

Issued March 30, 1918.

U. S. DEPARTMENT OF AGRICULTURE.
BUREAU OF PLANT INDUSTRY.

WILLIAM A. TAYLOR, *Chief of Bureau.*

INVENTORY
OF
SEEDS AND PLANTS IMPORTED

BY THE

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION
DURING THE PERIOD FROM APRIL 1
TO JUNE 30, 1915.

(No. 43; Nos. 40389 to 40895.)



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GOVERNMENT PRINTING OFFICE.
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INVENTORY OF SEEDS AND PLANTS IMPORTED BY THE OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION DURING THE PERIOD FROM APRIL 1 TO JUNE 30, 1915 (NO. 43; NOS. 40389 TO 40895).

INTRODUCTORY STATEMENT.

The plant material recorded in this inventory represents collections made and gifts received from different parts of the world while the European war was in progress, and, as showing how little the war has affected the attitude of the scientific men with whom this office is in touch, it may be remarked that specialists in the following countries have furnished plants or seeds in response to requests or upon their own initiative: Italy, France, Holland, England, and their colonies, Russia, China, Sweden, Greece, Spain, Mexico, Argentina, Japan, Colombia, Turkey, Peru, Costa Rica, Ecuador, Chile, Guatemala, Cuba, Liberia, and Paraguay. While the number of shipments falls below that of similar periods before the war and is probably much below what it would have been had there been no war, it is nevertheless a substantial showing of cooperation among the scientific plant enthusiasts of the world.

The most notable collections recorded in the inventory are those made by the Department's explorer, Mr. Frank N. Meyer, during his expedition into the little-known Province of Kansu, in north-western China. This expedition was made from Peking, from which city Mr. Meyer started on June 29, 1914, his route taking him through the following principal cities of China and enabling him to get a general idea of the field for exploration there: Changte (Honan), Luanfu, Pingyangfu, Wensi, Tungchowfu, Sianfu, Paoki, Fenghsien, Huihsien, Chenghsien, Chiehchow, Siku, Minchow, Taochow, Titaochow, Lanchowfu, Pingliang, Kingchow, and Pinchow.

It is outside the province of this brief introduction even to sketch the accomplishments of this expedition, which lasted seven months, further than to call attention to the plant species which were discovered during its progress, as enumerated in this inventory. Mr.

NOTE.—This bulletin is a record of new or little-known seeds and plants procured mostly from abroad. It is intended for distribution to agricultural experiment stations and the more important private cooperators.

Meyer's character sketches of the things he finds and the uses which he believes can be made of them are always interesting reading, and often they give a glimpse into the circumstances surrounding the discovery and securing of the seeds or other plant material which he sends in to be grown somewhere in this country. As only little more than a year has passed since these collections were sent in, it is manifestly impossible to indicate anything regarding the ultimate success of the various introductions which he made.

One unfortunate circumstance it may not be out of place to record here, as it may have a bearing upon the botany of some of Mr. Meyer's introductions. Although perhaps the most laborious work of the expedition was the collecting and drying of the herbarium specimens, of which he procured a large number, a considerable portion of his collections was lost in the great Galveston storm, which by an unfortunate coincidence struck that city just as his collections were on the "last lap," so to speak, of their long steamer and railroad journey from Kansu to Washington. About a third of his specimens were ruined, especially herbaceous material, but the larger part of the woody specimens were saved, mounted, and are now in the herbarium.

A variety of hull-less oats (S. P. I. No. 40650) and a hull-less barley (S. P. I. No. 40652), two varieties of high-altitude corn (S. P. I. Nos. 40653 and 40654) from western Kansu, near the borders of Tibet, and five varieties of kaoliang collected in the Provinces of Shensi and Kansu, may prove of value in the development of varieties suited to our own high plateaus.

The recent researches of Reimer, which indicate that certain of the Chinese pear species have a remarkable resistance to pear blight, will give an unusual interest to the collection of three as yet undetermined forms of *Pyrus* from Kansu.

The collection of Chinese jujubes at Chico has been enriched by two varieties (S. P. I. Nos. 40506 and 40877) which Mr. Meyer considers stand second only to a variety which he discovered previously at Paihsiangchen, Shansi. One of these (S. P. I. No. 40506) has fruits as large as a small hen's egg and unlike most varieties is destitute of spines when old and produces trees having trunks $1\frac{1}{2}$ feet in diameter. Another (S. P. I. No. 40878) is used for boiling with millet, or much as we do raisins for baking in bread.

As was expected, Mr. Meyer found that Kansu possesses a great variety of ornamental trees and shrubs. Two species of *Viburnum* (S. P. I. Nos. 40692 to 40694), three species of *Euonymus* (S. P. I. Nos. 40696 to 40698), four species of rose (S. P. I. Nos. 40699 to 40702), and a linden (S. P. I. No. 40720) which may make a valuable park tree are among those recorded in this inventory.

At an altitude of 6,000 feet near Lungteh, Kansu, Mr. Meyer found the *davidiana* peach (S. P. I. No. 40722). This is possibly its most

western locality in China. Those interested in the breeding of hedysarums for the production of hardy forage varieties or as ornamentals will welcome two species, as yet undetermined, which Mr. Meyer found in Kansu (S. P. I. Nos. 40746 and 40747). The gall nuts of China, which are exported in large quantities from Hankow and are used for a black dye by the Chinese and for tanning purposes by Europeans, Mr. Meyer found to come from the Shensi Province and to be produced by a gall insect which attacks the leaves of a native sumac, *Rhus potanini* (S. P. I. No. 40717), which sumac might easily be grown on cheap lands in our Southern States, as it is not particular as to soil requirements. Both this species and another from the same region, *Rhus javanica* (S. P. I. No. 40716), are handsome ornamentals.

Since the Chinese pistache (*Pistacia chinensis*) has shown itself adapted to the Southwest and avenues of it have been started, it is interesting to have Mr. Meyer's record of a tree at Tsaichiapu (S. P. I. No. 40662) which has a girth of 16 feet, measured 5 feet above the ground. The wide range of territory in which the Chinese elm (*Ulmus pumila*) has succeeded will make Mr. Meyer's introduction of a weeping variety of this species of unusual interest (S. P. I. No. 40507).

Camoensia maxima, the largest flowered legume known, a tropical vine producing fragrant blooms as beautiful as many orchids, has flowered in Cuba from plants distributed from this office, and another introduction (S. P. I. No. 40391) has been made from Angola, where it spreads underground to great distances. It deserves to be naturalized in the hammocks of southern Florida.

Ninety-one species and varieties of the genus *Ribes* (S. P. I. Nos. 40406 to 40496) has been assembled for the studies of the white-pine blister rust, for which certain species appear to be a secondary host. Among these are a number of very interesting hybrids and new or rare species, such as the hybrid between the black currant and the gooseberry (\times *Ribes schneideri*), Wilson's *Ribes longeracemosum*, and the \times *Ribes succirubrum*, the plants of which are reported to be in their second generation identical with those of the first generation.

Dr. Eisen has sent in a fig variety from Naples called the Troiaro (S. P. I. No. 40499) which he considers superior to the White Adriatic and declares to be the best table fig in Italy. It requires a more even climate than that of Fresno in which to mature, but is not affected seriously by fall rains. Prof. Savastano, the veteran horticulturist of southern Italy, has sent from his own garden at Acireale, Sicily, what he considers to be the best walnut of the Sorrento type (S. P. I. No. 40394).

Prof. J. Burt Davy calls attention again to the success in the Transvaal of the Abyssinian teff (*Eragrostis abyssinica*; S. P. I. No.

40535), which he says has become a standard hay crop, teff hay selling for as much as £5 a ton in Johannesburg.

The tabog of the Philippines (*Chaetospermum glutinosum*), seed of which our late collaborator, Mr. William S. Lyon, sent in (S. P. I. No. 40550), represented in the mind of this experienced observer, whose death has recently been announced by the papers and whose contributions to these inventories have been most valuable, a possible stock for citrus fruits.

The begonia, which years ago Prof. I. B. Balfour, of the Edinburgh Botanic Gardens, brought back from the island of Socotra, east of the Gulf of Aden, appears to have been most successfully used in the production of a race of winter-blooming begonias (S. P. I. No. 40526).

Of ornamentals for city dooryards and home gardens a number of new or rare species are represented in this inventory—the yellow-flowered *Clematis tangutica* (S. P. I. No. 40570), the dwarf Chinese box, *Buxus harlandii* (S. P. I. No. 40566), the *Cotoneaster dielsiana* (S. P. I. No. 40575) from central China, *Vitis flexuosa parvifolia* (S. P. I. No. 40600) from the same region, *Primula littoniana* (S. P. I. No. 40857) from Yunnan, and *Pyrus salicifolia* (S. P. I. No. 40497) from Russia.

Apple breeders may be interested in the new species of *Malus* from Formosa, *Malus formosana* (S. P. I. No. 40619), which is very distinct from all other species of this genus, and asparagus breeders in *Asparagus lucidus* (S. P. I. No. 40617) from the same island, the roots of which are preserved in sugar and called Tenmondo in Formosa.

To assist in a study of the insecticidal properties of pyrethrum, a large collection of species of *Chrysanthemum* was introduced (S. P. I. Nos. 40511 to 40513, 40542 to 40548, and 40627 to 40644) and tested by the Insecticide and Fungicide Board.

What success will attend the trial in Florida and California citrus groves of *Cracca candida* (S. P. I. No. 40894) and *Cracca villosa purpurea* (S. P. I. No. 40895), two cover-crop plants from Ceylon, remains to be seen. The former appears to be a favorite green-manure crop in that tropical island.

Chinese names in this inventory have been brought, so far as possible, into accord with the best authorities, the geographic names (except when fixed by decisions of the United States Geographic Board) being given in the form accepted by the Chinese Ministry of Communications Postal Guide. Many names of the smaller villages, however, are not listed therein, and in all such cases the location of the village is given with reference to the nearest town mentioned in that reference work.

As heretofore, this inventory has been prepared by Miss May Riley, the botanical determinations of seeds introduced have been made by Mr. H. C. Skeels, and the descriptive and botanical notes arranged by Mr. S. C. Stuntz, who has also had general supervision of this inventory, as of all the publications of this office.

It is with deep regret that we record here the death of Mr. Stephen C. Stuntz, which occurred on February 2, 1918, while this inventory was in press. Mr. Stuntz had charge of the publications of this office for more than seven years. Through an unusual acquaintance with languages and with bibliography he had built up and systematized these publications, which are known throughout the country to thousands of amateur and professional gardeners and practical farmers, and many of the improved appliances and methods which have served to make the work of plant introduction a success were due to his thought and ingenuity.

DAVID FAIRCHILD,
Agricultural Explorer in Charge.

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION,
Washington, D. C., February 20, 1918.

INVENTORY.

40389. PYRUS COMMUNIS L. Malaceæ. Pear.

From Novospasskoe, Russia. Presented by Mr. A. D. Woelkoff, director, Jardin Expérimental de l'École Horticulture, Cholmy. Received April 7, 1915.

Var. *caucasica*.

40390. PHASEOLUS VULGARIS L. Fabaceæ. Bean.

From Foxboro, Mass. Presented by Rev. Father C. N. Field. Received April 2, 1915.

"Flowering beans, grown at St. Augustine's Children's Farm, Foxboro, last year. Quite pretty bunches of flowers, the seeds of several kinds of which were brought me from Jamaica." (*Field.*)

40391. CAMOENSIA MAXIMA Welw. Fabaceæ.

From Loanda, Angola, Africa. Presented by Mr. J. Gossweiler. Received April 7, 1915.

"The plant upon which this genus was founded was discovered in Angola by the late Dr. Welwitsch when in the Portuguese service, and by him it was in consequence named after the famous Lusitanian poet. It is a climbing shrub, 'common in the dense forests of the Golungo Alto, adorning the loftiest trees of the outskirts with its splendid bunches of pendulous milk-white flowers, tinged with gold on the edge of the petals.'

"The specimen before us is slightly puberulous, with long-stalked trifoliate-acuminate leaves, minute stipules, and close racemes of flowers, which under cultivation are erect rather than pendulous, as originally described and figured, but which, when growing over tall trees, as described by Dr. Welwitsch, might well be pendent, as he described them. The inflorescence and outer portion of the calyx are thickly covered with dense, felted, coarse brown hairs. The bracteoles are about half an inch long, lanceolate, deciduous. The calyx tube, measuring about 2 inches in length, is leathery, cylindric, curved, dividing into a relatively short, irregularly 5-lobed limb, of which the thick segments are imbricate in the bud. The five petals, which are twice the size of the calyx, all have long white, narrow stalks, and all expand above into a spoon-shaped limb, somewhat papery in texture, plicate and crumpled in the bud, reticulate in venation, and edged with a narrow border of rich orange yellow, which Mr. Woodall describes as tipped with gold lace, so delicate and fairylike is the frilled edging. The uppermost petal, or standard, is much larger than the others, and has the inner surface of the disk as well as the margins flushed with yellow. The side petals, or wings, are at first upright and rigid within the standard, but, as the artist remarked while making his sketch, they are endowed with elasticity when touched by the pencil, and after the discharge of the pollen they become drooping. The two lower petals and the stamens are also at first quite rigid, but subsequently fall. The snow-white stamens are shorter than the petals, 10 in number, forming a tube at the base, filamentous above. The narrow, angular

ovary is stalked, its stalk adherent to the tube of the calyx for its lower half. The cylindrical style is slightly hairy at the upper part, and terminates in a green, cushion-shaped stigma. The flowers have a delicate fragrance, which has been compared to that of vanilla. The yellow color of the edge of the petals is apparently due to the presence of coloring matter in the four or five rows of cells nearest to the margin. Those at the extreme edge are raised into pimplike elevations, whilst those on the surface of the disk of the petal are flat and sinuous in outline, containing in some cases oil in small quantities and minute starch grains, or some substance faintly colored blue by iodine. The thin texture of the petals causes them to be fugacious, and the golden rim which is so beautiful an adornment to the frilled edge very soon turns to dirty brown. These circumstances detract greatly from the value of the flower in a gardener's eyes, but it must be remembered that the flowers are in clusters and open in succession and that when grown as seen by Welwitsch in Angola they no doubt amply justify his eulogium.

"Mr. Monteiro, to whom we are indebted for the introduction of this and many other African rarities sent by him at different times to Kew from Angola, thus writes of the *Camoensia* in his interesting book, *Angola and the River Congo* (MacMillan, 1875): 'It was at Quiballa (a large town situated on a low flat-topped hill on the northern limit of Angola) that we were so fortunate as to obtain specimens of the flowers and a quantity of ripe seeds of the beautiful plant named *Camoensia maxima* by its discoverer, Dr. Welwitsch. We saw it growing along the sides of the road as soon as we left the gneiss formation and entered on the mica slate; but more abundantly in the more bare places on the sides of the hills at Quiballa, in the very hard clay of the decomposed mica slate. The *Camoensia* grows as a hard, woody bush, with rather long straggling branches covered with fine large leaves and bearing bunches of flowers. Its roots spread underground to great distances and shoot out into other plants, so that on attempting to remove what we thought were nice small plants we always came to a great thick root, which we followed and found to proceed from old bushes at a considerable distance. Half a dozen of the seeds germinated on arrival at Kew Gardens, so that I hope this lovely flower will be shortly in cultivation, a welcome addition to our hothouses.' At Kew the plant behaves exactly as described in the above extract, the bed in which it is planted being a mass of woody roots whence numerous suckers spring. These, however, are not allowed to grow, the specimen being limited to about five stems, the thickest being now nearly 2 inches in diameter and very hard. The longest shoots are about 12 feet in length, and they are almost wholly clothed with bright-green trifoliate leaves. New shoots are developed freely all over the plant, and to keep it from becoming a thick tangle many of these are removed annually. It is planted in a hot, moist stove in a raised border of rich well-drained loamy soil, below which there are several hot-water pipes. The stems are trained on wires close to the roof of the house, which is somewhat flat and faces due south. During bright sunshine the house is shaded with an ordinary canvas blind. This plant has been in this position for about 10 years, and all sorts of experiments have been made to induce it to flower; but although it has always grown most vigorously, it has never shown any signs of flowering before this year. Plants tried in the large palm house and other tropical houses, including the succulent house, were not so successful. If planted in a suitable position in a tropical garden, this plant would soon cover an enormous area. We intend to put in cuttings of the branches which are now in flower, in the expectation that they will respond more readily to treatment for flowers than has been the case hitherto. It would be interesting to hear if the plants in Trinidad and Ceylon have flowered regularly since they first yielded. Probably the exceptional amount of bright sun-



THE ORANGE JESSAMINE (*CHALCAS EXOTICA* (L.) MILLSPAUGH) IN SOUTHERN FLORIDA
(S. P. I. No. 40392).

A small tree or bushy shrub with fragrant white flowers and pointed red fruit a half inch in length. It is one of the most beautiful of all tropical shrubs for formal plantings, as attractive as box, but with the added beauty of exquisitely fragrant flowers and showy red fruit. It is a relative of Citrus, and lemons have been successfully budded on it as a stock. Its very vigorous root system makes it promising for stock purposes in certain regions. (Photographed at the Miami, Fla., Field Station, August 6, 1915; P34FS-m.)



A WEEPING FORM OF THE CHINESE ELM, *ULMUS PUMILA* L. (SEE S. P. I. No. 40507.)

The extreme hardiness of this Chinese elm, which has been widely distributed throughout our Northwestern States, will make this picturesque weeping form, which is a rare variety even in China, particularly welcome in that region for use in cemeteries and parks. The specimen shown was photographed by Mr. Frank N. Meyer on an old grave near Fengtai, Chihli, China, Mar. 27, 1908 (P5429FS).

shine enjoyed in this country during the early part of the past summer has a great deal to do with the flowering of the *Camoensia*." (*Gardeners' Chronicle*, ser. 3, vol. 20, p. 597.)

40392. CHALCAS EXOTICA (L.) Millspaugh. Rutaceæ.

(*Murraya exotica* L.)

Orange jessamine.

From Hongkong, China. Presented by Mr. W. J. Tutchter, superintendent, Botanical and Forestry Department. Received April 7, 1915.

"The orange jessamine is commonly grown in greenhouses on account of its abundant and very fragrant flowers. These are often to be seen along with the mature red fruit, which make a striking contrast with the panicles of white flowers and delicate foliage. The root growth of this species is remarkably vigorous under greenhouse conditions. Lemons can be budded on it and make a rapid growth. It is being tested as a stock for the common citrus fruits in situations in which a vigorous root system is desired." (*W. T. Swingle*. In *Bailey, Standard Cyclopedia of Horticulture*, vol. 2, p. 729.)

One of the most attractive of all shrubs for formal plantings in frostless regions.

For an illustration of the orange jessamine, see Plate I.

40393. ALEURITES FORDII Hemsley. Euphorbiaceæ. Tung tree.

From Experiment, Ga. Presented by Mr. H. P. Stuckey, horticulturist, Georgia Agricultural Experiment Station. Received April 6, 1915.

"From tree 8, row 10, of nut plat at the Georgia Agricultural Experiment Station. The fruit is of medium size and the tree fairly prolific." (*R. A. Young*.)

40394. JUGLANS REGIA L. Juglandaceæ. Sorrento walnut.

From Acireale, Sicily. Presented by Mr. L. Savastano, director, Royal Experiment Station. Received April 1, 1915.

"Cuttings from the true Sorrento walnut, collected on one of my properties, where they are the best walnuts, and from small trees." (*Savastano*.)

40395 to 40405.

From Biskra, Algeria. Presented by Mr. Bernard G. Johnson. Cuttings received April 2, 1915. Quoted notes by Mr. Johnson.

40395. CITRUS SINENSIS (L.) Osbeck. Rutaceæ.

Orange.

"Biskra blood orange."

40396 to 40405. OLEA EUROPAEA L. Oleaceæ.

Olive.

"The first four specimens (S. P. I. Nos. 40396 to 40399) are probably the ones most accurate, although I hope they are all true to name. At Biskra, olives are hardly ever planted from cuttings, but spring up fortuitously from seeds and are then grafted or budded. At the Château Landon, at least, I was shown young trees that had been budded to *Zoragi*. I have seen numerous old trees where suckers had been permitted to grow to some size; such are called *Zaboosh*. I have given the Arabic way of writing, although the person that gave them to me was not educated. It is difficult to find learned people among the natives of Algeria. I have transcribed the names as they sound to me. Prof. Trabut says that 'all along the Mediterranean there are different varieties of olives every 50 miles,' so there is a good chance that *Tefahi*, *Zoragi*, and

40395 to 40405—Contd. (Quoted notes by Mr. B. G. Johnson.)

Boo Shookiya are original of Biskra. Prof. Trabut thinks the oil of *Zoragi* would be useful to blend with cottonseed oil."

40396. "No. 1. *Tefahi* (meaning apple). From the orchard of Amir Ali el Huni. This is the largest fruited of the olives grown at Biskra, but a light bearer."

40397. "No. 2. *Zoragi*. From the orchard of El Hadji Mohammed Ben, El Hadji Mohammed Brahim, who is kebir or village chief at Bab Dharb. This variety seems to be the most common at Biskra; probably 80 per cent or more of all the trees belong to it. Only trees of this variety attain very large size. The tree at M. Maljean's place was over 4 feet in diameter and apparently solid wood. It is a heavy bearer, and the fruit is quite large, though smaller than *Tefahi* (S. P. I. No. 40396). It is used for oil and pickling. Prof. Trabut says 'the oil of *Zoragi* is very thick and heavy and not much appreciated by the natives.' This fault can, however, be remedied by mixing with a lighter oil."

40398. "No. 3. *Tunisiya*. Probably introduced from Tunis. Specimens taken from the garden of Abd Rhzell Ben Babish. Tree grows more slender and taller, with lighter trunk. The fruit is smaller. I have seen but few trees of this variety. Makes a better oil but is a much inferior producer."

40399. "No. 4. *Boo Shookiya?* (Producer of spines; *Boo*, in Arabic, father or producer.) The specimens are from the orchard of El Hadji Mohammed Ben, El Hadji Mohammed Brahim. The main characteristic is that the wood suffers from a disease, and you will notice that nearly all *Boo Shookiya* have this trouble. The fruit is not so round as *Tefahi* or *Zoragi*, but more oval, and has a separate formation at one end resembling a spine, therefore the name. The fruit is used mostly for pickling. The variety is not so prevalent as *Zoragi*, but is quite common."

40400. "No. 5. *Zoragi*. From the orchard of M. Maljean. This tree was exceptionally large."

40401. "No. 6. *Tefahi*. From the property of Swedi Sheik Swedi."

40402. "No. 7. *Zoragi*. From the Château Landon. All the young trees there had been grafted to *Zoragi*."

40403. "No. 8. *Boo Shookiya*. From the property of El Hadji Jazeneb Medani. These specimens were apparently freer from the disease, but not the trees."

40404. "No. 9. *Tefahi*. From the property of El Hadji Boo Sitta."

40405. "No. 10. *Zoragi*. From the Babesh property (one of the richest in Biskra)."

40406 to 40496. RIBES spp. Grossulariaceæ.

From Paris, France. Purchased from Mr. Maurice Vilmorin. Cuttings received April 1, 1915. Secured for the use of the pathologists of the Bureau of Plant Industry in their studies of the relationships between this genus and the white-pine blister rust.

"Various species of *Ribes* and *Pinus* imported from other countries for the use of the Office of Forest Pathology have been secured for the purpose of carrying on

much-needed critical experimental work upon the white-pine blister rust. This disease attacks the 5-needled pines in one stage, and has as alternating hosts the various species of *Ribes*. The exact limitation of the disease upon the species of either of these genera is at present unknown. So far as tested all *Ribes* have taken the disease. The securing of results with the pines is much slower, but there is good reason to believe that all 5-needled pines will serve as hosts for the disease. Many foreign *Ribes* and pines are not available in this country from seeds, cuttings, or plants; hence the necessity of importing small numbers of them. This disease is so well established in one section of this country at present and threatens such tremendous timber values, both in the East and the West, that it is important that any resistant species of either pine or *Ribes* be known as soon as possible, with a view to the extensive use of this species in future in place of the more susceptible ones. For this reason an effort is being made to secure specimens of all foreign species of *Ribes* and 5-needled pines." (*Dr. Perley Spaulding.*)

Numbers quoted are those of the Maurice Vilmorin Fruticetum.

40406 to 40409. RIBES spp.

40406. "7378."

40408. "7488."

40407. "7402."

40409. "7530."

40410. RIBES MAXIMOWICZII Batalin.

"7555 V."

"(Wilson No. 958a.) From thickets, Washan, western Szechwan, altitude 1,800 to 2,500 meters. August, 1908." (*Wilson.*)

40411 to 40413. RIBES spp.

40411. "7555 F."

40413. "7477."

40412. "7555."

40414. RIBES AFFINE H. B. K.

"7472."

"Shrub 2 to 3 meters in height, young shoots glabrous or subpubescent, the year-old shoots shining, clear red-brown. Leaves rather small or medium, rounded, 6 cm. long and broad, 3 to 5 lobed, with lobes sometimes obtuse and little developed, base truncate or cordate, glabrous or subpubescent, even glandular above, subpubescent or pubescent below. Racemes very variable, short and rather crowded, medium or rather long up to 12 cm., in this case loose with about 15 flowers. Sometimes the racemes are branched and 20 cm. long (*R. multiflorum* Kunth). Flowers medium, subcampanulate, white or a little washed with rose. pubescent, not glandular, odorless. Fruit as large as a currant, round, black, shiny, covered with a withered flower, with regularly reflexed sepals. Pulp colorless, not juicy, containing 15 rather small ovoid or angular seeds. Native of Mexico in the high mountains in the Federal District and elsewhere. It bears in Mexico the name of *Ciruelillo*." (*E. Janczewski, Monographie des Groseilliers, p. 330.*)

40415. RIBES ALPESTRE COMMUNE Janczewski.

"7555 M-A."

"(Wilson No. 277 A.) From thickets, Fanghsien, western Hupeh, at altitudes of 2,100 to 2,250 meters. September, 1907." (*Wilson.*)

40406 to 40496—Continued.

40416 and 40417. *RIBES ALPINUM* L.

Alpine currant.

40416. "7375."

"A deciduous unarmed shrub, reaching in gardens 6 to 9 feet in height and as much or more in diameter, of dense, close habit; young twigs shining, and at first more or less glandular. Leaves broadly ovate or roundish, 3 and sometimes 5 lobed, the lobes coarsely toothed, the base straight or heart shaped, with five radiating veins; upper surface with scattered bristly hairs, the longer one usually shining and more or less hairy on the veins; one-half to $1\frac{1}{2}$ inches long and wide; stalk glandular-downy, one-fourth to one-half inch long. Flowers unisexual, the sexes nearly always on separate plants, produced in the axils of bracts longer than the flower stalk, greenish yellow; the males on small, erect, glandular racemes 1 to $1\frac{1}{2}$ inches long, the females fewer and on racemes half as long. Currants red, not palatable. Native of the northern latitudes of the Old World, including England and Scotland. The largest specimens I know of form part of the old hedge on the east front terrace of the old hall at Troutbeck; according to a letter at Kew they are treelike, 15 feet high, and not less than 300 years old. Although this currant has no special beauty of flower or fruit, it makes a very neat and pleasing shrub, admirable for shady places. Occasionally plants with perfect flowers may be found." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 397.*)

40417. "7375 B." Var. *sterile*.

