees raised from bud wood of the original importation were large, 1½ inches long and 1½ inches in diameter, oblong, with very fine-grained, heavy flesh. Chinese name *Mu hsín hung tsao*.

22686. ZIZIPHUS JUJUBA. **Jujube.** From F. N. Meyer, Tsingtze, Shansi, China. Trees large and spreading, forming a marked contrast to the small, little-branched habit of most other Chinese jujubes. Fruits small, oblong, reddish colored, and possessing a very mellow sweet flavor. Chinese name *Lang tsao*, mellow jujube. Trees resist drought and are probably quite hardy.

30488. ZIZIPHUS JUJUBA. **Jujube.** From Dr. W. M. Hayes, Chinchowfu, China. Cuttings of the largest fruited varieties of jujube to be obtained in the vicinity of Chinchowfu.

35254. ZIZIPHUS JUJUBA. **Jujube.** From F. N. Meyer, Laoling, China. Trees of this variety do not grow very old and possess few suckers. Fruits are either entirely seedless or else possess a very soft kernel not noticeably different in taste and texture from the flesh. The candied fruits have a flavor intermediate between raisins and candied citron rind. Chinese name *Wu hu tsao*.



35256. ZIZIPHUS JUJUBA. Jujube. From F. N. Meyer, Laoling, Shantung, China. Large fruits of very elongated shape, slightly constricted about the middle. Chinese name *Tang tsao*, sugar jujube. Tree said to be spiny and of vigorous growth.

36854. ZIZIPHUS JUJUBA. Jujube. From F. N. Meyer, Peking, China. Trees of tall growth, few branches, and very large leaves, bearing large elongated fruits tapering toward the end; color rich reddish brown; meat firm, flavor sweet; possess fair keeping qualities. Chinese name *Yu tsao*, tooth jujube, referring to the tapering, cylindrical fruits.

37476. ZIZIPHUS JUJUBA. Jujube. From F. N. Meyer, Lingpao, Honan, China. A variety bearing large reddish brown fruits. Flesh very sweet but not very firm in texture. Fruits often as large as small hens' eggs. Used by the Chinese baked in bread. Chinese name *Ta hung tsao*, large red jujube. Hardy tree, drought resistant, spiny.

38260. ZIZIPHUS JUJUBA. Jujube. From F. N. Meyer, Wulipu, Honan, China. A variety said to be of medium size and somewhat elongated shape, tapering to the base. Ripens late in the summer; good only when fresh. Chinese name *Chui yüeh ch'ing tsao*, ninth moon green jujube (the ninth moon of the Chinese corresponding very nearly with our October).

44442. ZIZIPHUS MISTOL. Mistol. From Mr. E. F. Schultz, Tucuman Experiment Station, Tucuman, Argentina. A spiny Argentine tree, up to 30 feet in height, with oval, leathery, hoary pubescent leaves, about an inch long, inconspicuous flowers, and edible, black fruits, one-third of an inch in diameter (stones large). The reddish colored wood is hard, but is not known to be used commercially.

40854 and 40855. ZIZIPHUS sp. Jujube. From Dr. Camillo Schneider, Talifu, Yunnan, China. A shrubby form, 10 to 20 feet high, which is said to be cultivated and also to grow wild. Fruits are dark red in color and ovate-elliptic in shape.

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