"The so-called var. *sterile* appears to be merely the normal male-flowered plant. None of the forms of *R. alpinum* need a rich soil. They retain the neat, compact habit, which is their greatest merit, in rather poor soil. The yellow-leaved forms color best in full sun." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 398.*)

For further description, see S. P. I. No. 40416.

40418. *RIBES AMERICANUM* Miller.

Currant.

"7345."

"This shrub is unarmed, and closely allied to the common black currant, which it resembles in having 3-lobed or 5-lobed leaves, with a coarse irregular toothing and a deeply heart-shaped base, and in possessing the same heavy odor, due to yellowish glands on the lower surface. The fruit also is black. The American species, however, is quite distinct in the flowers; these are nearly twice as long, more tapering and funnel shaped, and yellow. Moreover, the bract from the axil of which each flower springs on the raceme is longer than the stalk. (In *R. nigrum* it is small and much shorter than the flower stalks.) Native of eastern North America from New Brunswick to Virginia, Kentucky, etc.; introduced in 1729. As a garden shrub, the only quality which recommends this currant is that its foliage becomes suffused with brilliant hues of crimson and yellow in autumn. For this quality it is sold in nurseries, often as *R. missouriense*—wrongly, for the true plant of that name is a gooseberry with spiny branches." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 398.*)

40406 to 40496—Continued.

40419. *RIBES ROEZLI* Regel.

Gooseberry.

"7535." This species is described by Bean as *Ribes amictum*.

"A deciduous armed shrub, 3 to 6 feet high; young shoots downy. Leaves one-half to 1 inch wide, roundish or kidney shaped in general outline, 3 or 5 lobed, the lobes often with sharp teeth; more or less downy on both faces, especially beneath; stalk one-third inch long, usually downy and sometimes glandular-hairy. Flowers solitary or in pairs, on a short downy, often glandular stalk, pendent. Calyx purplish crimson, downy; the tube cylindrical, one-fourth inch long; the sepals one-third inch long; petals rosy white, erect, shorter than the sepals. Berry purple, one-half inch wide, covered with slender prickles. Native of California. This pretty and curious gooseberry is not common in cultivation, the plant that has been distributed for it from nurseries being as a rule either *R. lobbii* or *R. menziesii*. Its nearest ally is *R. cruentum*. The specific name (*amictum*) refers to the shape of the bract surrounding the base of each flower, which resembles the amict, or hood, worn by Roman Catholic clergy at mass." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 398.*)

40420. × *RIBES ARCUATUM* Jancz.

Gooseberry.

"7503."

"*Gracile* × *rotundifolium*. Shrub 1½ meters high with long, slender more or less arched branches, bristly, spines none, the nodal spines weak, up to 5 mm. long, wanting here and there. Leaves rather small, rounded, oblong, 3 to 5 lobed, up to 5 cm. in width, truncate or rounded at the base, subglabrous, resembling those of *R. rotundifolium*. Flowers pale, or a little washed with purple, glabrous, rather small. Fruit round, the size of a large currant, dark purple, with a light bloom, taste of that of *R. grossularia*. Ripens in the middle of July. Its habit, leaves, spines, as well as the shape of the flower, above all the petals, resemble very much *R. rotundifolium*, but it is even more vigorous and hardy, its racemes and stamens are even more short, the pollen compound, the fruit deep purple and not green. After repeated comparisons, we believe that it is a hybrid, *gracile* × *rotundifolium* and not *divaricatum* × *gracile* as we had previously thought." (*E. Janczewski, Monographie des Groseilliers, p. 497.*)

40421 and 40422. *RIBES AUREUM* Pursh.

Currant.

40421. "7305. Var. *chrysococcum* Rydb."

The species is described as follows: "A deciduous, lax-habited, spineless shrub, 6 to 8 feet high, producing a crowded mass of stems which branch and arch outward at the top; young shoots minutely downy. Leaves usually 3 lobed, often broadly wedge shaped or palmate, the lobes coarsely toothed; three-fourths to 2 inches long, as much or more wide, pale green on both sides, and smooth, or soon becoming so; stalks smooth or downy, one-half to 2 inches long, very variable in length compared with the blade. Flowers spicily fragrant, bright golden yellow, appearing in April in semipendulous racemes 1 to 2 inches long, each flower with a tubular calyx one-half inch long; the spreading lobes one-fourth to three-eighths inch long; bract at the base of the flower stalk longer than the latter. Fruit

40406 to 40496—Continued.

black-purple, round, smooth, one-third inch in diameter. Native of the central United States; introduced in 1812. This species and *R. sanguineum* are by far the most attractive of the currants in their blossom, and it is very distinct among them in its long, tubular, yellow calyx." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 398-399.*)

The so-called variety *chrysococcum* is simply a yellow-fruited form.

40422. "7305." Typical *Ribes aureum*.

See S. P. I. No. 40421 for description.

40423. *RIBES FASCICULATUM* Siebold and Zuccarini.

"7540."

"A deciduous, unarmed shrub, 3 to 5 feet high; young shoots finely downy. Leaves 3 to 5 lobed, the largest 2 inches long, 2½ to 3 inches wide; the lobes coarsely toothed, usually more or less downy; stalk downy and with feathered bristles near the base. Flowers unisexual, the sexes on separate plants. Males clustered four to nine together in a stalkless umbel—i. e., each flower is on its own stalk without uniting on a common one—yellow, fragrant, smooth; females usually in pairs, sometimes three or four. Fruits erect on a stalk one-fifth inch long, round, one-third to one-half inch diameter, smooth, bright scarlet. Native of China, Japan, and Corea, and distinct from all other species in cultivation in having the flowers clustered in fascicles.

"Var. *chinense* Maximowicz (*R. billardii* Carr.) is a taller shrub, partially evergreen, more downy than the type. The fruits of both are ornamental, and remain long on the branches." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 401.*)

40424. *RIBES BUREJENSE* F. Schmidt.

Gooseberry.

"7532."

"A small shrub covered with copious fine prickles; blooms as early as *R. aciculare*. Leaves sparingly pilose, somewhat glandular-setaceous. Inflorescence pale or reddish. Calyx small, reflexed. Corolla white, triangular. Stamens longer than the corolla. Manchuria, northern Corea, northern China." (*C. K. Schneider, Handbuch der Laubholzkunde, vol. 2, p. 984, 1912.*)

40425. × *RIBES CARRIEREI* Schneider.

Black currant.

"7358. *Glutinosum* var. *albidum* ♀ × *nigrum* ♂."

"Vigorous shrub, 1½ meters high, without the disagreeable odor of the black currant. Young shoots pubescent, rather large and stiff. Buds ovoid-oblong, of good size, but smaller than those of *R. glutinosum*, with herbaceous greenish scales a little touched with red. Leaves of medium size or rather large, up to 11 cm. long and 12 cm. wide, ordinarily trilobate, with the middle lobe usually as predominant as in the black currant, the base cordate, often asymmetrical, pubescent on the nerves and dotted below with small sessile glands. Leaves falling late. Racemes horizontal up to 8 cm. in length, loose, with 10 to 15 flowers. Buds almost red. Flowers medium, flesh colored, tomentose, and glandulose. Fruit round, as large as a currant, black, not pruinose, entirely similar to that of the black currant, which it also resembles in taste. Ripens in July and August. *R. carrieriei* is a chance hybrid which was found among the seeds of *R. glutinosum* var. *albidum* by Billard at Fontenay aux Roses,

40406 to 40496—Continued.

and was named *R. intermedium* by Carrière in 1867. This name not being tenable because of the *R. intermedium* Tausch, 1838, Schneider changed it to *R. carrierei*. *R. carrierei* is intermediate between its parents. From *R. glutinosum* it draws the vigor, the size of the buds, the raceme, the bractlets, the forms and the coloring of the flowers and the small rounded glands; from *R. nigrum*, the form of the leaves, of the anthers, and of the pistil, as well as the fruits ripening rather early." (*E. Janczewski, Monographie des Groseilliers, p. 488.*)

40426. *RIBES PETRAEUM CAUCASICUM* (Bieberstein) Jancz.

Caucasian red currant.

"7425."

"Shrub 1 to 3 meters, with young shoots almost always pale, usually glabrous, rarely dotted with glands or with glandular hairs. Buds a little larger than in *R. rubrum*, colored with dark brown already at the end of May, and easily distinguished at this time. Leaves usually rounded, up to 15 cm. long and broad, 3 to 5 lobed, rarely trifid, with lobes lengthened and subacute, or short and obtuse, with base truncate, subcordate or very deeply cordate, smooth or roughly rugose, glabrous, or subpubescent, even dotted with glandular hairs or sessile glands, shiny or dull above, glabrous, subpubescent, or pubescent beneath. Flowers subcampanulate, whitish, salmon colored, or purple, glabrous, or subpubescent. Fruit more or less compressed at the ends like a bergamot pear, red or blackish purple crowned with a withered flower with circular insertion. Flesh juicy, colored, more or less acid, resembling a little the bilberry (*Vaccinium vitis-idaea*) in its taste. Ripens in July. Germination slow, in six to eight months. Native of the high mountains of Europe and North Africa (summit of the Atlas), and almost all of Siberia, even as far as the River Indigirka, perhaps even to the Okhotsk Sea. Inhabiting so great a space, *R. petraeum* presents varieties which are distinguished by their habit, foliage, racemes, color and form of flower, and coloring of the fruit. Among these is the variety *caucasicum*. Shoots glabrous or subglabrous. Leaves rounded, up to 13 cm. broad and 12 cm. long, ordinarily 5 lobed, the lobes little developed, subobtuse, with base very deeply cordate, smooth, subglabrous, or pubescent. Racemes sometimes lengthened, even up to 10 cm. Flowers reddish. Receptacle furnished with five tubercles below the petals. Fruits red or blackish purple. From the Caucasus." (*E. Janczewski, Monographie des Groseilliers, p. 290.*)

40427. *RIBES CURVATUM* Small.

Gooseberry.

"7428."

"A low, deciduous, bushy shrub, less than 3 feet high; the shoots smooth, purplish, armed with slender, simple or triple spines. Leaves roundish, usually 1 inch or less in diameter, 3 to 5 lobed, toothed, slightly downy; stalk slender, downy. Flowers produced singly or in pairs (rarely more) on pendent stalks, white; calyx bell shaped with linear, much reflexed sepals one-fourth inch long; petals very short, white; ovary covered with resinous glands; stamens one-fourth inch long, erect, both they and the style downy. Fruits globose, smooth, one-third inch across, purplish. Native of the southeastern United States, apparently hardy. I brought plants from the Arnold Arboretum to Kew in July, 1910, which, so far as I am aware, were the first introduced into this country. It is closely allied

40406 to 40496—Continued.

to *R. niveum*, which it resembles in its white flowers and downy style and stamens, but the glandular ovary and often glabrous anthers are different. *R. curvatum* is also much dwarfer in habit, and comes from the opposite side of North America." (W. J. Bean, *Trees and Shrubs Hardy in the British Isles*, vol. 2, p. 401.)

40428 to 40431. RIBES DIACANTHA Pallas.

40428. "7555 G."

"A deciduous shrub, 4 to 6 feet high, armed with spines in pairs one-eighth to one-fifth inch long, or sometimes unarmed; young shoots not downy. Leaves obovate or rounded; often 3 lobed and lobes coarsely toothed; three-fourths to 2 inches wide, the base ordinarily wedge shaped, but sometimes rounded, quite smooth; stalk one-fourth to five-eighths inch long, more or less furnished with bristles. Flowers unisexual, the sexes on different plants. Males yellowish, in erect glandular racemes. Fruit roundish, oval, about as big as a red currant, smooth, scarlet red. Native of Siberia, Manchuria, etc.; introduced in 1781. This shrub, which has no particular merit, resembles *R. alpinum* in the plant being one sexed, but differs in having prickles and in the markedly wedge-shaped leaves. In having spines, and flowers in racemes, it unites the characters of the currants and gooseberries, but its affinities are with the former." (W. J. Bean, *Trees and Shrubs Hardy in the British Isles*, vol. 2, p. 401.)

40429. "7385."

For description, see S. P. I. No. 40428.

40430. "7385 E. From Transbaikal."

For description, see S. P. I. No. 40428.

40431. "7385 ♂."

For description, see S. P. I. No. 40428.

40432 to 40434. RIBES FASCICULATUM Siebold and Zuccarini.

40432. "7370. Var. *chinense* ♀."

For description, see S. P. I. No. 40423.

40433. "7370 A. Var. *chinense* ♀."

For description, see S. P. I. No. 40423.

40434. "7370 B. Var. *chinense*."

For description, see S. P. I. No. 40423.

40435. RIBES AMERICANUM Miller.

"7348."

See S. P. I. No. 40418 for previous introduction and description.

40436. RIBES FRAGRANS Pallas.

"7340."

"Small shrub, from 50 to 70 cm. high, with young shoots richly glandular, glabrous, or pubescent. Plants very odorous, with an agreeable odor resembling that of balm (Pallas). Leaves leathery, rugose, rounded reniform, up to 5 cm. long and 6 cm. broad, trilobate, with lobes little pronounced, ovoid, or rounded, subcordate at the base, richly glandular, glabrous, or pubescent below. Flowers white, basin shaped, glandular, or pubescent. Fruit as large as a large currant, red according to Pallas, black according to Turczaninow, or whitish according to Bunge. Very

40406 to 40496—Continued.

tasty. according to Pallas. On the herbarium specimens we find it brownish and pale. Native of Siberia and northern Manchuria, on exposed rock in the sun or in the woodlands in the high mountains of Altai, Urugdei, Ssoyoutes Mountains and in the extreme east of Siberia up to the Okhotsk Sea. *R. fragrans* is a neighbor of *R. hudsonianum* and *R. dikuscha*, but it is well distinguished by the rounded kidney-shaped leaves, leathery and rugose; besides, it is an alpine or subalpine plant of small size and very odorous. Its variety with pubescent leaves has been described by Bunge under the name of *R. graveolens*. It is smaller in all its parts than the Pallas type." (*E. Janczewski, Monographie des Groseilliers, p. 343.*)

40437. *RIBES BRACTEOSUM FUSCESCENS* Jancz.

Black currant.

"7336."

This species is described as follows: "An unarmed deciduous shrub 6 to 8 feet high; young shoots smooth, except for a little loose down at first. Leaves handsomely 5 or 7 lobed, 3 to 7 inches (sometimes more) wide; the lobes palmate, reaching half or more than half the way to the midrib, sharply and irregularly toothed; dotted with resin glands beneath; bright green and soon quite smooth above; stalk slender, often longer than the blade, smooth except for a few bristles at the base. Racemes produced in May, erect, slender, up to 8 inches long. Flowers numerous, greenish yellow, erect, one-third inch across, each on a slender, slightly downy stalk about one-fourth inch long. Currants erect, resin dotted, globose, one-third inch diameter, black with a blue-white bloom.

"Native of western North America; discovered by Douglas in 1826. An interesting species of the black currant (*nigrum*) group, very distinct in its large maplelike leaves (occasionally 10 inches across) and long, slender, erect racemes. Rarely seen but quite hardy at Kew." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 399.*)

40438. \times *RIBES FUTURUM* Jancz.

Red currant.

"7423. *Vulgare macrocarpum* ♀ \times *warszewiczii* ♂."

"Robust shrub, young shoots stained with red, glabrous, sometimes dotted with a few glandular hairs. Leaves rather large, rounded, up to 11 cm. long and 12 cm. broad, 3 to 5 lobed, cordate at the base, subglabrous. Flowers almost rotate, pale, flesh colored or washed with brownish copper. Fruit rather large size, purple or deep red, subacid. Ripens at the end of June and in July. Insertion of the withered flower pentagonal. We have produced this hybrid by fertilizing in 1903 *R. vulgare macrocarpum* (Red Versailles currant) with *R. warszewiczii*. It is almost intermediate between the parents, but has drawn more from the mother in the form of the flower and the anthers, more from the father in the coloration of the flower and the nonlobed receptacle. The calloused swelling of the receptacle is completely intermediate in its form and its elevation." (*E. Janczewski, Monographie des Groseilliers, p. 478.*)

40439. *RIBES GLACIALE* Wallich.

Currant.

"7380."

"Shrub from 3 to 5 meters, the young shoots red or washed with red, glabrous, or dotted with short hairs. Buds oblong, red or reddish in autumn. Development and flowering very early. Habit of *R. alpinum*. Leaves rather small, length and breadth up to 6 cm. rounded or ovoid, usually 3 to 5 lobed, the posterior lobes often very small, the middle one

40406 to 40496—Continued.

noticeably predominant, sometimes strongly pointed or almost acuminate with subcordate or truncate base, sometimes even rounded, a little glossy, glabrous, dotted with glandular hairs. Leaves but little developed at flowering. Male racemes erect, $1\frac{1}{2}$ to $4\frac{1}{2}$ cm. long, with from 7 to 30 flowers. Flowers subturbinate, purplish maroon on the inside, glabrous. Female racemes very short, one-half to 2 cm., loose, bearing three to six flowers in wild plants, 2 to 3 cm. long in cultivation, with about ten flowers. Pedicels very short at flowering. Bracts caducous. Flowers subrotate, smaller than the males, purplish or reddish maroon, sometimes greenish. Fruit small, like a currant, round or obovate, reddish scarlet, glabrous, occasionally shortly pedunculate (one-half mm.), crowned with withered flower. Pulp flesh colored, subacid or a little sweet, not gelatinous. Seeds rather small, oblong. Matures in middle July. Native of the high mountains of southern China, Yunnan, Hupeh, Szechwan, Tibet, and in the Himalayas. Wallich confused *R. glaciale* with *R. acuminatum*, but accepting the opinion of Govan that they are specifically distinct, I propose to apply the name *R. glaciale* to the plant having the smaller leaves more like those of *R. alpinum*. Hooker fil. and Thomson do the contrary, and describe *R. acuminatum* under the name of *R. glaciale*." (*E. Janczewski, Monographie des Groscilliers, p. 467.*)

40440. RIBES TRILOBUM Meyen.

(*Ribes gayanum* Spach.)

"7325. ♂."

"An unarmed evergreen shrub, 3 to 5 feet high; the young wood, leaf-stalks, flower stalks, ovary, and calyx shaggy with soft hairs. Leaves stout, greyish, very broadly or roundish ovate; 1 to 2 inches long and broad; the three lobes rounded and toothed, the base usually straight; downy on both sides. Flowers bell shaped, yellow, honey scented, closely packed in erect cylindrical racemes, 1 to 2 inches long, one-half inch diameter. Berries about the size of peas, purple-black, hairy. Native of Chile. A handsome evergreen and distinct in the shape and color of its inflorescence and the hairiness of its various parts. Some forms are less downy. Flowers in early June. It has been cultivated at Kew for many years and is quite hardy." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 401-402.*)

40441. RIBES TRILOBUM Meyen.

(*Ribes gayanum* Spach.)

"7325. ♀."

See S. P. I. No. 40440 for description.

40442 and 40443. RIBES GLACIALE Wallich.

Currant.

40442. "7380 ♀."

See S. P. I. No. 40439 for previous introduction and description.

40443. "7555 K."

"Wilson No. 180. From woods, Fanghsien, western Hupeh, at an altitude of 2,250 meters. September, 1907; a form with large sepals." (*Wilson.*)

See S. P. I. No. 40439 for previous introduction and description.

40444. × RIBES GORDONIANUM Lemaire.

Currant.

"7362."

40406 to 40496—Continued.

"A hybrid between *R. aureum* and *R. sanguineum*, raised at Shrubland Park, near Ipswich, about 1837, by Donald Beaton, a famous gardener of his time. It is intermediate in most respects between its parents in habit, in the leaves being smaller and less hairy than those of *R. sanguineum*, and in the colour of the flowers, which are reddish outside, yellowish within, a curious blend. It is hardier than *R. sanguineum* and can be grown in parts of the New England States where that species is too tender to thrive. It is interesting and not without beauty, but is inferior to either of its parents." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 402.*)

40445. *RIBES CYNOSBATI* L.

Gooseberry.

"7505."

"*Dogberry*. A native of eastern North America, introduced in 1759. Its stems are weakly armed or not at all; leaves and leafstalks downy, calyx green, bell shaped with reflexed sepals; petals white; ovary bristly. The bristles not gland tipped; style downy toward the base; fruit reddish purple, scarcely one-half inch in diameter, more or less covered with slender prickles." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 403.*)

40446. *RIBES GROSSULARIOIDES* Maxim.

Gooseberry.

"7484."

"A native of China and Japan, with smooth or bristly stems armed with triple spines; leaves smooth or with glandular bristles. It differs from *R. grossularia* in the style not being downy and in the red berries being smooth. Introduced to Kew from North China by the late Dr. Bretschneider in 1881." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 403.*)

40447. *RIBES HIMALAYENSE URCEOLATUM* Jancz.

"7515 B."

"Wilson No. 4414. A bush 2 to 3 meters high, with black fruits from woodlands, Fanghsien, western Hupeh, altitudes, 2,300 to 2,600 meters. September, 1910." (*Wilson.*)

For a more complete description of the species, see S. P. I. No. 40448.

40448. *RIBES HIMALAYENSE* Decaisne.

"7515."

"Tall shrub 2 to 4 meters. Young shoots glabrous, a beautiful red in springtime (May and June). Buds, very small, lengthened. Vegetation and flowering very much later than in the currants of the gardens, contemporaneous with *R. petraeum* var. *bullatum*. Leaves rounded or ovoid, up to 12 cm. in length and breadth, lobed or more deeply cut, with lobes little developed and subobtuse, more often pointed, cordate at base, sometimes very deeply, dotted with glandular hairs above and rarely pubescent beneath. Flowers subcampanulate, or suburceolate, greenish, mottled with red or even purple on the outside, subglabrous or pubescent. Fruit rather large, red or black, insipid, oligospermous, crowned with a fleshy collarette and with the withered flower. Seeds rather large. Native of the Chinese Empire from the Himalaya Mountains and those of Yunnan at the south as far as Shensi on the north. Always in the high mountains. We know three varieties of this species, var. *decaisnei* Jancz. Leaves with acute lobes, flowers with sepals exposed from the middle of their length, ciliate

40406 to 40496—Continued.

or not. They resemble those of *R. petraeum*. Native of the Himalayas, Hupeh, and Shensi. Var. *appendiculatum* Jancz. Leaves, with short subobtuse lobes. Flowers similar, not ciliate. Anthers surmounted with a point prolonging the connective. We know this only from herbarium specimens collected in the Himalayas at Phulal Daru, Nila Valley. Var. *urcolatum* Jancz. Leaves acute lobed. Flowers with swollen receptacle, with short broad sepals, more or less divergent into a funnel, always ciliate. Native of Yunnan and Sikkim. Our plant is originally from Sikkim. The flowers are purple on the outside and pubescent." (*E. Janczewski, Monographie des Groseilliers, p. 296.*)

40449. RIBES HIRTELLUM Michx.

Gooseberry.

"7485."

"This species is very near *R. oxyacanthoides*, but has smooth shoots and stamens twice as long as the petals, which are purplish. Berry smooth, purplish or black, one-half inch across.—Curtis's Botanical Magazine, pl. 6892 (as *oxyacanthoides*). It has borne very good fruit in the Isle of Wight, where it is known as 'currant gooseberry.'" (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 402.*)

40450. × RIBES HOLOSERICUM Otto and Dietrich.

Currant.

"7349."

"*Petraeum* var. *caucasicum* × *rubrum*. Erect shrub, 1 to 1½ meters, with robust shoots washed with red. Leaves medium size, rounded, 6½ cm. long, 7½ cm. broad, 3 lobed, more often sublobate, with lobes little developed, cordate base, subglabrous above, quite pubescent below. Flowers shortly campanulate, reddish, more often brownish, ciliate. Fertility sometimes little, sometimes great, according to the year. In some cases as many as 15 fruits in the raceme. Fruits small or medium in size, blackish purple, ordinarily compressed near the flower and in the form of a bergamot, surmounted by the withered flower with ovoid or pentagonal-rounded insertion. Pulp juicy, red, rather acid. Seeds few in number, purple. The second generation is heterogenous, composed of plants of which some resemble a little *R. vulgare*, others entirely resemble *R. rubrum*, which grew beside the mother plant and probably served to fertilize it. *R. holosericeum* (velvety currant) resembles in the richness of its racemes and the coloration of the flowers *R. petraeum*, but its receptacle, devoid of all excrescence, its straight filaments and the arch of the ovary little raised attest that *R. rubrum* entered into the crossing. The pubescence of the leaves, their cordate base, their slightly developed lobes, as well as the deep coloration of the fruits, seem to indicate that *R. petraeum* var. *caucasicum* with blackish fruits was one of its parents. In fact *R. holosericeum* is grown in some establishments under the name *R. caucasicum*." (*E. Janczewski, Monographie des Groseilliers, p. 483.*)

40451 and 40452. RIBES INEBRIANS Lindley.

40451. "7327."

"Very similar to *R. cereum*, and equally pleasing, this differs in having the bract at the base of each flower not toothed and pointed, the style smooth, and the flowers deeper in colour. Introduced from western North America in 1827." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 399-400.*)

40406 to 40496—Continued.

40452. "7327 B. Var. *minus*."

See S. P. I. No. 40451 for description.

40453. × *RIBES INNOMINATUM* Jancz.

"7491."

"*Divaricatum* × *grossularia*. More or less tall shrub. Shoots glabrous or pubescent; nodal spines simple or ternate, more or less vigorous, measuring up to 18 mm., setiform spines none or rare. Leaves almost small, subcoriaceous, rounded, 2½ cm. long and 3 cm. broad or larger, 3 to 5 lobed, the lobes little developed, obtuse, the base subcordate or truncate, glabrous or subpubescent. Flowers purplish maroon, bristly with stiff hairs. We have received two forms of this hybrid from the establishment of Monsieur M. Späth with the labels, *Ribes* sp. No. 3 and No. 1a. They differ from each other by their habit and above all by the pubescence. The form 'a' is a more erect shrub with both shoots and ovary glabrous and certainly derived from *R. grossularia a vulgare*. The form 'β' is on the contrary a more squatty shrub, with both shoots and ovary pubescent, and its fruits ripen later. It arises without doubt from *R. grossularia β uva crisa*. The intervention of *R. divaricatum* in the crossing is betrayed by the habit of the plant, above all by the form and coloration of the flower. Fruit of form 'a' round, larger than a currant, purple, slightly pruinose, glabrous. Taste mild, resembling that of a gooseberry. Ripens middle decade in July. That of form 'β' subglabrous, purple, ripening at the end of July." (*E. Janczewski, Monographie des Groseilliers, p. 496.*)

40454. × *RIBES KOEHNEANUM* Jancz.

Red currant.

"7437. *Multiflorum* × *vulgare*."

"A shrub similar to other red currants in our gardens. Leaves medium sized, rounded, 6½ cm. long, 7½ cm. broad, 3 to 5 lobed, more often sublobed because the lobes are very little developed, obtuse, with cordate or subcordate base, subpubescent. Flowers small, basin shaped, brownish. Fruits very numerous, medium size, red, acid, ripening in the end of July. Insertion of the withered flower perfectly pentagonal, as in *R. vulgare*. *R. kochneanum* resembles *R. multiflorum* in the length and richness of racemes as well as in the length of stamen and style, and resembles *R. vulgare* in the form of the flower and the breadth of the anthers." (*E. Janczewski, Monographie des Groseilliers, p. 485.*)

40455. *RIBES LACUSTRE* (Pers.) Poiret.

"7400."

"A deciduous shrub. 3 to 5 feet high, the stem thickly covered with slender prickles or stiff bristles; spines at the joints numerous, from three to nine, arranged in a semicircle. Leaves 1 to 2¼ inches long and wide, handsomely and deeply 3 or 5 lobed, the lobes often again deeply cut; stalk and chief veins more or less bristly. Flowers from 12 to 20 in glandular-downy drooping racemes, 2 to 3 inches long, funnel shaped, with short, spreading sepals brownish crimson inside, creamy white or pinkish outside. Berry round, about the size of a black currant, covered with gland-tipped bristles, black. Native of North America, on both sides of the continent, inhabiting cold, damp localities; introduced in 1812. Although the general aspect of this shrub is that of a gooseberry, especially in the shape of its leaves and in its spines, it has the long

40406 to 40496—Continued.

racemes and flowers of the currants. Its multiple spines are also distinct. Although it has no lively color to recommend it, it is pretty when its branches are strung with the graceful drooping racemes." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 403.*)

40456. *RIBES MONTIGENUM* McClatchie.

"7553."

"Another species, which unites as *R. lacustre* does the two sections of the genus, but has shorter, fewer flowered racemes (six to ten) and bright red fruits. Introduced from western North America in 1905." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 403.*)

40457. *RIBES LEPTANTHUM* A. Gray.

Gooseberry.

"7508."

"A deciduous, spiny shrub, 3 or 4 feet high, with slightly downy, occasionally glandular-bristly young branches; spines usually slender, solitary, up to one-half inch long. Leaves roundish or somewhat kidney shaped, one-fourth to three-fourths inch wide, deeply 3 or 5 lobed, toothed, the base mostly truncate; stalk as long as the blade, downy at the base. Flowers white, tinged with pink, one to three on a short stalk; calyx cylindrical, the sepals downy, ultimately reflexed. Fruit oval, shining, blackish red, slightly downy or smooth. Native of Colorado, New Mexico, etc.; one of the prettiest and daintiest of gooseberries lately introduced, the branches being slender and densely clothed with tiny leaves." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 404.*)

40458. *RIBES LONGERACEMOSUM* Franchet.

Currant.

"7517."

"Mr. Wilson has recently introduced this extraordinary currant from western China, where it had originally been discovered by the Abbé David. The one character which distinguishes it from all its tribe is its remarkable racemes, from 12 to 18 inches long, pendulous, thinly set with greenish flowers and afterwards with jet-black fruits which Mr. Wilson tells me are about the size of an ordinary black currant and of good flavor. It is a deciduous unarmed shrub with smooth young shoots and 3 or 5 lobed, smooth leaves, 3 to 5½ inches long and wide; stalks up to 4½ inches long, furnished with glandular bristles most numerous toward each end. Flowers tubular, bell shaped, smooth. The species appears to be quite hardy and is worth the attention of lovers of curiosities and of fruit growers for hybridising. The fruits, however, are very thinly disposed along the stalk." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 404.*)

40459. *RIBES LONGERACEMOSUM DAVIDII* Jancz.

"7555 Y."

"Wilson No. 898. Woodlands, altitude 1,800 to 2,400 meters, Mupin, western Szechwan, June, 1908." (*E. H. Wilson.*)

40460. *RIBES MANSHURICUM* (Maxim.) Komarow.

Red currant.

"7544."

"Shrub 1½ to 2 meters, with young shoots glabrous or subpubescent. Bark of the wild plants almost black, with leaden reflections. Buds ovoid, not larger than those of *R. petraeum*. Leaves large, broad, resembling those of *R. latifolium*, 9 cm. long, 11 cm. broad, usually 3 lobed, more

40406 to 40496—Continued.

rarely 5 lobed, with lobes often sharp, even acuminate, subcordate or cordate base, dull, glabrous, or pubescent below. Racemes pendent, up to 16 cm. long (in Shensi), even 20 cm. (according to Franchet), without appendages in the lower third, loose or crowded, bearing as many as 50 flowers. Flowers small, basin shaped, greenish, glabrous or subpubescent. Young fruit bluish green, fruit as large as a very large currant, red, subacid under cultivation, or strongly acid (according to David). Insertion of the dry flower 5 lobed. Seeds large, rounded; matures in mid-August. Native of northern China, Shensi, eastern Mongolia, Chihli, Korea, and in all of Manchuria down to the sea. In cool elevated valleys, and in more or less humid forests, Komarow distinguished two varieties: Var. *villosa* with leaves subpubescent above, tomentose below, with larger lobes. It lives in Shensi and Mongolia. Its racemes are very long and loose; var. *subglabrum*, with glabrous leaves, or a little pubescent on the nerves. Their lobes are habitually pointed, even acuminate. Racemes short, 3 to 8 cm., crowded, containing as many as 45 flowers. We have received this from some locality in eastern Manchuria (Ussuri). It also lives in Korea. *R. manshuricum* is a twin species of *R. multiflorum*, distinguished perfectly by the form of the leaves, by the less deeply split style, and the projections of the receptacle lower and not united by a distinct ring." (*E. Janczewski, Monographie des Groseilliers, p. 274.*)

40461. RIBES MEYERI Maxim.

"7433."

"Tall shrub, more than 1 meter. Young shoots washed with red, slender, glabrous. Buds lengthened, very small, as in *R. himalayense*. Developing very late, contemporaneous with *R. petraeum*. Leaves rounded, 9 cm. long and broad, almost always 5 lobed, with lobes subacute or obtuse, sometimes little developed, with cordate base, glabrous, more rarely dotted with glandular bristles above. Flowers small, subtubular, washed with reddish purple. Fruit round, black, shiny, crowned by the withered flower contracted into a wisp. Pulp juicy, deep purple, without pronounced flavor. Matures in the end of July and August. Germination slow, after seven months, rarely after three months. Native of the mountains of Central Asia from the Pamir as far as Sungaria. We know and cultivate two distinct varieties of this species, of which probably the first was known to Maximowicz: Var. *tanguticum* Jancz., with the leaves more or less acute lobed, dotted above with glandular bristles, from Tangout; var. *turkestanicum* Jancz., with leaves more or less obtuse lobed, glabrous above, from Turkestan and Sungaria." (*E. Janczewski, Monographie des Groseilliers, p. 297.*)

40462. RIBES MEYERI TURKESTANICUM Jancz.

"7412 B."

For description of this species, see S. P. I. No. 40461.

40463. RIBES MEYERI TANGUTICUM Jancz.

"7412."

For description of this species, see S. P. I. No. 40461.

40464. RIBES MOUPINENSE LAXIFLORUM Jancz.

"7555 Z."

40406 to 40496—Continued.

“Wilson No. 4212. A bush 2 to 3 meters high, with black fruits, from Mupin, western Szechwan, altitude 2,300 to 2,800 meters. October, 1910. (*E. H. Wilson.*)

40465. *RIBES MOUPINENSE* Franchet.

Currant.

“7444.”

“Shrub from 1 to 2 meters or more high (according to David), 2 to 5 meters (according to Delavay). Somewhat twisted branches, with young shoots glabrous. Leaves very variable, sometimes rounded, 5 lobed, with base deeply cordate (from Tibet), sometimes trifid, with lobes very sharp and acuminate, with base truncate or subcordate (from Yunnan, Hupeh, and Kansu), length in that case up to 14 cm. and breadth up to 16 cm., glabrous, dotted with glandular bristles above and on the nerve below. Flowers turbinate, greenish, red or washed with red, glabrous, subsessile. Fruits sessile, round, rather large for a currant, black (Delavay), glabrous, shining, crowned with fleshy collarette and the withered flower. Native of the high mountains of eastern Tibet, Provinces of Muping, Yunnan, Kansu, Shensi, and Hupeh. We do not know this species except from herbarium specimens, but believe that we have distinguished two sufficiently characteristic varieties, var. *lobatum*, with rounded leaves, lobed, with short thin racemes, native of eastern Tibet; var. *tripartitum* (Batalin) with tripartite leaves and medium-sized or lengthened racemes. It is a plant more widely spread, known from Kansu, Yunnan, Hupeh, and Shensi.” (*E. Janczewski, Monographie des Groscilliers, p. 299.*)

40466. *RIBES MULTIFLORUM* Kit.

Red currant.

“7435.”

“This is one of the red-currant group, and, as regards its flowers, the most striking; they are yellowish green, crowded on slender, cylindrical, pendulous racemes, sometimes 4 to 5 inches long. When well furnished with these the shrub is quite ornamental. For the rest it is vigorous, up to 6 feet high, and has stout unarmed branches, stouter perhaps than those of any other currants; leaves of the red-currant shape and size, gray with down beneath. Fruit roundish, red when ripe, one-third inch diameter. Native of southern and eastern Europe; introduced about 1818.” (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 405.*)

40467. *RIBES NEVADENSE* Kellogg.

Currant.

“7361.”

A shrubby wild western American currant with thin, 3 to 5 lobed leaves, green on both sides, spreading, nodding, or ascending racemes, usually 12 to 20 flowered; small flowers with the white petals softer than the rose-colored sepals; and subglobose, blue berries.

40468 and 40469. *RIBES NIGRUM* L.

Black currant.

40468. “7350.”

“An unarmed shrub, 5 to 6 feet high, distinguished by its peculiar odour, due to small yellowish glands sprinkled freely over the lower surface of the leaf, which is conspicuously 3 lobed, deeply notched at the base, long stalked, coarsely toothed. Flowers bell shaped, dull white, in racemes, each flower from the axil of a minute bract; fruit black. Native of Europe and Siberia, possibly of Britain.

40406 to 40496—Continued.

Several varieties of this species so well known as the 'black currant' of fruit gardens have been distinguished. The varieties *dissectum* and *laciniatum* are curious and interesting, but no others are worth cultivation as ornamental shrubs." (W. J. Bean, *Trees and Shrubs Hardy in the British Isles*, vol. 2, p. 405.)

40469. "7350 G. Var. *korolkowi*."

See S. P. I. No. 40468 for description.

40470. RIBES ORIENTALE Desf.

Currant.

"7365."

"An unarmed deciduous shrub 5 or 6 feet high; young shoots and leaf-stalks covered with stiff gland-tipped sticky hairs. Leaves of the red-currant size and shape, but shining green and with bristly down on the nerves beneath; stalk one-half to 1 inch long. Flowers unisexual, the sexes on different plants, and produced on somewhat erect racemes 1 to 2 inches long; they are green suffused with red and covered with viscid hairs; berries red, downy. Native of eastern Europe and western Asia. The *R. resinosum* of Pursh, until recently regarded as a native of North America, and figured as such in Curtis's Botanical Magazine, pl. 1538; is really this species. It has little garden value, but is distinct in its unisexual flowers, very viscid glands, and erect racemes." (W. J. Bean, *Trees and Shrubs Hardy in the British Isles*, vol. 2, p. 406.)

40471. RIBES OXYACANTHOIDES L.

Gooseberry.

"7480."

"Is widely spread over North America. It has bristly branches, the leaves are downy, and more or less glandular, the stamens as long as the petals; the ovary, calyx, and berry smooth, the last red-purple." (W. J. Bean, *Trees and Shrubs Hardy in the British Isles*, vol. 2, p. 402.)

40472 and 40473. RIBES PETRAEUM Wulf.

Red currant.

40472. "7430."

"Another of the red-currant group, widely spread in a state of nature in Europe and North Africa. It has no value as an ornamental shrub, its flowers being green suffused with purple, somewhat bell shaped, in horizontal or slightly nodding racemes, 3 or 4 inches long. The leaves are more deeply lobed than in the common red currant, the lobes pointed. Fruit roundish, flattened somewhat at the end, red, very acid." (W. J. Bean, *Trees and Shrubs Hardy in the British Isles*, vol. 2, p. 409.)

40473. "7430 C. Var. *rigens*."

Red currant.

See S. P. I. No. 40472 for description.

40474. RIBES PETRAEUM × MULTIFLORUM.

Red currant.

"7545."

For a description of this species, see S. P. I. No. 40472.

40475. RIBES TRISTE Pallas.

"7440." This was received as *R. propinquum* Turcz.

40476. × RIBES ROBUSTUM Jancz.

Gooseberry.

"7520."

"A hybrid between *R. niveum* and *R. oxycanthoides*. It is a very vigorous bush and was received at Kew in 1890 from the late Mr. Nye-

40406 to 40496—Continued.

land, gardener to the King of Denmark. Beyond that, I know nothing of its origin." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 406.*)

40477. *RIBES ROTUNDFOLIUM* Michx.

Gooseberry.

"7500."

"A native of the eastern United States, from Massachusetts to North Carolina. Its solitary spines are small and inconspicuous; young wood and leaves downy, but not glandular or bristly; flowers greenish purple; calyx, ovary, and berry smooth. The fruit is purple and of good flavor." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol 2, p. 402.*)

40478. *RIBES RUBRUM* L.

Red currant.

"7420."

"Found wild in Britain, is sometimes met with in gardens under the name of *R. schlechtendalii* Lange. Its racemes are horizontal or ascending, not drooping or pendent as in *vulgare*, and the flowers are urn shaped or broadly funnel shaped rather than saucer shaped. Cultivated forms of this species are grown in the gardens of Scandinavia, but in western and central Europe the cultivated red and white currants are exclusively *R. vulgare*." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 409.*)

40479 and 40480. *RIBES SANGUINEUM* Pursh.

Flowering currant.

40479. "7360 B."

"A deciduous unarmed bush, 7 or 8 feet high, usually considerably more in diameter; young shoots covered with a close, fine down. Leaves 3 or 5 lobed, palmately veined, the lobes broad and rounded, unequally toothed, the base conspicuously heart shaped; 2 to 4 inches wide, less in length; smooth or nearly so above, soft with pale down beneath; stalks three-fourths to 2 inches long covered with minute down, like the young shoots, but with a few bristles near the base. Flowers deep rosy red, produced during April in drooping, finally ascending, racemes 2 to 4 inches long, 1 to 1½ inches wide; each flower one-half inch long and nearly as wide; the slender flower stalk, ovary, and tubular calyx dotted with glandular down. Currants globose, one-fourth inch diameter, glandular, black, covered with blue bloom. Native of western North America; discovered by A. Menzies in 1793 and introduced by Douglas for the Horticultural Society in 1826. This currant is the finest of *Ribes* and in the very front rank of all spring-flowering shrubs, being one of those that never fails to blossom well. Whilst all its forms are beautiful, some are preferable." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 407.*)

40480. "7360 J. Var. *intermedium*."

See S. P. I. No. 40479 for description.

40481. *RIBES GLUTINOSUM* Bentham.

Currant.

"7360 I."

"This differs from *R. sanguineum* in the young shoots and leaves being furnished with glandular-glutinous hairs and in being less downy; also in its quite pendulous racemes. It is inferior in garden value. Native of California and Washington." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 408.*)

40406 to 40496—Continued.

40482. × *RIBES SCHNEIDERI* Maurer.

“7492.”

“A hybrid between the black currant (male) and the gooseberry, raised in Germany.” (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 406.*)

40483. *RIBES SPECIOSUM* Pursh.

Gooseberry.

“7460.”

“A deciduous, spiny shrub, 6 to 9 feet high, the young shoots furnished with gland-tipped bristles. Leaves 3 lobed, sometimes 5 lobed, sparsely toothed, and from three-fourths to 1½ inches long and wide, with smaller ones often obovate and tapered at the base; usually quite smooth; stalk slender, scarcely as long as the blade, with a few glandular bristles, especially at the base. Flowers rich red, usually two to five in pendulous clusters, the main stalk longer and less glandular than the minor ones. Calyx tubular, one-half inch long, glandular; sepals four, not reflexed; petals four, about as long as the sepals; stamens four, red, standing out three-fourths inch beyond the calyx. Fruit glandular bristly, red, one-half inch long, rarely seen in this country. Native of California; discovered by Menzies about 1793, and introduced from Monterey by a naval surgeon named Collie in 1828. As a flowering shrub it is the most beautiful of the gooseberries. Its branches are reddish, horizontal, or slightly dependent, and from their under side the richly coloured fuchsialike blossoms hang profusely in rows during April and May. It is very distinct in the parts of the flower, being in fours (not the usual fives) and in the very long highly coloured stamens. It is one of the earliest shrubs to break into leaf, often in early February. It shows to best advantage perhaps against a wall, where it will grow 10 or 12 feet high, but it is quite hardy in the open at Kew, where it has grown 6 or 7 feet high. It can be rooted from cuttings, but does not strike readily; layering is a more certain process.” (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 408.*)

40484. × *RIBES SUCCIRUBRUM* Zabel.

Gooseberry.

“7507.”

“*Niveum* ♀ × *divaricatum* ♂. Rather robust shrub, tall, with young shoots glabrous, armed with strong nodal spines, simple, more rarely ternate, up to 20 mm. long. Leaves rounded, up to 4 cm. long, 5 cm. wide, 3 to 5 lobed, with lobes little developed and obtuse, the base truncate or subcordate, dull, almost glabrous, similar to those of *R. niveum*. Flowers rose-carmine, pretty, resembling those of the parents in form and dimension. Fruit as large as a large currant, elliptical or rounded, black, lightly pruinose, juicy, subacid, edible, ripens in mid-July. Concerning the origin of this hybrid, perfectly intermediate between its parents, M. Zabel, of Gotha, wrote us in his letter of March 19, 1904: ‘I have raised this *R. succirubrum* in 1888 from seeds of *R. niveum*, beside which grew *R. divaricatum*.’ M. Zabel sent us branches and flowers of the hybrid and of its second generation which are absolutely identical. Here, then, is a new example of the constancy of hybrids between species which in no way follows the law of Mendel.” (*E. Janczewski, Monographie des Groseilliers, p. 500.*)

40406 to 40496—Continued.

40485. *RIBES STENOCARPUM* Maxim.

Gooseberry.

"7465."

"Shrub 1 to 2 meters high. Shoots vigorous, dotted or bristling with setiform spines, branches glabrous or bristly with similar spines. Nodal spines ternate, very vigorous, the middle one up to 23 mm. long in the more spiny plants; ternate or quinate and much smaller in the less spiny plants. Leaves small, $3\frac{1}{2}$ cm. long, 4 cm. broad, 3 to 5 lobed or 3 to 5 cut, with lobes deeply incised, subcordate or cordate base, glabrous or pubescent, ordinarily dotted with glandular hairs. Flowers rather small, whitish or a little washed with red, glabrous or dotted with hairs, proterandrous. Fruit rather large, oblong, 20 to 25 mm. long, 8 to 10 mm. in diameter, glassy, colorless, finally washed with carmine, glabrous or dotted with glandular bristles, borne on a peduncle 4 or 5 mm. long, crowned by the withered flower contracted into a twisted wisp. The pericarp thick, acid, the seeds few in number. Ripens the end of July, but the fruit hangs till October. Native of northern China, in the mountains of Kansu and Shensi. The race with glabrous fruits was discovered in 1872 by Przewalski in Tangut, Province of Kansu; those with hispid fruits in 1894 by Father J. Giraldi in northern Shensi. The former only has been introduced into our gardens, where it succeeds very well." (*E. Janczewski, Monographie des Groseilliers, p. 374.*)

40486. *RIBES AUREUM* Pursh.

Buffalo currant.

"7308. Var. *tenuiflorum* Jepson."

"This variety differs from *R. aureum* in having smaller flowers without fragrance and in the fruits being amber colored and translucent, with an acid flavor. It is also a taller shrub, up to 12 feet high. According to Dr. Coville, this is the true *R. aureum* of Pursh." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 399.*)

40487. *RIBES TRISTE* Pallas.

Red currant.

"7438."

"The American form of red currant, a shrub of laxer habit than *R. vulgare*, the leaves white, with down beneath when young; flowers purplish; fruit red, small, and hard. It is said to be pretty and graceful in blossom in the United States and Canada, where it inhabits cold bogs and woods from New Hampshire to Nova Scotia. It is also native of northern Asia." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 409.*)

40488. *RIBES USSURIENSE* Jancz.

Black currant.

"7353."

"Shrub 1 meter high, much branched, producing subterranean branches (rhizomes) like *R. aureum*. Young shoots subpubescent, dotted with rather numerous yellow glands. Buds whitish. Odor of the plant resembling camphor, not at all resembling the black currant. Leaves up to 8 cm. long and broad, 3 to 5 lobed, the middle lobe very predominant, rather acute, with cordate base, glabrous, not shiny, dotted below with yellow glands. Flowers briefly campanulate, whitish or a little yellowish, pubescent, glandular. Fruit round, as large as a currant, black (greenish blue before ripening), not aromatic, surmounted by a withered flower, the insertion of which is pentagonal rounded. Flesh greenish, slightly sweet subacid, seeds small, ovoid or oblong, with a gelatinous greenish

40406 to 40496—Continued.

coating, rather thick, with funicle very inflated, gelatinous. Ripens at the end of June. Fruit falls as soon as it is ripe. Germination more rapid than in other bisexual currants, in 22 to 50 days. Native of eastern Manchuria (Ussuri) in forests. *R. ussuricense* resembles in structure of its flowers the European black currant, rather than the Asiatic, but it differs so much in its aroma, its longer bracts, the color of its flowers, the exposed sepals, and by the production of subterranean branches, that we do not hesitate to consider it as a twin species and not as a simple variety of *R. nigrum*. We have received it from three locations in eastern Manchuria, and have grown seeds from Chabarowsk. The floral buds are very sensitive to winter cold. They were all frozen in the winter in 1904-1905, and almost all in 1905-1906-1907." (*E. Janczewski, Monographie des Groseilliers, p. 349.*)

40489. RIBES VALDIVIANUM Philippi.

"7525."

"Robust shrub, 3 meters high or more, with young shoots rather thin, very pubescent, dotted with yellow glands, year-old shoots dropping their outside bark like the red currant and becoming almost green. Leaves not leathery, almost all falling in autumn and winter, ovoid-rounded, 6 cm. long, 5½ cm. broad, 3 to 5 lobed, middle lobes strongly predominant, with truncate or subcordate base, cuneiform in the small leaves, pubescent in youth, finally glabrous above, dotted with yellow glands and pubescent on the nerves beneath. Male racemes arched, almost pendent, up to 7 cm. long, rather loose, or more crowded, bearing as high as 40 flowers. Sometimes the basal flower is replaced by a secondary raceme 3 cm. long, with 15 flowers. Flowers campanulate, with the five sepal nerves prominent, yellow, the base of the tube greenish, pubescent. Female racemes unknown. Fruiting racemes up to 9 cm. long, bearing up to 25 flowers, bracts persistent, reflexed, 5 mm. long. Pedicels 4 mm., pubescent. Bractlets none. Fruit oboval, 6 mm. long, 4 mm. broad (round and black according to Gay), pubescent, glandular, crowned with withered flowers contracted into a wisp. Native of the Province of Valdivia in Chile, where the shrub is called *Pulul* or *Parilla* and the fruit *Uvilla*. Philippi has already distinguished one variety, *sessiliflorum*, which is distinguished from the type by the long racemes, 4 to 10 cm. long, bearing 30 to 60 flowers, and by the subglabrous, sessile flowers, dotted even on the teeth of the calyx with very numerous glands. It is found in Chiloe and even, according to Philippi, in the Province of Valdivia." (*E. Janczewski, Monographie des Groseilliers, p. 445.*)

40490. RIBES VELUTINUM × QUERCETORUM.

Gooseberry.

"7518."

"*R. velutinum* Greene is a shrub 1 to 1½ m. high, young shoots velvety, dotted with glandular bristles. Nodal spines simple or ternate, up to 18 mm. long, sometimes pubescent at the base. Leaves small, rounded reniform, 8 to 30 mm. long, 11 to 35 mm. broad, 3 to 5 lobed, or 3 to 5 fid, deeply dentate, the base truncate, similar to those of *R. microphyllum* and *R. leptanthum*, pubescent, often glandular. Flowers small, orange yellow, or white, velvety. Fruits small, purple-black, glabrous, pubescent or dotted with pedicel glands, crowned with withered flowers, fastened into a wisp. Seeds small. Germination in January and February, after

40406 to 40496—Continued.

2, 7, even 13 months. Native of California, Nevada, and Utah, in the mountains, 1,400 to 2,800 meters. Designated by different names or considered as a variety of *R. leptanthum* by its shorter style, by its nectariferous anthers, and by the pubescence of its leaves. *R. congdoni* (*R. quercetorum* Greene) with subglabrous ovary and glabrous fruit is considered a variety. It is a plant likewise from California, from Mariposa County, according to Heller, and from Kern County." (*E. Janczewski, Monographie des Groseilliers, p. 380.*)

40491. *RIBES VIBURNIFOLIUM* A. Gray.

"7498."

"An evergreen, unarmed shrub, 7 or 8 feet high against a wall, young shoots slightly downy at first, with numerous resin glands. Leaves ovate or oval, three-fourths to 1½ inches long, one-half to 1¼ inches wide; rounded at the base, blunt at the apex, coarsely toothed, glossy and smooth above, almost or quite devoid of down beneath, but thickly sown with resin dots which emit a very pleasant turpentinelike odour when rubbed; stalk downy, one-eighth to one-sixth inch long. Flowers one-third inch across, produced in April in erect racemes about 1 inch long, terminating short, densely leafy shoots; dull rose coloured, the sepals spreading. Berry oval, red, one-third inch long. Native of Lower California and Santa Catalina Island; introduced to Kew in 1897. A remarkably distinct species, of little beauty, but interesting for its evergreen aromatically scented leaves. It needs wall protection at Kew." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 408.*)

40492. *RIBES TRILOBUM* Meyen.

(*Ribes gayanum* Spach.)

"7328."

See S. P. I. No. 40440 for previous introduction and description.

40493. *RIBES* sp.

"7555 P. Vilmorin No. 5261."

40494. *RIBES WATSONIANUM* Koehne.

Gooseberry.

"7450."

"Shrub little branched, with stiff shoots, pubescent, bristly with glandular bristles, without setiform spines, armed only with very short nodal spines, never more than 6 mm. long, usually ternate, rarely more numerous (5 to 7) and semiverticillate. Glands secreting a yellow oily substance, soluble in alcohol. Vegetation and flowering very late. Buds ovoid, much larger than in neighboring species. Leaves small, rounded, rather pale green, 2½ to 6 mm. long, 3½ to 6½ cm. broad, 3 to 5 lobed, very deeply cut with lobes obtuse, base subcordate or cordate, pubescent and bristling with glandular hairs. Flowers medium sized, whitish or flesh colored, bristly with stiff hairs. Fruit pale, rather large, spherical, entirely bristly with rather long delicate spines. Flesh a little viscous, rather sweetish. Ripens the end of July and August. Native of the high mountains of northern California (Trinity Mountains, 2,700 meters), and of Oregon and Washington (Mount Paddo at 2,000 meters). *R. watsonianum* never produces scattered setiform spines, even on the most vigorous shoots." (*E. Janczewski, Monographie des Groseilliers, p. 368.*)

40495. *RIBES DIVARICATUM* Dougl.

Gooseberry.

"4795."

40406 to 40496—Continued.

"A native of the coast region of western North America, of vigorous growth, and up to 10 feet high. Its young wood is armed with single or triple spines up to two-thirds inch long and is sometimes bristly, usually smooth. Leaves with appressed hairs above, almost or quite smooth beneath. Calyx downy, greenish purple, petals whitish, ovary and berry smooth, the last globose, one-third inch diameter, black-purple. This species is nearly allied to *R. rotundifolium*, but is found wild on the opposite side of the continent, and is a bigger bush, well armed with long, stout spines." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 402.*)

40496. RIBES PETRAEUM Wulf.

Currant.

"7430 B. Var. *opulifolium*."

See S. P. I. No. 40472 for description of this species.

40497. PYRUS SALICIFOLIA Pall. Malaceæ. **Willow-leaved pear.**

From Novospasskoe, Russia. Presented by Mr. A. D. Woeikoff, director., Jardin Expérimental de l'École Horticulture, Cholmy. Received April 7, 1915.

"A tree, 15 to 25 feet high, branchlets covered with down, which is quite white when young. Leaves $1\frac{1}{2}$ to $3\frac{1}{2}$ inches long, one-third to two-thirds inch wide; narrowly lanceolate, tapering gradually toward both ends, covered when young on both sides with a beautiful silvery grey down; later in the year this falls away from the upper surface, leaving it shining green; margins quite entire; stalk one-half inch long or less, sometimes scarcely noticeable. Flowers pure white, about three-fourths inch across, produced in April, closely packed in small, rounded corymbs, the calyx and flower stalk covered with white wool. Fruit of the typical pear shape, 1 to $1\frac{1}{4}$ inches long and wide. Native of south-east Europe and Asia Minor. It is much the most ornamental of all true pears. Its leaves and flowers often open simultaneously, and it then presents a very charming picture, the willowlike leaves being of a conspicuous silky white. After the flowers fade the leaves remain silvery for some weeks, gradually, however, becoming greener on the upper surface. The fruit is harsh to the palate and of no value." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 292.*)

40498 and 40499.

From Boscotrecase, near Naples, Italy. Presented by Dr. Gustav Eisen. Received April 8, 1915.

40498. PRUNUS DOMESTICA L. Amygdalaceæ.

Prune.

"*Papagone*. I have not seen the fruit from this tree, but as the trees were growing in the garden of a friend of mine I have no doubt that his statement that the fruit was the best was true. The *Papagone* should do well in any climate similar to that of Naples." (*Eisen.*)

Cuttings.

40499. FICUS CARICA L. Moraceæ.

Fig.

"*Troiaro*. This fig requires a much warmer climate, at least a more even climate, than that of Fresno, and I think should not be recommended to any locality north of Los Angeles. Where it does well it is a superior variety, preferable to the *White Adriatic*. It is the best table fig in Italy. Around San Francisco Bay this fig never matures. It is not affected by fall rains, like *Adriatic* and most other figs, and possesses

40498 and 40499—Continued.

advantages not found in any other fig ripening at the same time, September–October. I have not seen the fruit from this tree, but as the trees were growing in the garden of a friend of mine I have no doubt that his statement that the fruit was the very best was true." (*Eisen.*)
Cuttings.

40500 to 40505.

From Novospasskoe, Russia. Presented by Mr. A. D. Woeikoff, director, Jardin Expérimental de l'École Horticulture, Cholmy. Received April 7, 1915.

40500. PRUNUS CERASIFERA DIVARICATA (Ledeb.) Schneider. Amygdalaceæ. **Myrobalan.**

Forma *hortensis flava*. A yellow-flowered garden variety.

For previous introductions and description, see Nos. 37688 and 38157.

40501 and 40502. PRUNUS DOMESTICA L. Amygdalaceæ. **Plum.**

40501. "*Eschi.*"

40502. "*Ishopi.*"

40503. PRUNUS DOMESTICA INSITITIA (Jusl.) Schneid. Amygdalaceæ. **Bullace.**

"*Kanatsh-Tambul.*"

See S. P. I. No. 37619 for previous introduction and description.

40504. PRUNUS SIBIRICA L. Amygdalaceæ. **Siberian apricot.**

"A deciduous bush or small tree; leaves ovate, the apex long drawn out; 2 to 3½ inches long, half as wide, reddish at first, then bright green and smooth above, with axil tufts of down beneath; stalk one-half to 1 inch long. Flowers mostly solitary, white or pink. Fruit scarcely stalked, about 1 inch long, yellow, except on the sunny side, covered with a velvety skin; the flesh scanty, dry, harsh, and scarcely edible; kernel of the nut with an almondlike, bitter taste.

"Native of the mountains of southern Siberia, where, according to Pallas, the Russian botanist, some mountain sides are covered with its pink blossoms in May, when the northern sides are purple with *Rhododendron dauricum*. Although an old tree in gardens (it was cultivated at Kew 100 years ago) and still offered for sale by continental dealers, it is scarcely known in England nowadays. So far as I have seen, it has very little to recommend it for gardens, being of about the same value as the wild apricot, to which it is very closely allied. Its leaves have usually much more elongated points." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 253.*)

40505. PRUNUS SPINOSA MACROCARPA Wallroth. Amygdalaceæ. **Sloe.**

40506 to 40509.

From China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received April 12, 1915. Quoted notes by Mr. Meyer, except as otherwise indicated.

40506. ZIZIPHUS JUJUBA Miller. Rhamnaceæ. **Jujube.**
(*Ziziphus sativa* Gaertn.)

"(No. 1252. Near Pinchow, Shensi, China. January 20, 1915.) A local variety of jujube, having large and heavy fruits of elongated form; considered to be the second best jujube in China, the Painsiangchen (Shansi) variety coming first (S. P. I. No. 38243). Color of fruits red-

40506 to 40509—Continued. (Quoted notes by Mr. F. N. Meyer.)

dish brown, meat quite solid and very sweet, size often as large as small hen's eggs. Trees of thrifty growth, assuming remarkably large dimensions for jujubes, trunks being seen $1\frac{1}{2}$ feet in diameter. The trees are almost spineless when old and sucker but very little. Apparently not attacked by 'bunch disease,' although infected wild bushes were seen in close proximity. Propagated by suckers exclusively. The wood of this jujube is extensively used in the manufacture of combs and in all sorts of turnery work, this industry having its seat in and around the village of Tafutze. Chinese name *Chin tsao* and *Fei tsao*, meaning 'golden jujube' and 'fat jujube.'

Cuttings.

40507. ULMUS PUMILA L. Ulmaceæ. **Elm.**

"(No. 1253. Peking, China. February 23, 1915.) Var. *pendula*. A weeping variety of the very drought-resistant North Chinese elm, not growing apparently to very large dimensions. Of value as a characteristic ornamental tree, especially fit for cemeteries and for parks in cold and semiarid sections. Shows up particularly well when planted on embankments alongside water expanses. Chinese name *Lung chao yü shu*, meaning 'dragon's-claw elm tree.' Obtained from the Botanical Garden at Peking."

Cuttings.

For an illustration of a weeping form of the Chinese elm (*Ulmus pumila*), see Plate II.

40508. CASTANEA MOLLISSIMA Blume. Fagaceæ. **Chestnut.**

"(No. 2179a. Sianfu, Shensi, China. January 25, 1915.) A large-fruited variety of Chinese chestnut, coming from Yatzeke, south of Sianfu, called *Qui li tzü*, meaning 'superior chestnut.' This variety is propagated by grafting. It seems on the whole somewhat more resistant to the bark disease (*Endothia parasitica*) than the ordinary strain of Chinese chestnut."

40509. CITRUS sp. Rutaceæ.

"(No. 2180a. Lanchowfu, Kansu, China. December 30, 1914.) A peculiar citrus fruit, of medium-large size, somewhat flattened, skin loose, wrinkled, and warty, of dark-orange color. Segments separating easily; flesh bitterish, but not disagreeably so. Said to come from Szechwan, which also means southern Shensi to ordinary people. Growing where tangerines also thrive. Chinese name *Kan tzü*."

40510. CYDONIA OBLONGA Miller. Malaceæ. **Quince.**
(*Pyrus cydonia* L.)

From Denton, Md. Presented by Mr. Samuel G. Bye, superintendent, estate of J. W. Kerr. Received April 13, 1915.

Scions of a large-fruited quince from the estate of J. W. Kerr, Denton, Md.

40511 to 40523.

From Groningen, Holland. Presented by the director, Botanic Garden. Received April 3, 1915.

40511 to 40513. CHRYSANTHEMUM spp. Asteraceæ. **Chrysanthemum.**

Introduced for the work of the Insecticide and Fungicide Board, for studies in the production of pyrethrum powder.

40511 to 40523—Continued.

40511. CHRYSANTHEMUM CAUCASICUM Pers. **Chrysanthemum.**

A glabrous perennial chrysanthemum. Stems erect, simple or sparingly branched; leaves pinnately divided, leaflets linear-subulate; flower heads solitary, terminal; ray flowers white, disk yellow.

40512. CHRYSANTHEMUM COCCINEUM Willd. **Chrysanthemum.**

"Glabrous perennial 1 to 2 feet high; stem usually unbranched, rarely branched at the top; leaves thin, dark green, or in dried specimens dark brown; involucre scales with a brown margin; rays white or red, in such shades as pink, carmine, rose, lilac, and crimson, and sometimes tipped yellow, but never wholly yellow." (*Bailey, Standard Cyclopaedia of Horticulture, vol. 2, p. 757.*)

40513. CHRYSANTHEMUM CARINATUM Schousboe.

"Glabrous annual, 2 to 3 feet high; stem much branched; leaves rather fleshy, pinnatifid; flowers in solitary heads which are nearly 2 inches across, with typically white rays and a yellow ring at the base; involucre bracts carinate (keeled). The two colors, together with the dark-purple disk, gave rise to the name *tricolor*. The typical form, introduced into England from Morocco in 1798, was pictured in Curtis's Botanical Magazine, pl. 508, 1799. By 1856 signs of doubling appeared. In 1858 shades of red in the rays appeared in a strain introduced by F. K. Burridge, of Colchester, England, and known as *C. burridgcianum* Hort. (See Curtis's Botanical Magazine, pl. 5095, which shows a ring of red on the rays, adding a fourth color to this remarkably brilliant and varied flower, and Flore des Serres, vol. 13, pl. 1313, which also shows *C. venustum* Hort., in which the rays are entirely red, except the original yellow circle at the base.) *C. annulatum* Hort. is a name for the kinds with circular bands of red, maroon, or purple. *C. dunnetti* Hort. is another seed-grower's strain. There are full double forms in yellow margined red and white margined red, the flowers 3 inches across. The commonest and gaudiest of annual chrysanthemums, distinguished by the keeled or ridged scales of involucre and the dark purple disk." (*Bailey, Standard Cyclopaedia of Horticulture, vol. 2, p. 754.*)

40514 to 40520. IRIS spp. Iridaceae.

Iris.

Introduced for the use of the Office of Horticultural and Pomological Investigations in its landscape-gardening work.

40514 and 40515. IRIS HALOPHILA Pall.

Iris.

40514. A small-flowered iris, 8 to 12 inches high.

"The color of the flower is variable and may be either white veined with yellow, a dull yellow, or some shade of gray purple." (*W. R. Dykes, The Genus Iris, p. 62.*)

Distribution.—Native of Asia, ranging from the Caucasus, through Persia to Afghanistan and the Northwest Frontier, Province of India.

40515. (No notes.)

40516. IRIS sp.

Iris.

Received as *Iris mongolica* Fisch., for which name a place of publication has not been found.

40511 to 40523—Continued.

45017. IRIS MONNIERI DC.

Iris.

A tall, slender iris, the native country of which is unknown, with narrow leaves (3 feet long and 1 to 1½ inches wide). Stems (3 to 4 feet) bearing one or more lateral clusters and a terminal head of 2 to 3 lemon-yellow flowers. (Adapted from W. R. Dykes, *The Genus Iris*, p. 64.)

40518. IRIS sp.

Iris.

Received as *Iris spuria*, but seeds do not agree with other material of this species in the seed collection.

40519. IRIS SPURIA DESERTORUM Ker-Gawl.

Iris.

Similar to *I. hatophila*, but has lavender flowers.

"The plants grow quickly into close masses of foliage from which emerge numerous stems. The individual flowers are small, but they are produced so freely that the whole effect is ornamental. Cultivation is extremely easy, for the plants seem to succeed in any soil. Moreover, the flowers are self-fertilized and seed is produced in abundance." (W. R. Dykes, *The Genus Iris*, p. 62.)

40520. IRIS SQUALENS L.

Iris.

A medium-sized iris from southern Europe of the general appearance of *I. germanica*.

"The falls are veined with yellow-white on a bluish ground. The standards and styles are of a dull yellow color." (W. R. Dykes, *The Genus Iris*, p. 173.)

40521 to 40523. OENOTHERA spp. Onagraceæ.

Evening primrose.

40521. OENOTHERA BIENNIS L.

40523. OENOTHERA GLAUCA Michx.

40522. OENOTHERA FRUTICOSA L.

Introduced for the studies of Mr. H. H. Bartlett on the genus *Oenothera* and the mutations of the various species, as he wished to determine the plants grown at the various botanic gardens under the various names.

40524. COCCOTHRINAX ARGENTEA (Lodd.) Sargent. Phœnicaceæ.

(*Thrinax argentea* Lodd.)

Palm.

From Cuba. Presented by Mr. Charles T. Simpson, Littleriver, Fla.

Received March 25, 1915.

"The species from which this seed was taken is entirely different from anything I have seen in cultivation in Florida or elsewhere. The netted sheaths at the base of the leaves are striking, as they have very large, strong meshes. The tree grows in open savannas and in dry open forests. This palm is quite attractive, and I saw it in cultivation at the great hotel at Camaguey. A fine *Thrinax* 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. Grows in a variety of soils, in shade or sunshine." (*Simpson*.)

40525. ALLOGYNE CUNEIFORMIS (DC.) Lewton. Malvaceæ.

(*Fugosia cuneiformis* Benth.)

From Sharks Bay, western Australia. Presented by Mr. T. S. McNulty, Undersecretary for Agriculture and Industries, Perth, Western Australia.

Received April 4, 1915.

"A rare and little-known West Australian species of *Fugosia*, a genus, as observed by Bentham and Hooker fil., very nearly allied on the one hand to *Hibiscus*, on the other to *Gossypium*; differing from the former chiefly in the style, from the latter in the bracteoles. The present species seems to have been discovered in Dirk Hartog's Island by Allan Cunningham, who gave it a manuscript name implying that it has a goatlike odour. Milne, during the voyage of Captain Denham in *H. M. S. Herald*, found it on the same island, and remarks that it is a seashore plant (as indeed might be expected from its very thick and fleshy leaves). A much-branching and very woody shrub, with copious oblanceolate or spatulate, rather than cuneiform, leaves, thick and fleshy, readily breaking off in a dry state. Flowers large, axillary, solitary; the peduncles clavate; the calyx leafy, downy; the petals broadly obovate, pure white, with a deep blood-coloured spot at the base. Anthers also blood coloured, beautifully arranged in whorls, as in the *Hibiscus huegelii*; and the style and stigma, erect and connivent, are the same as in *H. huegelii*, from which this seems hardly generically distinct." (*Curtis's Botanical Magazine*, pl. 5413.)

40526. BEGONIA SOCOTRANA Hook. f. Begoniaceæ. Begonia.

From Nancy, France. Presented by Messrs. V. Lemoine & Fils. Bulbs received April 14, 1915.

"It is necessary to keep the bulbs at rest during the summer, in pots, the soil not being absolutely dry; they will grow in autumn." (*Lemoine.*)

"A winter-flowering species; stems annual, stout, and succulent, forming at the base a number of closely set scales or suppressed leaves resembling bulbs; leaves dark green, orbicular, peltate, 4 to 7 inches across, center depressed, margin recurved, crenate, flowers all male except the terminal one of each branch of the cyme, in terminal few-flowered cymes, bright rose. Bulbs or semitubers were brought from the hot sandy island of Socotra by I. B. Balfour, and grown at Kew in 1880. This excellent plant requires to be grown in a light position in a stove to develop at its best. The bulbs should be shaken out of the old soil in September or October and potted up in a light soil, rich in humus, and placed in heat and moisture, and when well established should be liberally supplied with manure water. The flowers appear during the winter months, after which the plant dies down, forming a number of large resting buds or bulbs; the pots should then be placed in an intermediate temperature and be kept nearly dry until the following growing period comes round. On account of its habit of producing flowers in winter, this species has been largely used by the hybridist in the production of a race of winter-flowering begonias, of which there are many named varieties. Following are leading *socotrana* derivatives: *Gloire de Lorraine*, *Gloire de Scaux*, *Triomphe de Lemoine*, *Incomparabilis*." (*Bailey, Standard Cyclopedia of Horticulture*, vol. 1, p. 473.)

40527. PLATANUS ORIENTALIS L. Platanaceæ.

Oriental plane tree.

From Lahore, India. Presented by the superintendent, Government Agricultural Gardens. Received April 9, 1915.

See S. P. I. No. 34342 for previous introduction.

40528 to 40531. ALOE spp. Liliaceæ.

From Barberton, Transvaal. Presented by Mr. George Thorncroft. Received April 9, 1915.

40528 to 40531—Continued.

40528 and 40529. ALOE spp.

40528. "Unnamed species, stem 2 feet, foliage greenish gray. I have not yet seen this in flower, but it is quite different from any other." (*Thorncroft.*)

40529. "A new species, provisionally named *Aloe sessiliflora*. Flower stems 2 feet, plant 3 feet high, flowers close, compact to stem, color pale yellow. Habitat, rocky hillsides." (*Thorncroft.*)

40530. ALOE MARLOTHII A. Berger.

"An arborescent aloe often attaining a height of 10 feet, with extremely spiny leaves and horizontally spreading orange-red flowering spikes."

40531. ALOE sp.

"Stemless leaves in rosette, annually throws a flower stem, branching 7 feet high, flowers pink. The most beautiful Aloe I know." (*Thorncroft.*)

Received as *Aloe pretorensis*, for which name a place of publication has not been found.

40532. CANAVALI GLADIATUM (Jacq.) DC. Fabacææ.

Chinese knife bean.

From Nanking, China. Presented by Mr. William Millward, University of Nanking. Received April 10, 1915.

"*Tao tou* (*Dao do*), Chinese knife bean."

40533. LUFFA CYLINDRICA (L.) Roemer. Cucurbitacææ.

(*Luffa aegyptiaca* Mill.)**Loofah gourd.**

From Asuncion, Paraguay. Presented by Mr. C. F. Mead. Received April 12, 1915.

"A climbing vine, not over delicate, which matures its fruit in about six months. If figuring on using for sponges, pick fruits when green, as sponge will be softer in that case." (*Mead.*)

40534. QUERCUS INSIGNIS Martens and Galleotti. Fagacææ. **Oak.**

From Zacuapam, Huatusco, Vera Cruz, Mexico. Purchased from Dr. C. A. Purpus. Received April 13, 1915.

See S. P. I. No. 39723 for previous introduction and description.

40535. ERAGROSTIS ABYSSINICA (Jacq.) Schrad. Poacææ. **Teff.**

From Johannesburg, Union of South Africa. Presented by Mr. J. Burt Davy, botanist, Agricultural Supply Association. Received April 14, 1915.

"For trial as a hay grass in Florida and other parts of the Southeast. Teff continues to be a standard hay crop here, and in spite of the fact that it has now been established in South Africa for several years, prices of teff hay on the Johannesburg market have again been ruling up to £4 10s. 0d. and £5 per ton. It is remarkable how well stock do on this grass, and the way in which its use has spread without any artificial boom proves clearly that it is a first-class thing." (*Davy.*)

40536 and 40537. LATHYRUS spp. Fabaceæ.

From Ottawa, Canada. Presented by Dr. H. T. Güssow, Dominion Botanist, Central Experiment Farm. Received April 12, 1915.

40536. LATHYRUS DRUMMONDI Hort.

Everlasting pea.

This everlasting pea is similar to *L. rotundifolius*, but it is earlier, freer of bloom, more vigorous in growth, and sets its seed pods more abundantly. The flowers are of a bright orange-carmine tint. (Adapted from *Gardeners' Chronicle*, July 4, 1896, p. 20.)

40537. LATHYRUS SYLVESTRIS L.

Everlasting pea.

See S. P. I. Nos. 20776 and 32415 for previous introductions.

40538 to 40541. OROBANCHE spp. Orobanchaceæ.

From Cambridge, England. Presented by Dr. R. Irwin Lynch, Botanic Garden. Received April 12, 1915.

Introduced for the experiments of Mr. Orland E. White, assistant curator of plant breeding, Brooklyn Botanic Garden.

40538. OROBANCHE FLAVA Martius.

"On *Petasites albus*."

"A genus of singular-looking parasitic plants. All the species agree in having a dingy brownish yellow stem, which is leafless throughout, but furnished with numerous pointed scales, which take the place of leaves. The upper portion of the stem bears a spike of rather large flowers, of which the calyx is of the same russet hue as the stem; the corolla is 2 lipped, of a yellowish color tinged with pink or purple-blue and veined." (*Lindley, Treasury of Botany*, vol. 2, p. 824.)

40539. OROBANCHE LUCORUM A. Braun.

"On *Berberis vulgaris*."

40540. OROBANCHE RAMOSA L.

"On hemp, *Cannabis sativa*, annual."

40541. OROBANCHE SALVIAE Schultz.

"On *Salvia glutinosa*."

40542 to 40548. CHRYSANTHEMUM spp. Asteraceæ.

From Nancy, France. Presented by Prof. Edmond Gain, director, Botanic Garden. Received April 14, 1915.

Introduced for the work of the Insecticide and Fungicide Board, for studies in the production of pyrethrum powder.

40542. CHRYSANTHEMUM ANETHIFOLIUM Brouss.

Marguerite.

Perennial; rarer in cultivation than *C. frutescens*, from which it is distinguished by its glabrous hue and by the way in which the leaves are cut.

40543. CHRYSANTHEMUM BALSAMITA L.

Costmary.

"Tall and stout perennial; leaves sweet scented, oval or oblong, obtuse, margined with blunt or sharp teeth, lower ones petioled, upper ones almost sessile, the largest leaves 5 to 11 inches long, 1½ to 2 inches wide; pappus a short crown." (*Bailey, Standard Cyclopaedia of Horticulture*, vol. 2, p. 757.)

Distribution.—An herbaceous perennial found on the slopes of the mountains in Russian and Turkish Armenia.

40542 to 40548—Continued.

40544. *CHRYSANTHEMUM CORYMBOSUM* L. Chrysanthemum.

"Robust perennial, 1 to 4 feet, stem branched at the apex; leaves sometimes 6 inches long, 3 inches wide, widest at the middle and tapering both ways, cut to the very midrib, the segments alternating along the midrib. Flowers borne in dense flat-topped clusters; rays white." (*Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 755.*)

Distribution.—An herbaceous perennial found in the meadows among mountains in southern Europe, western Asia, and northern Africa.

40545. *CHRYSANTHEMUM PRAEALTUM* Vent.

"The Caucasian form of *C. parthenium*, distinguished by more deeply cut leaves, longer peduncled heads, and rays longer than the disk rather than equaling it." (*Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 756.*)

40546. *CHRYSANTHEMUM SEGETUM* L. Corn marigold.

"Annual, 1 to 1½ feet; leaves sparse, clasping, oblong to oblanceolate, variable, the lower petioled and the upper clasping, incisions coarse or fine, deep or shallow, but usually only coarsely serrate, with few and distant teeth, the lower ones less cut; bracts of involucre broad, obtuse; rays obovate and emarginate, golden yellow." (*Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 754.*)

Distribution.—An herbaceous perennial found in fields in northwestern Europe.

40547. *CHRYSANTHEMUM SEROTINUM* L.

40548. *CHRYSANTHEMUM VISCOSUM* Desf.

"Annual; disk orange yellow, rays sulphur yellow. Mediterranean region." (*Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 758.*)

40549. *ORYZA SATIVA* L. Poaceæ. **Rice.**

From Constantinople, Turkey. Presented by Mr. G. Bie Ravndal, American Consul-General. Received April 17, 1915.

"*Broussa rice.*"

See S. P. I. No. 39545 for previous introduction and description.

40550. *CHAETOSPERMUM GLUTINOSUM* (Blanco) Swingle. Rutaceæ. **Tabog.**

From Manila, Philippine Islands. Presented by Mr. William S. Lyon. Received April 17, 1915.

"Since reading Mr. Swingle's monograph on Citropsis, I am prompted to ask if you know whether he has successfully worked any standard varieties of the orange on *Chaetospermum glutinosum* and if any tests have yet been made in growing under arid conditions. I think, but am not quite certain, that I wrote that this species occurs on well-drained gravelly hillsides where subjected to 70 inches of rain, practically all of which falls in 5 months, 2 to 4 inches being scattered over the remaining seven months in a few inconsequential showers. Even in the few years when the rainfall in the dry season exceeds this amount, it is, at best, absolutely a negligible quantity, for the reason that the prevailing hot, dry winds and unclouded sun will remove every appreciable trace of moisture from the soil a few hours after a fall of a quarter to a half inch. On the other hand, I lost a row of about two dozen 3-year-old seedling tobog growing in undrained land which was nearly but not quite inundated

during a 10-days' storm in which we had nearly 2 feet of water fall. At the same time, adjacent rows of Mexican limes and sweet oranges in variety were hardly injured. Some of the water-logged tobug which I had dug up had for their size an extraordinary root system, and in porous land I am of the opinion would penetrate to a surprising depth." (*Lyon.*)

"The tabog is a rapid-growing tree when young, and in a warm greenhouse shows vigorous root growth. This species is being tested as a stock for use in commercial citriculture. Experiments have shown that oranges, lemons, grapefruits, and kumquats grow well when budded or grafted on young tabog plants." (*Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 728.*)

40551 and 40552.

From Bogota, Colombia. Presented by Mr. Jorge Ancizar. Received April 16, 1915.

40551. *DOLICHOLUS PHASEOLOIDES* (Swartz) Kuntze. Fabaceæ.
(*Rhynchosia phaseoloides* DC.)

"*Pionia*. A creeping plant. The seeds, which are red and black, taken in infusion and ground to a paste are good for epilepsy." (*Ancizar.*)

A twining, suffrutescent, high-climbing legume, with three ovate or ovate-rhomboid leaflets, numerous yellow-flowered racemes (with purple striate standards), and black seeds with a scarlet-yellow ring around the hilum. (Adapted from *Grisebach, Flora of the West Indies, p. 190.*)

40552. *PASSIFLORA QUADRANGULARIS* L. Passifloraceæ. Passion fruit.

"*Badea*. It is a creeping plant and gives a great fruit, five pounds, of fine flavor." (*Ancizar.*)

"A strong, quick-growing climber, with large oval leaves and a square stem, native of tropical America. Its large, oblong, greenish yellow fruit is not unlike a short and thick vegetable marrow, and contains in its hollow center a mass of purple, sweet-acid pulp mixed with the flat seeds. In the unripe state the succulent portion of the fruit may be boiled and used as a vegetable. The root is usually swollen and fleshy, and is sometimes eaten like a yam. The flowers are generally fertilized by insects, but these should be aided by artificial fertilization by hand, so as to ensure a larger crop of fruit. When the fruit is over, the shoots should be well cut back, retaining little but the stem. The plant is propagated by either seed or cuttings, and thrives up to about 3,000 feet in Ceylon. It should be trained over a trelliswork or fence, or allowed to climb a tree with low-spreading branches." (*Macmillan, Handbook of Tropical Gardening and Planting.*)

For an illustration of the fruit of *Passiflora quadrangularis*, see Plate III.

40553. *GARCINIA LOUREIRI* Pierre. Clusiaceæ.

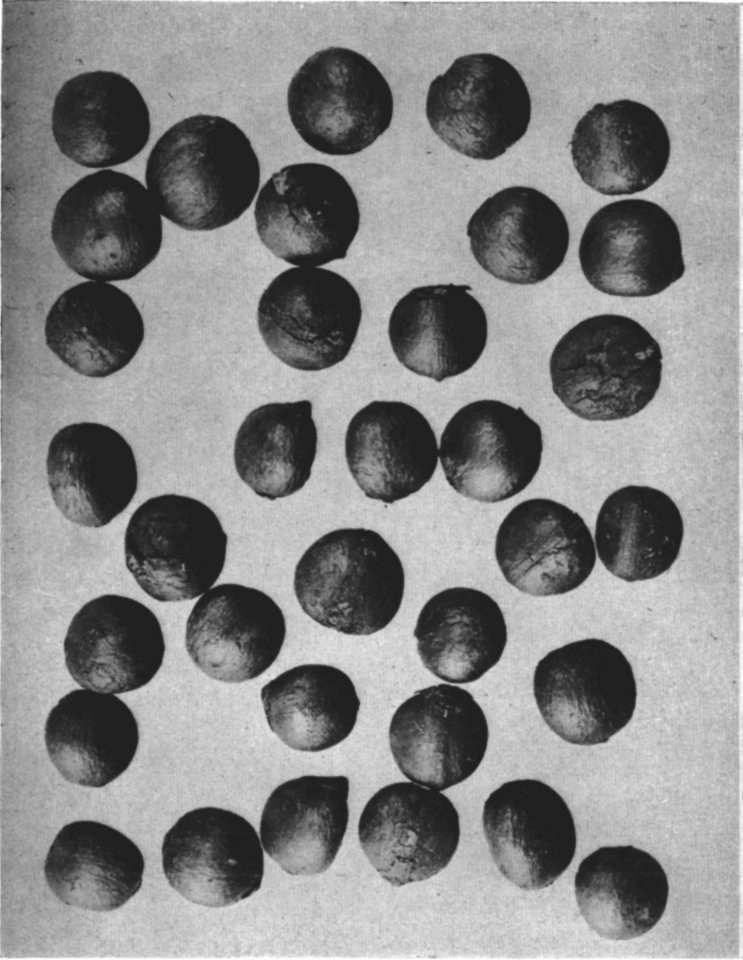
From Buitenzorg, Java. Presented by the director of the Botanic Garden. Received May 5, 1915.

Buanha. A tree 40 to 60 feet high, with opposite branches and coriaceous, nearly oblong leaves, 3 to 6 inches long. The younger branches are nearly square, but soon become cylindrical. Flowers inconspicuous. Fruit ovoid, 1½ inches long, acidulous, edible. Introduced as a possible stock for the mango-steen. Cultivated throughout the Provinces of lower Cochin China and Cambodia. (Adapted from *Pierre, Flore Forestière de la Cochin Chine.*)



THE GRANADILLA, *PASSIFLORA QUADRANGULARIS* L., IN HAWAII (S. P. I. No. 40552).

One of the tropical passifloras as it appears in Hawaii. It is related to the maypop, which grows like a weed on the dry, thin soils of our Southern States, and hybrids between these two species ought to be attempted. This vine is climbing to a considerable height over a tree of the kukui (*Aleurites moluccana* Willd.) in a ravine at Robinson Station. The fruits weigh from 4 to 6 pounds each and the pulp is of delicious flavor. The thick, fleshy rind of this specimen was more or less infested with what was said to be the melon fly, a relative of the Mediterranean fruit fly. (Photographed by Mr. R. A. Young, Aug. 14, 1913; P11877FS.)



SEEDS OF THE OIL KIRI, OR KIRI OIL TREE (*ALEURITES CORDATA* (THUNB.)
MUELL. ARG.) OF JAPAN (S. P. I. No. 40673).

This species is quite distinct from the related tung-oil tree of central China, having much smaller seeds. The kiri oil tree is grown only in southern Japan, Formosa, and the coastal provinces of China. The seeds furnish a drying oil, similar to tung oil, which finds a similar use in the chemical industries. (Photographed by Mr. E. L. Crandall, March 26, 1909; P4589FS; natural size; S. P. I. No. 25080.)

40554 and 40555.

From Pacasmayo, Peru. Collected by Mr. O. F. Cook, of the Bureau of Plant Industry. Received May 11, 1915. Quoted notes by Mr. Cook.

40554. ANNONA CHERIMOLA Miller. Annonaceæ. **Cherimoya.**

"No. 31. This fruit was brought on board the steamer at Pacasmayo, Peru, March 25, 1915. It is heart shaped, 10 cm. long, nearly as broad, the surface appearing to be formed of large overlapping scales, each scale with a distinct rounded tubercle near the lower end. Scales attain a length of about 2 cm. and a width of 1.5 cm., the tubercles 3 to 5 mm. broad. In texture the skin is rather tough and leathery, the surface finely wrinkled and hairy. Seeds large, 1.8 cm. long by 1.2 cm. broad, the surface wrinkled and of rather irregular shape, with prominent margins, the epidermis of the fresh seeds loosening in irregular bands, like leaf-miner burrows on leaves."

40555. PERSEA AMERICANA Miller. Lauraceæ. **Avocado.**
(*Persea gratissima* Gaertn.)

"No. 32. An avocado brought on board the steamer at Pacasmayo, Peru, March 25, 1915. It evidently belongs to the so-called West Indian type, with soft, flexible skin, but in this sort rather firm, so that it is possible to take out the flesh with a spoon. Shape distinctly pearlike, 12 cm. by 8 cm. Skin light green, about 2 mm. thick, the surface nearly smooth, shining, sprinkled with minute whitish points. Flesh rather pale, with no discolored fibers, rather soft and delicate in texture, not nearly so firm as in the Guatemalan hard-shelled type. Seed 7 cm. by 5.5 cm., with a strong hard beak above and a distinct broad hollow at the base. Seed coats fitting closely, distinctly mottled with dark and light brown when newly cleaned. Although the seed is not loose in a cavity, as in many of the West Indian avocados, it is very heavy and would probably bruise the neighboring tissues if the fruits were handled carelessly after the flesh begins to soften."

40556 to 40558. LYCOPERSICON ESCULENTUM Miller. Solanaceæ.
Tomato.

From Paris, France. Purchased from Messrs. Vilmorin-Andrieux & Co. Quoted notes from their catalogue. Received April 19, 1915.

40556. "*Reine des Hâtives* (Queen of the Earlies). Smooth, exceptionally early, hardy, and resistant to disease."

40557. "*Tres hâtive de pleine terre* (open air, very early). Hardy and resistant to disease. Very highly esteemed for exportation."

40558. "*Merveille des Marchés* (Marvel of the Markets). Productive variety, very resistant to disease. Fruits of a beautiful live red, very smooth, not splitting at all."

40559. CANARIUM OVATUM Engler. Balsameaceæ. **Pili nut.**

From California. Presented by Mr. F. O. Popenoe, West India Gardens, Altadena, Cal. Received April 20, 1915.

"Pili nuts, bought in Los Angeles market at 12½ cents per pound."
(*Popenoe.*)

40560. SWIETENIA MAHAGONI Jacq. Meliaceæ. Mahogany.

From Elliotts Key, Fla. Presented by Dr. John Gifford, Coconut Grove, Fla. Received April 19, 1915.

"Seeds from a tree on Elliotts Key. I thought it of special interest, because it is the seed of the true mahogany from a native tree of Florida. Just now the seed is scarce, but at times a wagonload of the capsules could be obtained, since the tree is quite common on the keys and lower mainland of this State. It is called *Madcira* here, and many persist in the foolish belief that it is not the true mahogany of commerce." (*Gifford.*)

See S. P. I. Nos. 10409, 34668, and 36170 for previous introductions and description.

40561 to 40600.

From Elstree, Herts, England. Presented by Mr. Vicary Gibbs, Aldenham House Gardens. Plants received April 22, 1915.

40561. (Undetermined.) Received as *Viburnum acerifolium*, but apparently it is not a *Viburnum*.

40562 and 40563. BERBERIS spp. Berberidaceæ. **Barberry.**

40562. BERBERIS BRACHYPODA Maxim.

"A scarlet-fruited western Chinese bush up to 2 meters in height. Inflorescence sometimes somewhat paniculate near the base. Fruits elliptic, up to 11 mm. long and 6 mm. across, with a sessile stigma." (*Sargent, Plantae Wilsonianae, vol. 1, p. 375.*)

40563. BERBERIS SUBCAULIALATA C. K. Schneider.

"This species belongs to the same group as *B. stapfiana* (S. P. I. Nos. 37975 and 40150), but it has globose fruits ripe in November, more distinctly angled branchlets, and larger leaves; the general aspect is otherwise very similar." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 249.*)

40564 and 40565. BETULA spp. Betulaceæ. **Birch.**

40564. BETULA JAPONICA MANDSHURICA (Regel) Winkler.

"Wilson No. 4088. A gray-barked tree 10 to 25 meters tall, in girth 1.5 to 2.4 meters, from Chetoshan, west of Tachienlu, western Szechwan, at altitudes of 2,800 to 3,700 meters, September, 1910." (*Sargent, Plantae Wilsonianae, vol. 2, p. 461.*)

40565. BETULA OCCIDENTALIS Hooker.

"There is a good deal of confusion in regard to this tree, and it has been called *B. occidentalis* (Sargent); *B. papyrifera* var. *lyalliana* (Koehne); and *B. papyracea* var. *occidentalis* (Dippel). The name *occidentalis* was founded by the elder Hooker in 1839 on specimens of three distinct birches. As it might with equal propriety be given to any one of them, it is better to drop it altogether. *B. lyalliana* is one of the very finest of birches and reaches sometimes 120 feet in height; bark reddish brown to whitish, peeling. Young shoots warted, downy, yellowish brown. Leaves ovate with a rounded or heart-shaped base, ordinarily 3 to 4 inches long, but on young trees often over 5 inches long; hairy along the midrib and veins beneath; veins in 7 to 10 pairs. The tree is no doubt closely allied to the paper birch, but Sargent, who regards it as specifically distinct, distinguishes it by its downy, fruiting scales, its brown

40561 to 40600—Continued.

bark, its larger size, and bigger leaves. Trees introduced in recent years are growing admirably. A native of British Columbia and Washington, inhabiting moist situations. The tree recently put into cultivation as *B. macrophylla* is either this species or a form of *B. papyrifera*." (W. J. Bean, *Trees and Shrubs Hardy in the British Isles*, vol. 1, p. 258, under *Betula lyalliana*.)

40566. *BUXUS HARLANDII* Hance. Buxaceæ.

Box.

"A dwarf evergreen bush of rounded compact habit, not likely, so far as one at present is able to judge, to get more than 2 or 3 feet high; shoots slender, mostly erect, slightly downy when young. Leaves standing erect, narrowly oblong or obovate, one-half to 1¼ inches long, one-eighth to three-eighths inch wide, tapering at the base, rounded at the apex, smooth. Native of China. This is one of the dwarfest of the boxes and somewhat similar to *B. sempervirens* var. *suffruticosa*, the 'Edging box,' but its leaves are longer. Its neat habit and slow growth make it useful in positions where a dwarf evergreen is needed which will not soon outgrow its space." (W. J. Bean, *Trees and Shrubs Hardy in the British Isles*, vol. 1, p. 277.)

40567. *CASSINIA LEPTOPHYLLA* (Forst.) R. Brown. Asteraceæ.

"An evergreen, heathlike shrub, 4 feet or more high, with erect, slender branchlets, not viscid, but clothed with a dense grayish down. Leaves one-eighth to one-sixth inch long, one-twentieth to one-sixteenth inch wide, linear, or slightly wider toward the end; smooth, dark green above, covered beneath with white or yellowish down. Flower heads white, very small and numerous, forming terminal corymbs 1 to 2 inches across. Blossoms in August and September. Native of New Zealand; very similar to *C. fulvida*, but paler beneath the leaves. The whole plant has a whiter cast. It differs also in having the disk (or receptacle) on which the florets are borne, furnished with numerous scales; nor is it quite so hardy." (W. J. Bean, *Trees and Shrubs Hardy in the British Isles*, vol. 1, p. 304.)

40568. *CELASTRUS ACUMINATUS* L. f. Celastraceæ.

"An unarmed shrub or small tree from 5 to 20 feet in height with trunk 7 to 18 inches in diameter. Wood very heavy, hard, strong, very close grained and compact, suitable for turners' work and engraving. This species is easily known from a curious peculiarity of the leaves and bark, which show numerous fine, white, silky threads when broken. From Natal and Cape Colony." (Wood, *Natal Plants*, pl. 267.)

40569. *CELASTRUS ANGULATUS* Maxim. Celastraceæ.

"A shrub 2 to 3 feet high or more, with long, trailing shoots. Leaves orbicular or elliptic, 4 to 7 inches across, deep green. Flowers inconspicuous. China." (*Kew Bulletin*, 1910, p. 62.)

40570. *CLEMATIS TANGUTICA* (Maxim.) Korsh. Ranunculaceæ.

Clematis.

"A species closely allied to, or perhaps a variety of *C. orientalis*, growing 8 or 10 feet high; stems slightly downy. Leaves grey-green, like those of *C. orientalis*, but downy when young; leaflets raggedly toothed, and sometimes 2 or 3 lobed. Flowers rich yellow, solitary, on downy stalks 3 to 6 inches long; sepals nearly 2 inches long, narrowly

40561 to 40600—Continued.

ovate, long and slenderly pointed, downy outside and at the edges. Seed vessels crowned with long, feathered styles. Native of central Asia; introduced to Kew from St. Petersburg in 1898. It is the handsomest yellow-flowered clematis in cultivation, the finest flowers being about 4 inches across. It differs from *C. orientalis* in the larger flowers and in the downy stems, flower stalks, etc. It is a superior plant." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 367.*)

40571 and 40572. COTONEASTER sp. Malaceæ.

40571. "32 Forrest. A very handsome trailing bush."

40572. "33 Forrest."

40573. CONVULVULUS CNEORUM L. Convolvulaceæ.

"An evergreen, very leafy shrub, 2 to 3 feet high, covered with silky hairs that give the entire younger part of the plant a beautiful silvery aspect. Leaves shortly stalked, alternate, narrowly oblong or oblanceolate, 1 to 2½ inches long, one-eighth to one-half inch wide, always tapered at the base, but either pointed or rounded at the apex. Flowers in a terminal umbel, but opening successively during the summer; they are of the trumpet-mouthed type common to 'morning-glory,' being 1¼ inches long, rather more across, of flimsy texture, white tinged with pink, yellow in the tube; calyx as long as the corolla tube, silky. Native of southern Europe; cultivated in England, according to Aiton, in 1640. It is not quite hardy near London except against a wall, but thrives in the south and west. There are five strips of silky hairs traversing the corolla lengthwise outside. It needs a dry sunny spot, and can be increased very readily by cuttings during the summer and placed in gentle heat." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 380.*)

40574 to 40579. COTONEASTER spp. Malaceæ.

Cotoneaster.

40574. COTONEASTER DAMMERI RADICANS Schneider.

This variety differs from the typical form described under S. P. I. No. 40163 in its long peduncles and constantly one or two flowered racemes. The fruit is globose and bright scarlet, and the normal habit of this plant prostrate and rooting. (Adapted from *Sargent, Plantae Wilsonianae, vol. 1, p. 176.*)

40575. COTONEASTER DIELSIANA Pritzl.

"A deciduous shrub, 8 feet, perhaps more, high, with long, extremely slender, arching or quite pendulous branches; branchlets downy when young. Leaves one-half to 1½ inches long, three-eighths to 1 inch wide, ovate; hairy above when young, covered beneath with felt, at first white, afterwards pale brown; veins prominent. Flowers 3 to 7 in a cluster, terminating side shoots 1 inch or so long; calyx and flower stalk hairy; calyx lobes shallowly triangular. Fruit scarlet, round or rather pear shaped, one-fourth inch long.

"Native of central China; introduced for Messrs. Veitch by Wilson in 1900. It flowers in June, and the fruit is in full color in September and October; it is then one of the most effective of Cotoneasters. The habit is singularly graceful, the long whiplike shoots spreading outward and downward in every direction. The name '*applanata*' refers to the distichous arrangement of the branches of young plants, which give them the appearance of a wall-trained tree." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 408.*)

40561 to 40600—Continued.

40576. COTONEASTER DIELSIANA ELEGANS Rehder and Wilson.

This variety differs from the typical forms described under S. P. I. No. 40575 in its thinner, yet more persistent leaves, smaller pendulous brick or orange red fruit. (Adapted from *Sargent, Plantae Wilsonianae*, vol. 1, p. 166.)

40577. COTONEASTER DIVARICATA Rehder and Wilson.

For previous introductions and description see S. P. I. Nos. 37596, 38149, and 40164.

40578. COTONEASTER SALICIFOLIA FLOCCOSA Rehder and Wilson.

"An evergreen shrub 6 to 12 feet high, the branchlets very slender, downy at first, but becoming smooth and of a dark reddish brown by the end of the season. Leaves leathery, lanceolate or narrowly ovate, wedge shaped at the base, tapering to a sharp point; three-fourths to 2½ inches long, one-fourth to three-fourths inch wide; the upper surface glossy green, wrinkled, not downy; the lower one covered at first with silky white floss, some of which falls away by the end of the year, showing the grey-white surface beneath; veins in 7 to 14 pairs; leafstalk about one-eighth inch long. Corymbs about 1 inch wide, carrying 9 to 15 flowers; stalks and calyx woolly, the teeth of the latter triangular. Fruit roundish, about one-fourth inch in diameter, bright red, containing usually three stones. Introduced by Wilson (No. 1133a) from western China in 1908, and again in 1910. A very graceful, distinct, and attractive evergreen, highly recommended by its collector for the beauty of its fruit." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles*, vol. 1, p. 414.)

40579. COTONEASTER SALICIFOLIA RUGOSA (Pritz.) Rehder and Wilson.

"In this variety the leaves are larger, up to 3 inches long and 1½ inches wide, the veins numbering 6 to 12 pairs. The fruit is coral red, larger than in var. *floccosa*, and contains usually two stones. The plant is more vigorous, coarser looking, and with bigger leaves than var. *floccosa*, but in many respects similar. Introduced by Wilson (No. 335) in 1907 from western Hupeh, where he found it 9 feet high." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles*, vol. 1, p. 414.)

40580. DEUTZIA SCHNEIDERIANA LAXIFLORA Rehder. Hydrangeaceae.

Shrub 2 to 2½ m. high from western Hupeh, China. Leaves oblong-lanceolate, acuminate, base rounded or broadly wedge shaped, remotely and irregularly denticulate, 2 to 3 inches long and three-fifths to 1 inch broad, with sparse hairs above and densely hairy below. Inflorescence broadly paniculate. Differs from the type chiefly in the leaves being on their under side only sparingly stellate-pubescent and therefore green, and in the looser and broader panicles. (Adapted from *Sargent, Plantae Wilsonianae*, vol. 1, p. 7-8.)

40581. EUONYMUS RADICANS ACUTUS Rehder. Celastraceae.

"This western Chinese variety resembles, in its climbing habit, *E. japonica radicans* Miquel [now called *E. radicans*], but is easily distinguished from this, as well as from the type, by the thinner, acute, or shortly acuminate leaves distinctly veined beneath. In typical *E. japonica* [*E. radicans*], the leaves are obtuse or obtusish, more coarsely

40561 to 40600—Continued.

and crenately serrate, and of thicker texture; the veins are not as distinct as in var. *acuta*, but more so than in var. *radicans*, where they are almost invisible." (*Sargent, Plantae Wilsonianae, vol. 1, p. 486.*)

40582. *FRAXINUS PAXIANA* Lingelsheim. Oleaceæ. **Ash.**

"(Wilson No. 4423.) Tree 22 m. tall, girth 2.6 m. From woodlands, Fanghsien, Hupeh, altitude 1,800 to 2,300 m.; October, 1910." (*Sargent, Plantae Wilsonianae, vol. 2, p. 259.*)

40583. *FUCHSIA THYMIFOLIA* H. B. K. Onagraceæ.

Received as *F. reflexa*, but later information gave the above name.

40584. *HELIANTHEMUM TUBERARIA* Mill. Cistaceæ.

"A handsome herbaceous perennial, with terminal racemes of bright-yellow flowers, 1 inch or more in diameter. Native of southern Europe and rather tender, but suffering more from too much moisture than from cold." (*Sweet's Cistineae, pl. 18.*)

40585. *LONICERA HENRYI* Hemsley. Caprifoliaceæ. **Honeysuckle.**

"An evergreen climber, with slender, very downy young shoots. Leaves oblong, with a lance-shaped apex and a rounded or heart-shaped base; 1½ to 4 inches long, three-fourths to 1½ inches wide; dark green above, paler and rather glossy beneath; downy only on the midrib and margins; stalk one-eighth to one-half inch long. Flowers purplish red, produced during June at the end of the shoot in a cluster 2 or 3 inches across; each stalk is twin flowered. Corolla 2-lipped, three-fourths inch across, the lips much reflexed, the tube about one-half inch long, hairy within, smooth outside; stamens slightly downy; style hairy, protruded one-half inch beyond the corolla; bracts awl shaped, about one-fourth inch long. Fruit blackish purple. Native of China and Tibet; introduced by Wilson in 1908, and first flowered at Nuneham in 1910. It is a free-growing climber of the same character as *L. japonica*, which is, however, very distinct in the big leaflike bracts. Botanically, it is more closely allied to *alseuosmoides* and *giraldii*." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 45.*)

40586. *OLEARIA TRAVERSII* (Muell.) Hook. f. Asteraceæ.

"*Akeake.* A tree 20 to 30 feet high and sometimes 2 feet in diameter. This may be considered as the only valuable timber tree in the Chatham Islands, being durable and not subject to attacks of insects." (*Buchanan, Transactions and Proceedings of the New Zealand Institute, vol. 7, p. 337.*)

40587. *OXYCOCCUS MACROCARPUS* (Ait.) Pers. Vacciniaceæ. **Cranberry.**

40588. *PHOTINIA VILLOSA* (Thunb.) DC. Malaceæ.

"A deciduous shrub or small tree. Leaves obovate, or ovate-lanceolate, 1½ to 3½ inches long, three-fourths to 1½ inches wide; the apex drawn out into a long fine point, tapered at the base, finely and regularly toothed, each tooth gland tipped. Flowers white, in corymbs 1 inch long and 1½ inches wide, produced in May; stalks conspicuously warted; each flower about one-half inch in diameter. Fruit the size and shape of common haws, red. The foliage, too, is often a beautiful red in autumn. Native of Japan, China, and Corea. It is a variable plant, especially in the amount of down on the leaves, young shoots, and flower stalk. In the typical *villosa* the leaves are, as a rule, more obovate and all the younger parts of the plant hairy; the flower stalk is felted with grey down and

40561 to 40600—Continued.

the fruit is about one-third inch long." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 145.*)

40589. *PIPTANTHUS CONCOLOR* Harrow. Fabaceæ.

(Wilson No. 885.) From Tatsienlu, western Szechwan, China, occurring in thickets at an elevation of 2,300 to 3,500 meters.

40590. *POTENTILLA FRUTICOSA* L. Rosaceæ.

(Wilson No. 1213.) A common American shrub, much branched, up to 4 feet in height, with peculiar shreddy bark. The leaves are composed of three to seven leaflets, and the numerous showy bright-yellow flowers are up to 1½ inches in width and appear all through the summer. This shrub is also common on exposed rocky mountain slopes above 2,500 meters (8,125 feet) in western Szechwan and rarely in Hupeh, China. It is extremely variable in size of leaves and flowers and in the degree of hairiness. Wilson's No. 1213 was collected in October, 1910, at Mupin, western Szechwan, in thickets and rocky places. (Adapted from *Bailey, Standard Cyclopedia of Horticulture*, and *Sargent, Plantæ Wilsonianæ, vol. 2, part 2, p. 302.*)

40591. *POTENTILLA FRUTICOSA ALBICANS* Rehder and Wilson.

(Wilson No. 1213a.) This shrub differs from the species in the white tomentose under surface of the leaflets. The leaves are composed of five dull grayish green leaflets, and the bright-yellow flowers are about 2 cm. (four-fifths inch) wide. The foliage strongly resembles that of *P. fruticosa vilmoriniana*. Wilson No. 1213a was collected at Tatsienlu, western Szechwan, at altitudes of 3,300 to 4,000 meters (10,000 to 13,000 feet), November, 1908. (Adapted from *Sargent, Plantæ Wilsonianæ, vol. 2, part 2, p. 302.*)

40592. × *MALUS ARNOLDIANA* Rehder. Malaceæ. Crab apple.

"A plant which is evidently a hybrid of *M. floribunda* with one of the hybrids of *M. baccata* appeared spontaneously in the Arboretum several years ago and has been named *M. arnoldiana*. It has much larger pink flowers and larger fruit than *M. floribunda*, and in flower it is one of the most beautiful of all crab apples." (*Arnold Arboretum, Bulletin of Popular Information No. 39.*)

40593. *RIBES LACUSTRE* (Pers.) Poiret. Grossulariaceæ.

For previous introduction and description, see S. P. I. No. 40455.

40594. *RUBUS GIRALDIANUS* Focke. Rosaceæ.

"A vigorous, deciduous shrub up to 8 or 10 feet high; its biennial stems much branched toward the summit, pendulous at the end, covered with a vividly white waxy covering, not downy, armed rather sparsely with broad-based spines. Leaves pinnate, consisting of usually nine leaflets, and from 5 to 8 inches long; the main stalk downy and armed with hooked spines. Leaflets 1½ to 2½ inches long, three-fourths to 1¼ inches wide, the terminal one the largest; ovate or rather diamond shaped; lateral ones oval-lanceolate; all unequally and rather coarsely toothed, slender pointed, smooth above, white beneath, with a close felt. Inflorescence a terminal panicle; the flowers small and of little beauty, purple; fruit black.

"Native of China; first found in the Province of Shensi by Giraldi, later in Szechwan by Wilson, who introduced it in 1907. Its claims to recognition in the garden are its remarkably white stems, which are as

40561 to 40600—Continued.

striking in this respect as those of *R. biflorus*, and its pendulous branches, which give a remarkable fountainlike aspect to the shrub." (W. J. Bean, *Trees and Shrubs Hardy in the British Isles*, vol. 2, p. 458.)

40595. *RUBUS IRENAEUS* Focke. Rosaceæ.

"An evergreen prostrate shrub; stems round, slender, covered with a dense gray down, amidst which are set numerous small decurved prickles. Leaves roundish with a heart-shaped base and an abrupt, pointed apex; 6 inches or more across, margins toothed and bristly, sometimes obscurely lobed; upper surface smooth, dark green, lower one covered with a pale-brown felt and more or less hairy on the yellow veins; stalks 1½ to 3 inches long. Flowers white, produced singly or in pairs in the leaf axils and in a small terminal cluster. Fruit large, red.

"Native of central and western China; introduced about 1900 by Wilson for Messrs. Veitch. It is one of the most striking and remarkable of simple-leaved Rubi, the foliage being of a shape and size suggestive of a colt's-foot leaf, but having on the upper surface a curious metallic luster. Mr. Wilson informs me that it is common in woods up to 8,000 feet elevation, and will probably thrive best in partially shaded situations. It may prove of value as a handsome covering for semishaded slopes or wherever a low evergreen vegetation is desired." (W. J. Bean, *Trees and Shrubs Hardy in the British Isles*, vol. 2, p. 460.)

40596. *SENECIO GREYI* Hook. f. Asteraceæ.

"Nearly allied to *S. laxifolius*. Grows well in the milder countries. This has larger, broader leaves than *S. laxifolius* and denser corymbs of flowers. From the North Island, New Zealand." (W. J. Bean, *Trees and Shrubs Hardy in the British Isles*, vol. 2, p. 508.)

40597. *SORBARIA ARBOREA* Schneider. Rosaceæ.

"Recently introduced from China by Wilson; is very closely allied to *lindleyana*. It is apparently the most treelike of the Spiræas and is sometimes 30 feet high. From *lindleyana* it differs chiefly in the hairs beneath the leaf being clustered (not simple), and especially in the shorter calyx tube and longer stamens." (W. J. Bean, *Trees and Shrubs Hardy in the British Isles*, vol. 2, p. 538, under *Spiræa arborea*.)

40598. *VERONICA CATARACTÆ* Forster. Scrophulariaceæ.

"This species may be taken as a type of the semiherbaceous section of the genus. The flowers are one-half inch broad and very pretty, the petals being red, spotted with dark red at the entrance to the throat. Stems prostrate at the base and ascending. Leaves very variable, oval or oblong, one-half to 6 inches long, serrate. Racemes very slender, few flowered. Generally on deep rocks, and often cultivated, particularly around Dunedin." (*Laing and Blackwell, Plants of New Zealand*, pp. 383-384.)

40599. *VIBURNUM VEITCHI* C. H. Wright. Caprifoliaceæ.

"A deciduous shrub about 5 feet high; young branches, leafstalks, and under surface of the leaves densely clothed with stellate down. Leaves ovate, pointed, heart shaped at the base; 3 to 5 inches long, 2 to 3 inches wide; sharply and widely toothed; upper surface with scattered stellate down. Flowers white, uniform and perfect, one-fourth inch across; produced on a stoutly stalked, very scurfy-downy cyme that is 4 or 5 inches across. Fruit red, then black. Native of central China; discovered and introduced in 1901 by Wilson for Messrs. Veitch. It is one of the

40561 to 40600—Continued.

lantana group, differing from *V. lantana* itself in the more remote marginal teeth and in the calyx being felted with starlike down. Wilson found it as a shrub about 5 feet high, but rare; he considered it to be about the most ornamental of the *lantana* group." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 659.*)

40600. *VITIS FLEXUOSA PARVIFOLIA* (Roxb.) Gagnepain. Vitaceæ.

"A slender-stemmed, elegant climber, shoots smooth, or downy only when quite young. Leaves roundish ovate and heart shaped at the base, or triangular and truncate at the base, often contracted at the apex to a slender point, amongst the smallest in the genus, being ordinarily 2 to 3½ inches across, of thin, firm texture; smooth and glossy above, downy on the veins and in the vein axils beneath. Inflorescence slender, 2 to 6 inches long. Fruit about the size of a pea, black. Native of Japan, Corea, and China; long cultivated in gardens, but recently brought more prominently into notice by new forms introduced from China. It is a variable species, but the typical form is known by its quite small, unlobed (or indistinctly 3-lobed) leaves, smooth and very glossy above. Var. *wilsoni* Veitch has leaves rarely more than 3 inches long, scarcely as wide, deep lustrous bronzy green above, purple beneath when young. It is one of the most dainty in appearance of all vines. Introduced from central China by Wilson for Messrs. Veitch in 1900." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 670.*)

40601 and 40602.

From Port Louis, Mauritius. Presented by Mr. G. Regnard. Received April 16, 1915. Quoted notes by Mr. Regnard, except as otherwise indicated.

40601. *CARICA PAPAYA* L. Papayacæ. **Papaya.**

"Var. *nana*. The size of the large fruits is nearly 1½ feet by 10 inches. The fruit is bright yellow when ripe, the skin is rough, and the taste sweet and flavor good. The male tree is dwarf like the female."

40602. *SOLANUM MACRANTHUM* Dunal. Solanacæ.

"Ornamental tree, 40 feet high, native in Brazil."

The ample, alternate leaves, with acutely lobed margins, have prickly veins. These prickles become large and stout on the lower surface, especially on the midrib. The flowers, which occur in axillary racemes, are large and pale lilac in color, with darker dashes and pale lines. This tree has long been cultivated at the Royal Botanic Gardens, Kew. It is readily propagated from cuttings. (Adapted from *Curtis's Botanical Magazine, pl. 4138, 1845.*)

40603 to 40607.

From China. Presented by Mr. A. Sugden, Chefoo, China. Received April 20, 1915. Quoted notes by Mr. Sugden, except as otherwise indicated.

40603. *BOMBAX MALABARICUM* DC. Bombacacæ.

"It may be tree cotton which has been used to pack something sent from Canton to Peking. It reminds me of the tree cotton of the South, so I have picked out the seeds and send them with a little cotton, as they appear to be ordinary style cotton seed, and we believe it to be some variety of wild cotton."

40603 to 40607. Continued. Quoted notes by Mr. A. Sugden.

40604. BRASSICA PEKINENSIS (Lour.) Skeels. Brassicaceæ. **Pe-tsai.**

"Shantung cabbage. It grows in the north of China, is lettuce shaped, and weighs from 5 to 8 pounds. When boiled it is nearly as good, if not quite, as sea kale; eaten raw, in salad, it is of so delicate a flavor that I know of no vegetable in England to approach it. It is an autumn cabbage, should be planted about 18 inches apart, thrives best with moisture, and in Shantung is well watered every day; there the seed is sown in June. When nearly full grown it should be tied round so as to give it a good white heart. If it can be acclimatized in this country it will be a great addition to our vegetables." (Extract from *George Hughes's letter to the Kew Royal Gardens, April 21, 1887.*)

40605. CRATAEGUS PINNATIFIDA Bunge. Malaceæ. **Chinese haw.**

"*Suan cha (tza)*. The fruit of this hawthorn is about as big as a damson and to my mind excellent as stewed fruit or as a cheese. To cook, simmer in hot water for a few minutes till soft enough to pull the skin off with the fingers; if cut off with a knife they say much of the coloring matter is lost; our cook then pokes the stones out through the top with a chopstick; they are then stewed for a few minutes with lots of sugar; the rough way of cooking is to cut in half to remove stones and not to peel. They look nicer the other way and the skin does not improve them for eating."

40606. CRATAEGUS PINNATIFIDA Bunge. Malaceæ. **Chinese haw.**

"*Suan cha (tza)*. Fruits larger than those of the preceding number [S. P. I. No. 40605], which see for description."

40607. SOLANUM sp. Solanaceæ.

"The pods were white, but turned yellow as they ripened; there was but a bit of leaf left, which looked something like a slender cabbage leaf."

40608. CANNABIS SATIVA L. Moraceæ. **Hemp.**

From Damascus, Syria. Presented by Mr. W. Stanley Hollis, American consul general, Beirut, Syria, who secured it from Consular Agent Young, Damascus. Received April 16, 1915.

"*Turkish hemp*. The seeds should be planted in well-irrigated or nearly marshy, rich ground and at the time of year that will favor the quickest growth, as, of course, the higher the shoots can be grown, the longer and better the fiber that will be produced." (*Young.*)

40609. OSTERDAMIA TENUIFOLIA (Trin.) Kuntze. Poaceæ. **Japanese lawn grass.**

From Yokohama, Japan. Purchased from the Yokohama Nursery Company. Plants received April 30, 1915.

"Birodoshiba."

40610 and 40611. PSIDIUM GUAJAVA L. Myrtaceæ. **Guava.**

From New Smyrna, Fla. Presented by Mr. John Y. Detwiler. Plants received May 1, 1915. Quoted notes by Mr. Detwiler.

40610. "Pink variety. Plants over a year old, which possibly by the inarching process can be made to bear earlier than usual. The largest fruits I have seen weighed 17½ ounces; they have been known to weigh 20 ounces."

40611. "Pure white variety."

40612. SACCHARUM OFFICINARUM L. Poaceæ. Sugar cane.

From Honolulu, Hawaii. Presented by the director, Experiment Station, Hawaiian Sugar Planters' Association. Cuttings received May 1, 1915.

Demerara 1135.

40613. DAPHNE BLAGAYANA Freyer. Thymeleaceæ.

From Chester, England. Purchased from Dicksons Seed Growers, seed merchants and nurserymen. Plants received May 6, 1915.

"Native of the mountains of eastern Europe, discovered by Count Blagay in 1837; introduced about 1875. This beautiful and sweet-scented Daphne has perhaps nowhere been so successfully cultivated as in the Glasnevin Botanic Gardens. It is there planted on low mounds composed of stones and loam from a granite district. The secret of success appears to be in the continuous layering of the shoots. As soon as the young growths are an inch or so long the previous summer's branches are weighed down to the ground by placing stones on them. A little soil may come between. By this system the whole plant is always renewing its root system at the younger parts. At Glasnevin I have seen a patch 8 feet across in the rudest health. This system is, no doubt, helped by the moist, equable climate of Dublin. As this shrub is found on calcareous rock, stones of the same character would appear to be preferable for layering, but Sir F. Moore tells me he does not consider this Daphne needs lime. He recommends good loam or peat and leaf soil and partial shade." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, pp. 467-468.*)

40614. SORBUS DOMESTICA L. Malaceæ.

(*Pyrus sorbus* Gaertn.)

From Kew, England. Presented by Sir David Prain, director, Royal Botanic Garden. Cuttings received May 6, 1915.

See S. P. I. Nos. 10349 and 27184 for previous introductions and description.

40615 and 40616.

From Yachowfu, West China. Presented by Dr. E. T. Shields, Medical Missionary of the American Baptist Foreign Mission Society. Plants received May 12, 1915.

40615. (Undetermined.)

Mountain oak.

40616. PHOEBE NANMU (Oliver) Gamble. Lauraceæ.

(*Machilus nanmu* Hemsl.)

Lanmu, or nanmu.

"In western Hupeh and Szechwan the name *Nanmu shu* is applied to this and other species of Phoebe and to the genera *Machilus* and *Actinodaphne*. These trees are the source of '*nanmu*,' one of the most valuable of all Chinese timbers. All the species are evergreen and singularly handsome trees. In Szechwan they are abundant up to an altitude of 1,000 meters, often forming extensive woods. They are largely planted around homesteads and temples and are a prominent feature of the scenery of parts of the Chengtu Plain and of the region round the base of Mount Omei. These trees grow to a great size and have clean straight trunks and wide, umbrageous heads. The wood is close grained, fragrant, greenish white and brown in color, easily worked, and very durable. It is highly esteemed in furniture making and for pillars and beams in the temples and in the houses of the wealthy.

40615 and 40616—Continued.

In the form of planks it is used for the bottoms of boats." (*Sargent, Plantae Wilsonianae vol. 2, p. 71.*)

See S. P. I. Nos. 30039, 37944, and 38333 for previous introductions and description.

40617 to 40619.

From Formosa. Presented by the Bureau of Productive Industry, Taihoku, Formosa. Received May 12, 1915.

40617. ASPARAGUS LUCIDUS Lindley. Convallariaceæ. **Asparagus.**

From Mount Daiton, near Taihoku. Japanese name *Tenmondo*.

"*Kusasugi-kadsura* or *Tenmondo*; a perennial herb of the order of Liliaceæ, growing wild on seacoasts and also cultivated in fields. There are standing and climbing varieties. In summer it produces small yellowish flowers, which are succeeded by little red berries. The tuberous roots grow in tufts about the size of a finger, and are preserved in sugar or used for various cooking purposes after having been boiled in water to take away the acidity." (*Useful Plants of Japan, pp. 29 and 121.*)

Plants.

40618. CUDRANIA JAVANENSIS Trecul. Moraceæ.

From Mount Daiton, near Taihoku, April 9, 1915.

"*Kwakwatsu gayu*, an evergreen shrub of the order Urticaceæ, of a vinelike nature, provided with thorns on the stem, and found in the Provinces of Satsuma and Osumi. The barren and fertile flowers shoot separately on distinct plants. It bears flowers in summer and reddish yellow sweet fruits in winter. They are eaten fresh or preserved in sugar. The wood is used for dyeing yellow." (*Useful Plants of Japan, No. 2136.*)

Cuttings.

40619. MALUS FORMOSANA Kawakami and Koidz. Malaceæ.

"Japanese name *Taiwan-ringo*. From Arisan, March 20, 1915."

"This is a very distinct species, differing from all other [species of] *Malus* by the tubular constricted disk enclosing the connate base of the five styles. The large globose fruit with its impressed persistent calyx and short stalk resembles that of the common apple." (*Rehder, in Plantae Wilsonianae, vol. 2, p. 295, 1915.*)

"In November, 1905, on my exploring trip to Mount Niitaka, I chanced to discover the fruit of a very rare plant belonging to Pomaceæ at Mount Suizan, 7,000 feet high, in the southern part of the Arisan Range. As it resembled an apple in appearance, I tasted it, and found it somewhat like an apple but rather astringent, with a fine odor. Afterwards I was told that the aborigines usually eat them cooked. As the tree was 4 to 5 feet in circumference and 40 to 50 feet high, I was not able to pluck either the boughs or the leaves, and had to content myself with picking up the leaves and fruit lying about on the ground. In October of the following year I collected some of the same fruit again at Mount Arisan. At this time I found that the tree belonged to the genus of apple trees, but, being unable to obtain the flower, I could not properly specify it. In March of this year, however, Mr. Mori, of the Botanical Laboratory, succeeded in collecting the flower of this tree at a place

40617 to 40619—Continued.

7,000 feet high in Mount Gokwan, in the aboriginal district of Nanto. Some time afterwards Mr. Sasaki, my assistant, found the flower of the same tree in its later stage of bloom at Mount Bui, in the district of Ako. After having gathered all these facts together, I was at last enabled to solve this difficult problem, which had been taking my attention for a year. The plant in question is a species of wild apple tree, and is called *Sashibe* or *Sado* by the aborigines. According to Mr. Mori, '*Sashibe*' is the name given by the Bunun tribe and '*Sado*' is the one used by the Atayal tribe, living near Horisha. This plant is well known among the Formosan aborigines, so that their villages are often named after this plant. This plant is called '*Take sashibe*' in Ako district and '*Alan sad*' at Horisha, both '*take*' and '*alan*' signifying a tribe. It is said that among the aborigines of the Paiwan tribe of Taito district their villages are often named after this plant. The Chinese inhabitants, however, name it differently; at Ako it is called '*Shaburai*' and at Rinkiho '*Soan-sha*' [*Suan cha*, sour hawthorn?] The fruit is often pickled in salt and sold by Chinese grocery dealers in towns in the vicinity of the savage district. They cost on an average about 6 sens per dozen. I bought some of the fruit myself at Ako and Rinkiho. The seed of the fruit germinating very easily, it could, in my opinion, be successfully grafted with good European apples. This is, however, a practical question requiring an experiment. In April of this year I made a scientific research into the nature of the said plant, in collaboration with Mr. G. Koidzumi, of the Science College of the Tokyo University, which resulted in our identifying it as a new species." (*Kawakami, Tokyo Botanical Magazine, vol. 25, p. 145-146, 1911.*)

40620 to 40622. PRUNUS spp. Amygdalaceæ.

From Sapporo, Japan. Presented by the director, Botanic Garden of the College of Agriculture, Tohoku Imperial University. Received May 3, 1915.

40620. PRUNUS NIPPONICA KURILENSIS (Miyabe) Wilson.

A small freely branching tree with reddish or grayish brown bark. Young leaves densely pubescent or pilose. Mature leaves pilose to sparsely hirsute or pubescent on the veins, obovate-subrhombic to ovate-elliptic; blade 4.5 to 8 cm. long, 3 to 4.5 cm. broad, acuminate. Flowers 1 to 3 fasciculate, earlier than the leaves. Petals broadly elliptic-obovate, tinged with rose color. Japan. (Adapted from G. Koidzumi, *Jour. Coll. Sci. Imp. Univ. Tokyo, vol. 34, art. 2, p. 284.*)

40621. PRUNUS MAXIMOWICZII Rupr.

Cherry.

See S. P. I. No. 40189 for previous introduction and description.

40622. PRUNUS SERRULATA SACHALINENSIS (Schmidt) Makino.

(*Prunus sargentii* Rehder.)

Sargent's cherry.

Young leaves brownish. Stipules lanceolate 3 to 6 mm. long, lacinate. Flowers rose colored, umbellate-fasciculate, large, earlier than or appearing with the leaves. Bracts obovate-oblong, 3 to 6 mm. long, 2.5 to 3 mm. broad, margin fimbriate-denticulate. (Adapted from G. Koidzumi, *Jour. Coll. Sci. Imp. Univ. of Tokyo, vol. 34, art. 2, p. 276.*)

40623 to 40626.

From Jamaica Plain, Mass. Presented by the Arnold Arboretum. Received April 14, 1915.

40623. *PRUNUS SERRULATA SACHALINENSIS* (Schmidt) Makino. Amyg-
(*Prunus sargentii* Rehder.) [dalaceæ. Sargent's cherry.]

"The first of the Japanese cherries to flower is *Prunus sargentii*. This is a tall tree in the native forests of the northern island of Japan, where it is valued as a timber tree. There are six specimens of different sizes on the Forest Hill road, Arnold Arboretum, and they are now covered with clusters of large pink or rose-colored single flowers, for the color of the flowers of this tree varies considerably on different individuals. The small black fruits which ripen in June are almost hidden by the large dark-green leaves, which in the autumn turn to shades of orange and red; the smooth, shining, reddish bark adds to the beauty of this tree. Travelers who have seen cherry blossoms in many lands declare that *Prunus sargentii* should become a common tree if nurserymen will recognize its value and make a business of making it known to the public." (*Arnold Arboretum, Bulletin of Popular Information, No. 20.*)

Plants.

40624. *VITIS VINIFERA* L. Vitaceæ. Peking grape.

"The so-called Peking grape is a variety of *V. vinifera* which we received in April, 1904, from Mr. E. T. Williams, in Peking. The fruits are said to be black. At present we have no plants of it in the Arboretum." (*Rehder.*)

Rooted eyes.

40625. *ROSA HUGONIS* Hemsl. Rosaceæ. Rose.

"Grafted on the roots of *Rosa multiflora*." (*Jackson Dawson.*)

See S. P. I. No. 40192 for description, and the Journal of Heredity, vol. 6, p. 429, September, 1915, for description and illustrations.

Grafted plants and cuttings.

40626. *ROSA MULTIFLORA* Thunb. Rosaceæ. Rose.

"These roots are good for all varieties of roses." (*Jackson Dawson.*)

40627 to 40644. *CHRYSANTHEMUM* spp. Asteraceæ.**Chrysanthemum.**

From Kew, England. Presented by Sir David Prain, director, Royal Botanic Gardens. Received May 4, 1915.

Introduced for the work of the Insecticide and Fungicide Board, for studies in the production of pyrethrum powder.

40627. *CHRYSANTHEMUM* sp.

Received as *Chrysanthemum anserinaefolium* Hausskn. and Born., for which no place of publication has yet been found.

40628. *CHRYSANTHEMUM BALSAMITA* L.

See S. P. I. No. 40543 for previous introduction and description.

40629. *CHRYSANTHEMUM BALSAMITA* L.

Var. *tomentosa*.

40630. *CHRYSANTHEMUM CAUCASICUM* Pers.

See S. P. I. No. 40511 for previous introduction and description.

40627 to 40644—Continued.

40631. CHRYSANTHEMUM CINERARIAEFOLIUM (Trev.) Vis.

"Glaucous perennial, slender, 12 to 15 inches high; stems unbranched, with a few short, scattered hairs below the flower; leaves long-petioled, silky beneath, with distant segments; involucre scales scarious and whitish at the apex. Dalmatia. Said to be the chief source of Dalmatian insect powder. Rarely cultivated as a border plant. Common in botanic gardens." (*Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 757.*)

40632. CHRYSANTHEMUM COCCINEUM Willd.

See S. P. I. Nos. 31103 and 40512 for previous introductions and description.

40633. CHRYSANTHEMUM CORONARIUM L.

"Annual, 3 to 4 feet; leaves bipinnately parted, somewhat clasping or eared at the base, glabrous, the segments closer together than in *C. carinatum*; involucre scales broad, scarious; rays lemon colored or nearly white. July to September. The full double forms, with rays reflexed and imbricated, are more popular than the single forms. This and *C. carinatum* are the common summer chrysanthemum. This is common in old gardens, and is also somewhat used for bedding and pot culture." (*Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 754.*)

40634. CHRYSANTHEMUM CORYMBOSUM L.

40635. CHRYSANTHEMUM GRANDE (L.) Hook. f.

"Stout erect perennial of Algeria, 2 to 3 feet; leaves oblong to linear-oblong, often lyrate, coarsely toothed; flower heads large, solitary, rayless, golden yellow, to 2 inches across." (*Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 758.*)

40636. CHRYSANTHEMUM sp.

Received as *Chrysanthemum haussknechtii*, the place of publication of which has not yet been found.

40637. CHRYSANTHEMUM LACUSTRE Brotero.

"Perennial; endlessly confused with *C. maximum* in gardens, and the two species are very variable and difficult to distinguish; the flowers can hardly be told apart. *C. lacustre* is a taller and more vigorous plant, and sometimes it is branched at the top, bearing three heads, while *C. maximum* is always 1-headed, and the leaves in that species are much narrower. Height, 3 to 6 feet; stem sparsely branched; leaves partly clasping, ovate-lanceolate, with coarse, hard teeth; rays about 1 inch long; pappus of the ray 2 to 3 eared. Portugal, along rivers, swamps, and lakes." (*Bailey, Standard Cyclopedia of Horticulture, vol 2, p. 757.*)

40638. CHRYSANTHEMUM LEUCANTHEMUM L.

Oxeye daisy.

40639. CHRYSANTHEMUM MACROPHYLLUM Waldst. and Kit.

"Perennial herb, 3 feet; leaves very large, nearly sessile, pinnatisect, the lobes lanceolate and coarsely toothed; heads very many, corymbed; rays white with yellowish tinge, the disk yellow. June, July; an outdoor plant. Hungary." (*Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 758.*)

40627 to 40644—Continued.**40640. CHRYSANTHEMUM MAXIMUM Ramond.**

"This perennial species has narrower leaves than *C. lacustre*, and they are narrowed at the base; height, 1 foot; stems more angled than the above, simple or branched at the base, always 1-headed and leafless for 3 to 4 inches below the head; lower leaves petioled, wedge shaped at the base, or long oblanceolate; the upper leaves becoming few, lanceolate, but usually not very prominently pointed, the teeth not very large or striking; pappus, none; involucrel scales narrower and longer, whitish transparent at the margin, while those of *C. lacustre* are broader, more rounded at the apex, and with a light-brown scarious margin. Pyrenees." (*Bailey, Standard Cyclopedia of Horticulture, vol 2, p. 757.*)

40641. CHRYSANTHEMUM MYCONIS L.

Plant erect or ascending, glabrous or pubescent, simple or strictly branched. Leaves serrate; the lower petiolate, obovate-cuneate; the upper semiclasping, obovate-oblong, oblong, or linear. Rays yellow. Mediterranean region. (Adapted from *Hálacsy, Conspectus Florae Graecae, vol. 2, p. 69, 1902.*)

40642. CHRYSANTHEMUM PALLENS Gay.

Plants erect, more or less hispid, one to few headed. Lower leaves petiolate, obovate-cuneate, crenate; the others sessile, ligulate, dentate, or the uppermost often entire. Rays white. Europe. (Adapted from *Hálacsy, Conspectus Florae Graecae, vol. 2, p. 68, 1902.*)

40643. CHRYSANTHEMUM PARTHENIUM (L.) Bernh. Feverfew.

"Glabrous strong-scented perennial, 1 to 3 feet, much branched in the taller forms; leaves ovate or oblong-ovate in outline, pinnatisect or bipinnatisect, smooth or lightly pubescent; segments oblong or elliptic-oblong, pinnatifid or cut, the uppermost more or less confluent; flower heads small, many stalked, corymbose; disk yellow; rays white, oblong, equaling or exceeding the disk. Europe to the Caucasus." (*Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 756.*)

40644. CHRYSANTHEMUM PRAEALTUM Vent.

See S. P. I. No. 40545 for previous introduction and description.

40645 to 40649. HORDEUM VULGARE L. Poaceæ. Barley.

From Backe, Kramfors, Sweden. Presented by Mr. J. Mannerheim, director, Kramfors Joint Stock Company. Received May 8, 1915. Quoted notes by Mr. Mannerheim.

40645. "Grain introduced from Snanse, Norway, 36 years ago. Since that cultivated near the Tåsjöberg."

40646. "Grain from Backe village in Fjällsjö Parish. Whence the grain originally came, the farmers can not say. It has nevertheless now been sown for over 30 years from its own seed."

40647. "Grain cultivated at Alanäs parsonage and the seed brought from Jormvattnet, Frostvikens Parish, about 10 years ago."

40648. "This grain has grown for many years in Bergvettnets village, Dorotea Parish, on the farm of J. Gustafson. This grain sprang from a variety the name of which is not given."

40649. "The grain came from Aldernas village, Tåsjö Parish, and has grown in Risböck on the farm of Th. Tjåuden for three years."

40650 to 40669.

From China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received April 19, 1915. Quoted notes by Mr. Meyer.

40650. *AVENA NUDA* Hoejer. Poaceæ. **Oat.**

“(No. 2184a. Paodji, near Hsiku, Kansu, China, November 6, 1914.) Hull-less oats, cultivated in the higher regions of Kansu and Tibet as a human food. The grains are parched slightly, ground into flour, which is mixed with weak tea and eaten as a porridge. Flour from nonparched oats is also much used in the making of noodles and for certain coarse cakes. These oats are apparently able to stand more drought and heat than hull-less barley, which is also much grown in the higher mountain regions of northwestern China. They are, however, apparently not as productive as the hull-less barley and the flour has not quite the rich flavor that the barley flour has. Of interest to breeders and of value for the intermountain sections of the United States.”

40651. *AVENA SATIVA* L. Poaceæ. **Oat.**

“(No. 2185a. Titaowchow, Kansu, China. December 3, 1914.) Mixed varieties of oats, grown locally at altitudes between 6,000 and 8,000 feet above the sea. Used as feed for domestic animals. Of interest to breeders; they possibly may produce varieties more resistant to drought and heat than our present strains in cultivation.”

40652. *HORDEUM VULGARE* L. Poaceæ. **Barley.**

“(No. 2186a. Kiucheng (near Taochow), Kansu, China. November 28, 1914.) Hull-less barley, cultivated up to 11,000 feet above the sea on mountain terraces in western Kansu and Tibet. Much used as a human food and in some sections the mainstay of the people. The grains are parched, ground into flour, and this flour is eaten mixed with hot tea, butter, or grease, when obtainable, and often a bit of salt is added. Most times it is consumed in the form of a stiff dough, manipulated and eaten with the fingers, and called *Tzamba*. Another way is to pour hot water or milk on it and eat it as a gruel or porridge. The flour from nonparched grains is used in the form of noodles, often much mixed with flour from broad beans, from which it receives a coarse flavor. Of value for the more elevated regions of the United States.”

40653 and 40654. *ZEA MAYS* L. Poaceæ. **Corn.**

40653. “(No. 2187a. Tungtung, Kansu, China. November 19, 1914.) A fine variety of white-seeded flint maize, cultivated on mountain terraces at altitudes between 4,500 and 5,000 feet above the sea. Of value possibly in extending maize culture farther north.”

40654. “(No. 2188a. Yaopuko, near Chenghsien, Kansu, China. October 6, 1914.) A variety of flint maize with red grains and small ears; grown in the higher mountain regions where the nights are always cool and often very short seasons are experienced. Of value possibly in extending maize culture farther north.”

40655. *VICIA FABIA* L. Fabaceæ. **Broad bean.**

“(No. 2189a. Kiucheng (near Taochow), Kansu, China. November 28, 1914.) Broad beans are much grown in the mountains of western Kansu and Tibet at altitudes of 6,000 to 11,000 feet above the sea. They are much used as human food when ground into flour, of which noodles are

40650 to 40669—Continued. (Quoted notes by Mr. F. N. Meyer.)

made, usually with flour from wheat, barley, or oats added. The inferior qualities are used as feed for hard-working domestic animals. Chinese name *Ta tou*, meaning 'big bean.' Of value for the more elevated sections of the United States as a summer crop. As a winter crop, they thrive well in all such sections where there are no heavy frosts."

40656 to 40660. SOJA MAX (L.) Piper. Fabaceæ. Soy bean.
(*Glycine hispida* Maxim.)

40656. "(No. 2190a. Yangpingkwan, Shensi, China. September 10, 1914.) A small-seeded variety of soy bean, of greenish color, grown along the edges of submerged rice fields. Of value possibly as an aftercrop for moist lands in the southern United States."

40657. "(No. 2191a. Yangpingkwan, Shensi, China. September 10, 1914.) A very small-seeded variety of soy bean, of yellow color, grown along the edges of submerged rice fields. Of value possibly as an aftercrop for moist lands in the southern United States."

40658. "(No. 2192a. Yangpingkwan, Shensi, China. September 10, 1914.) A very small-seeded variety of the soy bean, of black color. Said to be of somewhat twining habit and growing on drier lands than the preceding numbers [S. P. I. Nos. 40656 and 40657]."

40659. "(No. 2193a. Siku, Kansu, China. November 19, 1914.) Mixed green and yellow seeded varieties of soy beans of nonshattering habits. Grown on warm, dry mountain terraces under decidedly semiarid conditions. Of value possibly for the southwestern United States more specifically."

40660. "(No. 2194a. Lanchowfu, Kansu, China. December 15, 1914.) Mixed brown and yellow seeded varieties of soy beans; not grown locally, but probably coming from Shensi."

40661. PISUM ARVENSE L. Fabaceæ. Field pea.

"(No. 2195a. Yangpingkwan, Shensi, China. September 10, 1914.) Gray field peas, much grown as a winter crop in the milder sections of the Yangtze and Yellow River basins; also as a summer crop in the cooler mountain sections of western Kansu. They are much fed to hard-working domestic animals, preferably broken up coarsely and mixed with chopped straw of proso, bird's millet, and even kaoliang. A very palatable starch is also made from them, looking like blancmange, which is much eaten cold in summer, sprinkled over with some vinegar and chili-pepper sauce. Chinese name *Wan tou*."

40662. PISTACIA CHINENSIS Bunge. Anacardiaceæ. Pistache.

"(No. 2196a. Near Kuanyintang, between Paoki and Fenghsien, Shensi, China. September 15, 1914.) A beautiful and characteristic Chinese pistache tree, having graceful, pinnate foliage, which when just coming out is of wine-red color, then becomes glossy green, while toward fall it turns to flaming scarlet, purple, and yellow hues. The tree is dioecious, the males becoming larger and taller than the females, lives to be several centuries old, and can reach truly enormous sizes when very old and when located in a good situation. A tree near the village of Tsai-kiapu, Shensi Province, has a girth of 16 feet at 5 feet above ground. Of value as a graceful park and avenue tree, especially for the milder semiarid sections of the United States."

40650 to 40669—Continued. (Quoted notes by Mr. F. N. Meyer.)

40663 to 40667. *HOLCUS SORGHUM* L. Poaceæ. **Kaoliang.**
(*Sorghum vulgare* Pers.)

40663. "(No. 2197a. Fenghsien, Shensi, China. September 5, 1914.) A small variety of kaoliang, with small heads; grown along the edges of fields as windbreaks. Generally sown in strips from 1 to 2 feet wide."

40664. "(No. 2198a. Chowchih (Djotze), Shensi, China. September 7, 1914.) A tall and erect variety of kaoliang, with compact heads and brown grains, grown in large fields."

40665. "(No. 2199a. Near Meihsien, Shensi, China. September 9, 1914.) A medium tall variety of kaoliang with dense and heavy heads and large grains of dark-amber color. Grown in patches close to the villages. Used as a human food when ground into flour, from which are made little loaves which are of coarse taste and texture. Chinese name *Ta shih kaoliang*, meaning literally 'big, full, high grass.'"

40666. "(No. 2200a. Near Hweihhsien, Kansu, China. September 26, 1914.) A tall slender variety of kaoliang, with drooping heads, having large grains. Grown only for spirit manufacturing."

40667. "(No. 2201a. Near Hweihhsien, Kansu, China. September 29, 1914.) A robust variety of kaoliang of tall growth, with heavy drooping heads and very large grains. Grown exclusively for spirit manufacturing."

40668. *AMYGDALUS DAVIDIANA* (Carr.) B. S. and Z. Amygdalaceæ. **Wild peach.**
(*Prunus davidiana* Franch.)

Received at the Plant Introduction Field Station, Chico, Cal., April 30, 1915.

"(No. 2182a. Peking, China. February 27, 1915.) The well-known *davidiana* peach, used as a stock for stone fruits in North China. Collected in several localities in the Chihli Province; obtained by purchase. Chinese name *Shan t'ao*, meaning 'mountain peach.'"

40669. *DIOSPYROS LOTUS* L. Diospyraceæ. **Persimmon.**

Received at the Plant Introduction Field Station, Chico, Cal., April 30, 1915.

"(No. 2183a. Peking, China. February 25, 1915.) The *Ghoorma*, or *Ghoorma* persimmon, much used as a stock in North China to ring-bud or patch-bud kakis upon. Obtained by purchase. Chinese name *Hei tsao*, meaning 'black jujube.'"

40670. *GENTIANA LUTEA* L. Gentianaceæ. **Gentian.**

From Geneva, Switzerland. Presented by Mr. H. Correvon. Received May 11, 1915.

"A tall, stout, hollow-stemmed perennial herb of open or partly open grassy places on the mountains of southern and central Europe. Its large flowers are bright yellow and spotted and occur in axillary clusters. The underground portion is frequently a yard in length and may have several long branches. It is commonly collected in flower. To prevent its extermination, the Austrian Government imposed a heavy fine for collecting a root not at least 2 cm. (four-fifths of an inch) in diameter at the top, this ordinarily requiring a 3-years'

growth and insuring its previous propagation by seed. The United States' supply comes chiefly from France. One of the best of the simple bitters, exciting the flow of the gastric juice, promoting the appetite, and aiding digestion." (*The National Standard Dispensatory*, pp. 713-714.)

Plants.

40671 and 40672. LATHYRUS spp. Fabaceæ.

From Nancy, France. Presented by Mr. Edmond Gain, director, Botanic Garden. Received May 1, 1915. Secured for the breeding experiments of Mr. David Burpee.

40671. LATHYRUS CIRRHOSUS Ser.

See S. P. I. No. 40311 for previous introduction and description.

40672. LATHYRUS SYLVESTRIS L.

Everlasting pea.

See S. P. I. Nos. 32415 and 40537 for previous introductions and description.

**40673. ALEURITES CORDATA (Thunb.) Muell. Arg. Euphorbiaceæ.
Kiri oil tree.**

From Yokohama, Japan. Purchased from the Yokohama Nursery Co. Received May 12, 1915.

"The wood is used for boxes and clogs and the bark for dyeing fishing nets. From the nuts oil is pressed. This is called *kiri* oil. It is thick and poisonous; rats die soon after eating it. Umbrellas, raincoats, poles, lanterns, paper doors, etc., are coated with the oil. It is also used in printing shops, as it dries quickly. The recent advancement of chemical knowledge has discovered divers uses for it, viz, the oil can be employed directly in varnish manufacturing without previous oxidation, and after boiling with oxid of lead it dissolves in turpentine oil and produces refined varnish without adding turpentine. If paper be soaked with the oil, it makes a transparent waterproof on which any mark can be made with ink. Paint made of the *kiri* oil instead of linseed oil dries quicker; hence it is better adapted for painting ships and metal work." (Translated from the Japanese, *Timber Trees Utility*, by Moroko.)

See S. P. I. Nos. 21012 and 25080 for previous introductions and description.

For an illustration of the seeds of the *kiri* oil tree, see Plate IV.

40674 to 40676. CITRUS spp. Rutaceæ.

From Lamao, Bataan, Philippine Islands. Presented by Mr. P. J. Wester, horticulturist, Lamao Experiment Station. Received May 15, 1915.

40674. CITRUS MEDICA L.

Citron.

40675. CITRUS MEDICA NANA Wester.

"This variety might make an interesting pot plant." (*Wester.*)

"A small, thorny shrub, rarely exceeding 2 meters in height; fruit 65 or more mm. long, 55 mm. in diameter, ellipsoid to almost roundish, pointed at apex, lemon yellow, smooth; rind medium thick; pulp grayish to greenish, acid, rather dry; juice cells long and slender, almost linear; seeds many, rather small, flattened, smooth. The plant is rather common in the Archipelago and has been noted in Tarlac, Pampanga, Bulacan, Laguna, and Cebu. It is frequently grown and fruited in small pots, and is probably the smallest species in the genus. It is surprisingly productive and precocious, fruiting as early as the second year from seed, and is practically everbearing. The fruit is eaten by the Filipinos,

40674 to 40676—Continued.

but is too dry to be cultivated for the flesh, and the skin is too thin for utilization as citron peel." (*Wester, Citrus Fruits in the Philippines, Philippine Agricultural Review, first quarter, 1915.*)

40676. CITRUS MEDICA ODORATA Wester.

Tihi-tihi.

"The leaves of this species contain 0.6 per cent essential oil, and the plant might possibly be grown for this oil." (*Wester.*)

"A small, thorny shrub, seldom exceeding 2.5 meters in height, with sharp, stout spines; fruit 60 to 65 mm. long, 7 to 10 cm. in transverse diameter, weighing 300 to 475 grams, oblate, with a shallow basal cavity, and sometimes a mammillate apex, more or less ridged longitudinally, fairly smooth, clear lemon yellow; lenticels scattered, depressed; oil cells large, equal or a trifle raised, skin rather thick; pulp grayish, rather dry, sharply acid, of lemon flavor; juice cells long and slender; seeds many, sometimes 125 in a single fruit, short, broad, and flattened. The *tihi-tihi* is a rare plant found in cultivation in Cebu and Bohol; one plant has been seen in Misamis, Mindanao. The plant is very precocious, fruiting as early as the third year from seed, everbearing, and the fruit is used by the Filipinos in washing the hair. It is not eaten and is of no commercial importance. The *tihi-tihi* differs from the citron in its green, tender, highly aromatic growth, the leaves having been found to contain 0.6 per cent essential oil, as analyzed by the Bureau of Science. The fruit is strikingly different from the citron." (*Wester, Citrus Fruits in the Philippines, Philippine Agricultural Review, first quarter, 1915.*)

40677 to 40770.

From China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received May 11, 1915. Quoted notes by Mr. Meyer.

40677 to 40680. JUNIPERUS spp. Pinaceæ.

Juniper.

40677. JUNIPERUS SALTUARIA Rehder and Wilson.

"(No. 2202a. Siku, Kansu, China. November 14, 1914.) A peculiar species of juniper, of weeping habit, forming long cordlike branches, which hang down perpendicularly from the crown. Able to stand much drought and heat, but apparently quite sensitive to severe frosts. Of value as a quaint ornamental tree for cemeteries, especially for the drier sections of the United States. Chinese name *Tzu pei shu*, meaning 'pointed conifer.'

40678. JUNIPERUS FORMOSANA Hayata.

"(No. 2203a. Kwatsa, on Siku River, Kansu, China. November 10, 1914.) A juniper of weeping habits, very similar to the preceding number [S. P. I. 40677], but branches less drooping. Of value as a quaint ornamental tree for cemeteries, especially in the drier sections of the United States."

40679. JUNIPERUS CHINENSIS L.

"(No. 2204a. Sianfu, Shensi, China. January 25, 1915.) A tall-growing juniper of graceful habit, assuming characteristic shapes when old. Foliage bluish. Apparently not able to withstand severe frosts. Of decided value as a park tree for those semiarid sections of the United States where the winters are not too severe."

40677 to 40770—Continued. (Quoted notes by Mr. F. N. Meyer.)

40680. JUNIPERUS CHINENSIS L.

“(No. 2205a. Djaszeyu, near Pingliang, Kansu, China. January 15, 1915.) A beautiful pyramidal variety of juniper of bluish color. Found in an old temple court. Of value as a park tree for the semi-arid sections of the United States where the winters are not too cold.”

40681 to 40688. BERBERIS spp. Berberidaceæ.

Barberry.

40681. BERBERIS POTANINI Maxim.

“(No. 2206a. Near Siku, Kansu, China. November 16, 1914.) A barberry with very spiny, hard, glistening foliage, bearing a multitude of coral-red berries, making in some specimens the branches bend down with their weight. Height of bushes from 3 to 5 feet. Found on dry rocky places and especially on mountain slopes of decomposed rock. Of value as an ornamental garden and park shrub, especially for the mild-wintered semiarid sections of the United States. Chinese name *Huang lien tz'ü*, meaning ‘yellow medium thorn.’”

40682. BERBERIS SOULIEANA Schneider.

“(No. 2207a. Near Kwatsa, Kansu, China. November 10, 1914.) A form of the preceding number, but of more open growth and with larger berries of a carmine-red color. A very handsome shrub. Of value as an ornamental garden and park shrub, especially for the mild-wintered semiarid sections of the United States.”

40683. BERBERIS sp.

“(No. 2208a. Near Kulentze, near Minchow, Kansu, China. November 25, 1914.) A barberry of tall growth, bearing large fruits on long racemes. Foliage large, serrated, spines over 1 inch in length. Found on mountain slopes at altitudes between 7,000 and 9,000 feet. Of value as a park shrub for the cooler parts of the United States.”

40684. BERBERIS sp.

“(No. 2209a. Near Paodji, near Siku, Kansu, China. November 7, 1914.) A barberry growing to be over 20 feet tall, having large leaves and large spines. A rare shrub found beneath tall trees in open woods at an altitude of over 8,000 feet. Of value as a park shrub for the cooler parts of the United States.”

40685. BERBERIS sp.

“(No. 2210a. Near Tungtung, near Tangchangpu, Kansu, China. November 19, 1914.) A tall-growing barberry found among dense scrub on rocky mountain slopes at altitudes between 6,000 and 8,000 feet. Of value as a park shrub for the cooler parts of the United States.”

40686. BERBERIS sp.

“(No. 2211a. Yangsa, near Titaochow, Kansu, China. November 30, 1914.) A barberry of rather dense bushy growth, found on open spaces. Foliage small; berries transparent, light red color, very juicy, and of an agreeable sour taste, produced in great quantities. These berries could be utilized possibly for making tart preserves; they also could be used, when dried and ground, as a sour condiment

40677 to 40770—Continued. (Quoted notes by Mr. F. N. Meyer.)

on game and on fish dishes, replacing lemon juice in all sections where the latter is not available. Of value as an ornamental shrub for bordering sidewalks and paths in parks and gardens in the cooler sections of the United States."

40687. BERBERIS sp.

"(No. 2212a. Near Kagoba, south of Siku, Kansu, China. October 31, 1914.) A barberry of very low growth, being only from 1 to 3 feet high; foliage very small, berries light carmine, juicy, produced in great masses. Found along embankments and on fields at altitudes from 6,000 to 10,000 feet; fruit ornamental. Of value, like the preceding number, as an ornamental shrub for bordering sidewalks and paths in parks and gardens in the cooler sections of the United States."

40688. BERBERIS AGGREGATA Schneider.

"(No. 2213a. Near Siku, Kansu, China. October 20, 1914.) A low-growing barberry with very small fruits and foliage. Found amidst stony débris at an altitude of 4,500 feet. Possibly a form of the preceding number [S. P. I. 40687]. Of value as an ornamental shrub for bordering sidewalks and paths in parks and gardens in the cooler sections of the United States."

40689 to 40691. LONICERA spp. Caprifoliaceæ. Honeysuckle.**40689. LONICERA sp.**

"No. 2214a. Near Chiaochuanchen, near Chenghsien, Kansu, China. October 5, 1914.) A shrubby honeysuckle, found along mountain bases. Foliage large; berries large and dull red color; of somewhat open habit. Of use as an ornamental shrub for parks and gardens."

40690. LONICERA THIBETICA. Bur. and Franch.

"(No. 2215a. Near Taochow, Kansu, China. November 25, 1914.) A low shrubby honeysuckle of somewhat spreading growth. Cuttings sent under No. 1240 [S. P. I. No. 39915], which see for further description."

40691. LONICERA sp.

"(No. 2216a. Near Taipintze, near Taochow, Kansu, China. November 29, 1914.) A low-growing species of shrubby honeysuckle, having slender branches and small foliage, of habit similar to the preceding number [S. P. I. 40690]. Collected at an altitude of 10,000 feet. Of value as a border shrub for the cold and dry sections of the United States."

40692 to 40694. VIBURNUM spp. Caprifoliaceæ.**40692 and 40693. VIBURNUM KANSUENSE** Batalin.

40692. "(No. 2217a. Near Kagoba, south of Siku, Kansu, China. October 31, 1914.) A tall Viburnum of loose, open growth; leaves of oblong form, bunches of berries large and dense. Found among scrub on stony mountain sides at altitudes between 6,000 and 9,000 feet. The red berries of this shrub are sour, very juicy, and of agreeable flavor. They can be utilized in making vinegar and refreshing drinks. Of value as an ornamental shrub for the cooler regions of the United States."

40677 to 40770—Continued. (Quoted notes by Mr. F. N. Meyer.)

40693. "(No. 2218a. Near Paodji, near Siku, Kansu, China. November 9, 1914.) The same species apparently as preceding number, but the individual berries are larger and juicier. From the expressed juice we made a wine-red lemonade of very pleasing flavor, resembling in taste and looks red currant juice."

40694. *VIBURNUM* sp.

"(No. 2219a. Near Kagoba, south of Siku, China. November 1, 1914.) A tall-growing *Viburnum*, with short, round-oblong leaves, of open habit; racemes large and open, berries dark carmine red; flavor bitterish and not very juicy. Found on shady places at altitudes between 6,000 and 8,000 feet. Of value as an ornamental shrub for the cooler regions of the United States."

40695. *LONICERA* sp. Caprifoliaceæ.

Honeysuckle.

"(No. 2220a. Near Sanszemiao, near Taochow, Kansu, China. December 1, 1914.) A honeysuckle of erect, bushy growth, found on open, stony places at altitudes between 7,000 and 8,000 feet. Of value as an ornamental shrub for the cooler regions of the United States."

40696 to 40698. *EUONYMUS* spp. Celastraceæ.

40696. "(No. 2221a. Near Kulentze, near Minchow, Kansu, China. November 24, 1914.) A shrubby spindle wood, found in dry loess banks, forming heavy trunks when not molested. Of value as an ornamental shrub for the cooler regions of the United States."

40697. "(No. 2222a. Near Kulentze, near Minchow, Kansu, China. November 24, 1914.) A low-growing spindle wood, with somewhat leathery leaves, found in dry loess banks. Of value as a rockery shrub for dry localities."

40698. *EUONYMUS NANUS* Bieberstein.

"(No. 2223a. Near Taochow, Kansu, China. November 25, 1914.) A spindle wood of very small, crawling growth, found on shady places amongst scrub and moss, at altitudes between 7,000 and 8,000 feet. Leaves small, lanceolate, evergreen apparently; fruit carpel large, out of which the scarlet-coated seeds hang down gracefully. Of value as a rockery plant for cool regions."

40699 to 40702. *ROSA* spp. Rosaceæ.

Rose.

40699. *ROSA SWEGINZOWII* Koehne.

"(No. 2224a. Near Sanszemiao, near Taochow, Kansu, China. December 1, 1914.) A wild rose, resembling *Rosa hugonis*; of very vigorous growth and having remarkably broad spines, which vary much in size and in quantity on various specimens. Found on rocky mountain slopes at altitudes between 5,000 and 8,000 feet. Of value possibly as a factor in hybridization experiments."

40700 to 40702. *ROSA* sp.

40700. "(No. 2225a. Near Chiao-chuan-chen, near Chenghsien, Kansu, China. October 6, 1914.) A very vigorously growing rose of climbing habits, overrunning clumps of shrubbery. Bears very large clusters of orange-red berries; foliage large, slightly pubescent. Of value possibly as a vigorous stock and

40677 to 40770—Continued. (Quoted notes by Mr. F. N. Meyer.)

as a factor in hybridization experiments. Collected at an altitude of 4,000 feet."

40701. "(No. 2226a. Near Chenyatan, near Titaochow, Kansu, China. December 2, 1914.) A bushy rose, of erect growth, averaging a height of 5 to 7 feet. Twigs of reddish color, almost spineless. Collected at an altitude of 7,000 feet. Of possible value as a factor in hybridization experiments."

40702. "(No. 2227a. Near Yaopuko, near Chenghsien, Kansu, China. October 6, 1914.) A shrubby rose, quite spiny, found on dry, stony mountain slopes. Flowers apparently yellow. Of possible value as a factor in hybridization experiments."

40703. *STEPHANANDRA CHINENSIS* Hance. Rosaceæ.

"(No. 2228a. Near Paodji, near Siku, Kansu, China. November 9, 1914.) A shrub of running habit, found on stony mountain slopes at altitudes between 5,000 and 7,000 feet. Leaves large; loves somewhat shaded places. Of value as a cover shrub beneath trees in large grounds."

40704. *CLEMATIS* sp. Ranunculaceæ. Clematis.

"(No. 2229a. Near Tangchang, Kansu, China. November 20, 1914.) A bushy clematis, found amidst dry, rocky débris at altitudes between 5,000 and 7,000 feet. Flowers yellow; foliage finely dissected. Of use as a border shrub of small dimensions for dry regions."

40705. *JASMINUM GIRALDI* Diels. Oleaceæ. Jasmine.

"(No. 2230a. Near Siku, Kansu, China. October 20, 1914.) A shrubby jasmine, of erect growth, 2 to 4 feet in height, found amongst rocks and stony débris. Foliage pinnate; flowers yellow, followed by showy black berries. Of value as a small ornamental shrub for gardens and parks in dry mild regions."

40706. *CORIARIA SINICA* Maxim. Coriariaceæ.

"(No. 2231a. Near Yaopuko, near Chenghsien, Kansu, China. October 6, 1914.) A vigorously growing shrub, of erect habit, found in great masses on open hill slopes at altitudes between 3,000 and 6,000 feet. Leaves relatively large, veined, glistening green; said to bloom profusely with whitish flowers. Berries black, very small, produced in great quantities. Of use in gardens and parks. Local name *Ma kang shu*, meaning 'horse-string tree.'"

40707. *SOPHORA DAVIDII* (Franch.) Komarov. Fabaceæ.

"(No. 2232a. Near Chaolienli, north of Fenghsien, Shensi, China. September 17, 1914.) A thorny shrub, growing from 3 to 5 feet in height, found on stony and waste places. Utilized here and there as a hedge plant, but of decidedly weedy tendency. Foliage grayish green, flowers whitish lilac, pods somewhat downy, produced in immense quantities. Of use as a bee plant on waste places; also suitable for hedges when kept well under control."

40708. *BAUHINIA FABERI* Oliver. Cæsalpiniaceæ.

"(No. 2233a. Near Madjakey, near Chiehchow, Kansu, China. October 10, 1914.) A densely growing shrub, 3 to 4 feet in height, found amidst stony débris on mountain slopes. Leaves of peculiar form, being split in on top. Of use as an ornamental and as a stone-binding shrub for gullies and river banks in dry, mild-wintered climates."

40677 to 40770—Continued. (Quoted notes by Mr. F. N. Meyer.)

40709. SYRINGA sp. Oleaceæ.

Lilac.

“(No. 2234a. Near Palitang, near Kingchow, Kansu, China. January 17, 1915.) A small lilac, growing from 3 to 5 feet in height, having small leaves and apparently very floriferous. Found covering whole loess hill slopes in company with *Amygdalus davidiana* at an altitude of 3,500 feet. Of value as a hardy flowering shrub for the dry and cool sections of the United States.”

40710. ACANTHOPANAX LEUCORRHIZUS (Oliver) Harms. Araliaceæ.

“(No. 2235a. Chishan, near Changhsien, Kansu, China. October 1, 1914.) A shrub of erect and rather open growth, found beneath trees and on clearings in woods at altitudes of 4,000 to 7,000 feet above the sea. Leaves trifoliolate to quinquefoliate; in autumn loaded with multitudes of heavy bunches of black berries. Of use as a cover shrub beneath trees; also eligible for shady corners.”

40711. CARAGANA sp. Fabaceæ.

“(No. 2236a. Near Taochow, Kansu, China. November 26, 1914.) A spiny shrub of low growth, found along dry loess ledges and in pebbly banks; locally much utilized as a hedge plant. Able to withstand low temperatures and great droughts. Of value as a hedge plant for the drier colder sections of the United States. Collected at an altitude of over 9,500 feet above the sea.”

40712. HYDRANGEA LONGIPES Franchet. Hydrangeaceæ.

“(No. 2237a. Near Paodji, near Siku, Kansu, China. November 7, 1914.) A shrub growing to be from 3 to 5 feet tall, found in shady places. Cuttings sent under No. 1232 [S. P. I. No. 39908].”

40713. CARYOPTERIS INCANA (Thunb.) Miquel. Verbenaceæ.

(*Caryopteris mastacanthus* Schauer.)

“(No. 2238a. Near Siku, Kansu, China. November 18, 1914.) A small shrub, found amidst débris on dry hillsides and in rocky places in general. Foliage rather small, of grayish green color, blooms very late in the season, that is, from the end of September until the middle of October, with blue flowers. Is much visited by bees. All parts of the plant smell strongly of creosote; aromatic, somewhat like the sages in the western United States. This plant possesses great value as a late-flowering bee plant and deserves to be naturalized, in company with *Vitex incisa*, in rocky and dry localities, and more specifically in the foothill sections of the Rockies and the Sierra Nevada ranges in the United States. Chinese name *Shan hao tsü*, meaning ‘mountain wormwood.’”

40714. ZANTHOXYLUM ALATUM Roxb. Rutaceæ.

“(No. 2239a. Near Yuyinchen, between Liangtang and Hweihsien, Kansu, China. September 26, 1914.) A Chinese pepper tree with large-winged foliage, covered with long spines; apparently semi-evergreen. Found on sheltered shady places. Of use possibly as an ornamental garden and park shrub for the mild-wintered sections of the United States.”

40715. HIPPOPHAË RHAMNOIDES PROCERA Rehder. Elæagnacæ.

“(No. 2240a. Near Paodji, near Siku, Kansu, China. November 9, 1914.) A species of sea buckthorn, reaching a height of 40 feet, with a trunk 2 feet in diameter; leaves larger than in *H. rhamnoides*; berries

40677 to 40770—Continued. (Quoted notes by Mr. F. N. Meyer.)

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, suited especially for the cooler and drier sections of the United States. Collected at an altitude of 7,000 feet above the sea. Chinese name *Suan tz'ü*, meaning 'sour thorn.'

40716 and 40717. RHUS spp. Anacardiaceæ.

Sumac.

40716. RHUS JAVANICA L.

"(No. 2241a. Near Yuyinchen, between Liangtang and Hweihshien, Kansu, China. September 25, 1914.) A sumac, found on stony mountain slopes, in ravines, and in wild places, becoming a tall shrub or small tree. Leaves large, light green, pubescent, winged. Fruits borne in large spikes; berries coated with a sticky whitish wax which burns readily. The Chinese do not seem to utilize this wax in any way. Of value as an ornamental park shrub for the mild-wintered sections of the United States."

40717. RHUS POTANINI Maxim.

"(No. 2242a. Mountains near Kwanyintang, between Paoki and Fenghsien, Shensi, China. September 15, 1914.) A sumac with medium-sized, glossy green leaves and reddish petioles, becoming a tall shrub or even a tree up to 60 feet high. Assumes most brilliant colors in fall. Produces many spikes of reddish bronze-colored berries, which persist on the trees for a long time. On this sumac a gall insect makes its home, producing large inflated galls, which the Chinese utilize much for dyeing black. The foreigners, however, found that they contain a great percentage of tannin, vast quantities being exported from Hankow, especially under the name of Chinese gallnuts. This sumac possibly might be cultivated on cheap lands in the Southern States for its gall production. It is not very particular as to soil requirements, but it loves good drainage. Care should be taken, however, to keep it well under control, as it has decidedly weedy tendencies. Chinese name, *Wu pei tzü shu*, meaning 'five-folded seed tree.'"

40718. HOVENIA DULCIS Thunb. Rhamnaceæ.

"(No. 2243a. Siku, Kansu, China. November 12, 1914.) A tree growing to be 40 to 60 feet high, cultivated in gardens for its peculiar looking swollen fruit stalks, which are very sweet and much beloved by the Chinese as a delicacy. They are believed to undo the effects of having had too much wine at a dinner or a feast. This tree is not particularly ornamental, with its elmlike leaves and its rather open growth. It might be cultivated, however, on a small scale in the Southern States, so as to supply the large Chinese colonies in America with one of their favorite sweetmeats. These fruit pedicels can be eaten fresh or dried; in the latter way they can be shipped over long distances. Chinese name *Kua tsao*, meaning 'warming jujube.'"

40719. EVODIA RUTAECARPA (JUSS.) Hook. f. and Thoms. Rutaceæ.

"(No. 2244a. Near Chaolienli, near Fenghsien, Shensi, China. September 17, 1914.) A medium-sized tree, with handsome pinnated leaves, bearing large umbels of whitish flowers, followed by big bunches of fruits, which, at first green, later on turn to a dark-red color. Found in some-

40677 to 40770—Continued. (Quoted notes by Mr. F. N. Meyer.)

what stony places. Of value as an ornamental garden and park tree for the mild-wintered sections of the United States. Chinese name *Shan la tzü shu*, meaning 'mountain pepper tree.'

40720. *TILIA* sp. Tiliaceæ. Linden.

"(No. 2245a. Near Paodji, near Siku, Kansu, China. November 7, 1914.) A linden of medium-tall growth, having large leaves, found on moist mountain slopes at altitudes between 7,000 and 9,000 feet above the sea. Of value as an ornamental park tree for the cooler sections of the United States."

40721. *AMYGDALUS PERSICA* L. Amygdalaceæ. Peach.
(*Prunus persica* Stokes.)

"(No. 2246a. Shensi and Honan, China. January and February, 1915.) Cultivated peaches, collected along the roadsides. To be sown to obtain new types, possibly."

40722. *AMYGDALUS DAVIDIANA* (Carr.) B. S. and Z. Amygdalaceæ. Wild peach.
(*Prunus davidiana* Franch.)

"(No. 2247a. Near Chaotien, near Lungteh, Kansu, China. January 14, 1915.) The well-known *davidiana* peach, found on a rocky hill slope at an altitude of 6,000 feet above the sea. This is possibly the most western locality in China of this interesting wild peach. Local name *Mao t'ao*, meaning 'hairy peach.'

40723. *CHAENOMELES LAGENARIA CATHAYENSIS* (Hemsl.) Rehder. Mala-
(*Cydonia cathayensis* Hemsl.) [ceæ. Quince.

"(No. 2248a. Chiehchow, Kansu, China. October 14, 1914.) A variety of Chinese quince, being different from the ordinary sorts in that the fruits are round, of greenish color, and scented differently. Of use for those sections of the United States where winter temperatures do not go very low."

40724 to 40728. *PYRUS* spp. Malaceæ. Pear.

40724. *PYRUS* sp.

"(No. 2249a. Near Liangtang, Kansu, China. September 24, 1914.) A wild pear of shrubby growth; also seen occasionally as a small tree. Fruits small, globose, of greenish color; calyx persistent; peduncles long; meat becoming soft and pulpy. Local name *Mei li*, meaning 'plum pear.'

40725. *PYRUS SERRULATA* Rehder.

"(No. 2250a. Near Liangtang, Kansu, China. September 24, 1914.) A wild pear, growing into a small tree; leaves large, of open growth; fruits small, of brown color; calyx deciduous; peduncles short. Found on open, stony mountain sides at altitudes of 4,000 feet above the sea."

40726. *PYRUS* sp.

"(No. 2251a. Lanchowfu, Kansu, China. December 14, 1914.) A small pear, of russet-brown color; peduncles very long; calyx deciduous; meat soft and mealy. Sold on the streets of Lanchowfu."

40727. *PYRUS* sp.

"(No. 2252a. Minchow, Kansu, China. November 23, 1914.) A sour pear of round shape; calyx persistent; peduncles short; flesh

40677 to 40770—Continued. (Quoted notes by Mr. F. N. Meyer.)

melting. Of poor keeping quality. Probably derived from a local wild species."

40728. *PYRUS CHINENSIS* Lindl.

"(No. 2253a. Pingliang, Kansu, China. January 16, 1915.) Local large pears of several varieties, all of hard flesh. To be sown to obtain new types, possibly."

40729. *MALUS* sp. Malaceæ.

Crab apple.

"(No. 2254a. Sianfu, Shensi, China. August 30, 1914.) Crab apples of various sizes, purchased on the streets of Sianfu. To be tested in comparatively dry regions."

40730. *COTONEASTER* sp. Malaceæ.

"(No. 2255a. Near Kagoba, south of Siku, Kansu, China. November 1, 1914.) A tall-growing vigorous species of Cotoneaster with rather large leaves and large dark-violet berries. Found on rocky cliffs and ledges. Of value as an ornamental shrub for parks and gardens. Collected at an altitude of 6,000 feet above the sea."

40731. *ALBIZZIA* sp. Mimosaceæ.

"(No. 2256a. Near Yaopuko, near Chenghsien, Kansu, China. October 6, 1914.) A medium-sized ornamental tree, with large, feathery foliage, bearing tufts of yellowish white flowers. Found on mountain slopes of decomposed rock. Roots sent in under No. 1211 [S. P. I. No. 38285]."

40732. *LESPEDEZA* sp. Fabaceæ.

"(No. 2257a. Near Kanchuan, Kansu, China. October 9, 1914.) A small shrub, found on loess mountain slopes. Of value as a soil binder and possibly as a fodder shrub for sandy regions."

40733. *VITIS* sp. Vitaceæ.

Grape.

"(No. 2258a. Near Chaolienli, near Fenghsien, Shensi, China. September 17, 1914.) Wild grapes found among tall scrub. The same remarks apply to it as to No. 2164a [S. P. I. No. 40026]."

40734 and 40735. *COTONEASTER* spp. Malaceæ.

40734. "(No. 2259a. Near Taipintze, near Taochow, Kansu, China. November 29, 1914.) A very small shrub, found at altitudes between 6,000 and 11,000 feet above the sea, crawling between stones and grass. Of value as a rockery plant for cold regions. Chinese name *Lao wan shan shu*, meaning 'old creeping mountain tree.'"

40735. "(No. 2260a. Near Paodji, near Siku, Kansu, China. November 6, 1914.) A medium-sized shrub, with small foliage, bearing black berries. Found in stony places at an altitude of 7,000 feet above the sea. Of value as an ornamental garden shrub for cool regions."

40736. *PYRACANTHA CRENULATA* (Don) Roemer.(*Crataegus crenulata* Don.)

"(No. 2261a. Near Yaupuko, near Chenghsien, Kansu, China. October 6, 1914.) A small shrub, with small, orange-colored berries and very small foliage. Found on stony mountain sides. Of value as a very ornamental rockery shrub for those sections of the United States where temperatures do not go down very low. Collected at an altitude of 3,500 feet above the sea."

40677 to 40770—Continued. (Quoted notes by Mr. F. N. Meyer.)

40737. *PYRACANTHA CRENULATA* (Don) Roemer.
(*Crataegus crenulata* Don.)

“(No. 2262a. Near Hweihhsien, Kansu, China. September 26, 1914.) A shrub of medium small dimensions, closely allied to *Pyracantha coccinea*, having small glistening-green foliage and bearing a multitude of bright-red berries. Found in stony places at altitudes between 3,000 and 5,000 feet above the sea. Of value as a very ornamental rockery shrub for those sections of the United States where temperatures do not go down very low.”

40738. *AMPELOPSIS ACONITIFOLIA* Bunge. Vitaceæ.

“(No. 2263a. Near Meihhsien, Shensi, China. September 9, 1914.) A trailing vine, closely resembling *Ampelopsis dissecta*, but with larger leaves and broader winged leaflets. Color of berries dull yellow. Found between stony debris. Of value as a porch and trellis vine, especially for the drier sections of the United States.”

40739. *AMPELOPSIS* sp. Vitaceæ.

“(No. 2264a. Near Nanchichen, near Tsuanchen, Shensi, China. September 5, 1914.) A trailing vine, making long annual shoots, which sprout up from a short woody base or crown; leaves dissected, berries dark violet-black. Found amongst stony debris. Of use as a cover plant for hiding stony and unsightly places; also for planting along terraces.”

40740. *EUPATORIUM* sp. Asteraceæ.

“(No. 2265a. Near Siku, Kansu, China. October 28, 1914.) A small shrub, found on dry, stony places and in dry, pebbly river beds, having masses of flowers, the rays of which are white, while the heart is yellow. Of value as a border and rockery shrub for dry regions. Collected at an altitude of 4,500 feet.”

40741 and 40742. *NICOTIANA* spp. Solanaceæ. Tobacco.

40741. *NICOTIANA TABACUM* L.

“(No. 2266a. Kwatsa, Kansu, China. November 10, 1914.) A variety of tobacco, grown in a semiarid district, at an altitude of 4,000 feet above the sea. To be tested for its nicotine content. Chinese name *Ta ych yen*, meaning ‘large-leaved herb.’”

40742. *NICOTIANA RUSTICA* L.

“(No. 2267a. Near Kanchuan, Kansu, China. October 8, 1914.) A small-leaved, coarse tobacco, much grown in the mountain regions of western China, where it is too cool for the ordinary tobacco to succeed. From its leaves, when pressed into cakes, a finely cut product is made by being planed off, which is smoked in water pipes exclusively. Chinese name *Lan hua yen*, meaning ‘blue-flowered herb.’”

40743. *ABUTILON THEOPHRASTI* Medic. Malvaceæ.
(*Abutilon avicennae* Gaertn.)

“(No. 2268a. Near Nanchichen, near Tsuanchen, Shensi, China. September 5, 1914.) A variety of this well-known fiber plant, with stems of dark-violet color, growing from 8 to 10 feet tall on rich bottom lands. Suggested as a possible paper producer. Chinese name *Pai ma*, meaning ‘white hemp.’”

40677 to 40770—Continued. (Quoted notes by Mr. F. N. Meyer.)

40744. *PSORALEA CORYLIFOLIA* L. Fabaceæ.

"(No. 2269a. Near Kweih sien, Shensi, China. September 11, 1914.) An annual herb, growing from 5 to 8 feet tall, cultivated here and there in patches on rich bottom lands. Said to be utilized for medicinal purposes only, the seeds being ground up and forming the main ingredient in Chinese kidney plasters. Of value possibly as a fodder plant for the warmer sections of the United States. Chinese name *Ku p'u chih*, meaning 'great illness medicine.'"

40745. *ASTRAGALUS* sp. Fabaceæ.

"(No. 2270a. Near Yangsa, near Titaochow, Kansu, China. November 30, 1914.) An annual herb, found among scrub at an altitude of 8,000 feet above the sea, producing much herbage; of value possibly as a forage plant for the cooler sections of the United States."

40746 and 40747. *HEDYSARUM* sp. Fabaceæ.

40746. "(No. 2271a. Near Liang sui, Kansu, near Fenghsien, Shensi, China. October 18, 1914.) A low-growing perennial herb, found in dry places, amidst stony debris, and on decomposed slate rocks. Produces large spikes of beautiful rosy flowers; seed pods slightly spiny. Of value as an ornamental rockery plant for dry regions; also possibly of use as a forage plant."

40747. "(No. 2272a. Near Liangtang, Kansu, China. September 24, 1914.) A semiwoody, small shrub, growing about 2 feet in height, found on loess mountain slopes. Of interest as a possible forage shrub."

40748 and 40749. *MEDICAGO* spp. Fabaceæ.

Alfalfa.

40748. *MEDICAGO SATIVA* L.

"(No. 2273a. Near Titaochow, Kansu, China. December 2, 1914.) An alfalfa, found wild along the Tao River among briers and scrub at an altitude of 7,000 feet above the sea. To be tested in dry northern localities."

40749. *MEDICAGO RUTHENICA* (L.) Trautv.

"(No. 2274a. Near Kiucheng (New Taochow), Titaochow, Chingningchow, etc., Kansu, China. November and December, 1914, and January, 1915.) A small alfalfa, of low, crawling growth, found along embankments and on loess table-lands at altitudes between 7,000 and 10,000 feet above the sea in a semiarid climate. Of value as a pasture plant for dry, highly elevated localities."

40750. *ERODIUM* sp. Geraniaceæ.

Crane's-bill.

"(No. 2275a. Central Shensi, China. September 2 to 18, 1914.) A crane's-bill found along roadsides and on pebbly embankments; of vigorous growth. Of value apparently as a forage plant for the drier sections of the United States. Also to be tested as a winter crop along the Pacific coast."

40751. *LILIUM* sp. Liliaceæ.

"(No. 2276a. Hweih sien, Kansu, China. September 28, 1914.) A lily of robust growth, being from 4 to 6 feet high; leaves large; flowers said to be white with dark spots. Obtained from the garden of the Roman Catholic Mission in Hweih sien; the bulbs originally were collected in the mountains south of Hweih sien."

40677 to 40770—Continued. (Quoted notes by Mr. F. N. Meyer.)

40752. ARTEMISIA sp. Asteraceæ.

“(No. 2277a. Near Liangdjapa. near Siku, Kansu, China. November 19, 1914.) A composite of dense growth, occurring in tufts on stony mountain slopes and amidst decomposed slate débris. Flowers yellow, without rays, produced in dense clumps. Blooming during October and ripening its seeds late in November. Of value as a striking rockery plant for dry regions.”

40753 and 40754. CHRYSANTHEMUM spp. Asteraceæ.

Chrysanthemum.

40753. CHRYSANTHEMUM INDICUM L.

“(No. 2278a. Near Akansan, south of Lanchowfu, Kansu, China. December 6, 1914.) A wild chrysanthemum, found in dry loess cliffs and in pebbly banks, producing masses of yellow flowers. Foliage dissected and of a grayish color. Very variable as regards sizes of flowers, foliage, and general looks. Of value as a striking rockery plant for dry regions.”

40754. CHRYSANTHEMUM MORIFOLIUM (Ramat.) Hemsl.
(*Chrysanthemum sinense* Sabine.)

“(No. 2279a. Near Hwoshanpu, near Lungteh, Kansu, China. January 13, 1915.) A wild chrysanthemum with margueriteliike flowers; of low growth; found on moist mountain slopes at elevations between 7,000 and 9,000 feet above the sea. Of value as a striking rockery plant, needing somewhat moister locations than the preceding numbers [S. P. I. Nos. 40752 and 40753.]”

40755. CERATOSTIGMA PLUMBAGINOIDES Bunge. Plumbaginaceæ.

“(No. 2280a. Near Siku, Kansu, China. November 5, 1914.) A pretty semiwoody perennial with deep-blue flowers; found on dry rocky places and along slate ledges. Of value as a striking rockery plant. Collected at an altitude of 4,500 feet above the sea.”

40756. LIMONIUM sp. Plumbaginaceæ.

“(No. 2281a. Near Tungpu, south of Lanchowfu, Kansu, China. December 5, 1914.) A Statice with lemon-colored flowers and finely dissected foliage, occurring on dry loess cliffs and decomposed rocky ledges; quite ornamental; of value as a striking rockery plant. Collected at an altitude of 5,500 feet above the sea.”

40757. SCOPOLINA TANGUTICA (Maxim.) Kuntze. Solanaceæ.
(*Scopolia tangutica* Maxim.)

“(No. 2282a. Near Taochow, Kansu, China. November 25, 1914.) An interesting solanaceous herbaceous perennial with large and peculiar fringed seed vessels. Apparently of some medicinal virtue. Collected at an altitude of over 9,000 feet above the sea; occurring on waste places.”

40758. HUMULUS LUPULUS L. Moraceæ.

Hop.

“(No. 2283a. Near Chenyatan, near Titaowchow, Kansu, China. December 2, 1914.) Wild hops, occurring in many mountain valleys in Shensi and Kansu. The cones are smaller than in cultivated strains, but they contain a great percentage of lupulin and are very fragrant. Collected at an altitude of over 6,000 feet above the sea.”

40759. SOLANUM MELONGENA L. Solanaceæ.

Eggplant.

“(No. 2284a. Yangpingkwan, Shensi, China. September 10, 1914.) A variety of eggplant, having very large fruits of purplish white color.



WHITE EGGPLANTS (*SOLANUM MELONGENA* L.) FROM CHINA (S. P. I. No. 40759).

Baskets of very large fruits of a variety of eggplant of purplish white color and attractive appearance. In parts of China the eggplant is a very important vegetable. (Photographed by Mr. Frank N. Meyer, at Yangpingkwan, Shensi, China, Sept. 10, 1914; P12203FS.)



THE SMITH BAMBOO GROVE AT BURROUGHS, NEAR SAVANNAH, GA. (*PHYLLOSTACHYS* SP.;
S. P. I. NO. 40842).

A grove of an undetermined species of bamboo which is certainly distinct from either *P. bambusoides* (*P. quiliói*) or *P. pubescens* (*P. mitis*), and which is reported by Mr. S. B. Dayton, who directed our attention to this grove, to have been introduced from India by Mr. Andre Moynelo about 30 years ago. The tallest culms were in 1915 about 55 feet high and 14 $\frac{3}{4}$ inches in circumference, and the grove covers an area of about an acre. The young shoots of this bamboo have been cooked as a vegetable and found to have an excellent flavor and texture. The late Allen Groves is standing among the trees. (Photographed by Mr. Peter Bisset, Burroughs Station, Ga., July 28, 1915; P14013FS.)

40677 to 40770—Continued. (Quoted notes by Mr. F. N. Meyer.)

Grown under irrigation on rich flats along the Wei River. A good market variety apparently."

For an illustration of these eggplants, see Plate V.

40760. SOLANUM MELONGENA L. Solanaceæ. Eggplant.

"(No. 2285a. Paihsiangchen, Shansi, China. August 10, 1914.) A variety of eggplant with medium-large fruits of pure white color. Chinese name *Pai ch'ieh tzü*, meaning 'white egg fruit.'"

40761. CAPSICUM ANNUM L. Solanaceæ. Red pepper.

"(No. 2286a. Shensi Province, China. September, 1914.) Mixed varieties of chili peppers, much grown for condiments and used with every meal, taking the place apparently of meats and gravies with the Chinese country population."

40762. CUCUMIS SATIVUS L. Cucurbitaceæ. Cucumber.

"(No. 2287a. Sianfu, Shensi, China. August 22, 1914.) A variety of cucumber of oblong, heavy shape, generally ribbed, able to stand more drought and heat than ordinary cucumbers, but not as fine in quality, having greater seed cavities. Chinese name *Ts'ai kua*, meaning 'vegetable gourd.'"

40763. CITRULLUS VULGARIS Schrad. Cucurbitaceæ. Watermelon.

"(No. 2288a. Lanchowfu, Kansu, China. December 28, 1914.) A watermelon, said to be large and very sweet, having dark-red flesh and white seeds. Grown at Chungkwanying, to the north of Lanchowfu. Obtained from Father C. Coppisters, of the Belgian Roman Catholic Mission at Lanchowfu. To be tested in semiarid localities."

40764. CUCUMIS sp. Cucurbitaceæ.

"(No. 2289a. Near Meihsien, Shensi, China. September 9, 1914.) A cucurbit of trailing growth, occurring as a weed in fields. Apparently a primitive form of melon, presumably of botanical interest."

40765. CAPRIOLA DACTYLON (L.) Kuntze. Poaceæ. Bermuda grass.
(*Cymodon dactylon* Pers.)

"(No. 2290a. Near Madjakey, near Chiehchow, Kansu, China. October 10, 1914.) A grass of very low growth, with running rhizomes found amidst stony débris and on pebbly and sandy wastes along mountain streams, forming a dense mat of turf. Of value apparently as a lawn grass for sandy locations. Does not require any mowing."

40766 and 40767. IRIS ENSATA Thunb. Iridaceæ. Iris.

40766. "(No. 2291a. Near Taipintze, near Taochow, Kansu, China. November 29, 1914.) An Iris of very low growth, found along roadsides at altitudes of 10,000 feet above the sea. Of value as a very hardy herbaceous perennial to line paths and flower beds in parks and gardens in dry and cold localities."

40767. "(No. 2292a. Pingliang, Kansu, China. January 16, 1915.) A low-growing Iris, somewhat more vigorous than the preceding number; otherwise the same remarks apply to it. This Iris is so hardy that frequently cart and mule traffic over it does not destroy it at all, but only stunts the plants somewhat."

40768. ROSA BANKSIAE NORMALIS Regel. Rosaceæ. Rose.

"(No. 2293a. Near Chenghsien, Kansu, China. September 30, 1914.) A wild rose, of very vigorous growth, found as big clumps amidst scrub

40677 to 40770—Continued. (Quoted notes by Mr. F. N. Meyer.)

or as solitary specimens in stony places. Makes long annual shoots, which lean over in a characteristic way. Of value possibly as a stock and as a factor in hybridization experiments. Collected at an altitude of 3,000 feet above the sea."

40769. CITRULLUS VULGARIS Schrad. Cucurbitaceæ. **Watermelon.**

"(No. 2294a. Peking, China, March 20, 1915.) Mixed varieties of watermelons, which are grown for their seeds only. These seeds sell on the Peking market at 12 to 14 dollars Mexican silver per 125 pounds. To be tested in semiarid localities. Chinese name *Ta kua*, meaning 'big gourd.'"

40770. INDIGOFERA sp. Fabaceæ.

"(No. 2295a. Near Tanchang, Kansu, China. November 20, 1914.) A small shrub, occurring on stony places, having small racemes of rose-colored flowers; foliage slightly tomentose. Of use as a rockery shrub for dry regions."

40771. HELIOTROPIMUM CURASSAVICUM L. Boraginaceæ.**Beach heliotrope.**

From Kingston, Jamaica. Presented by Mr. W. Harris, superintendent. Hope Gardens. Received May 17, 1915. Introduced for the studies of Prof. J. C. Arthur, of Purdue University.

Plants.

40772. CITRUS GRANDIS (L.) Osbeck. Rutaceæ. **Pummelo.**

(*Citrus decumana* Murr.)

From Peking, China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received May 11, 1915.

"(No. 2296a. March 20, 1915.) A very large pummelo, of pearlike shape; rind very heavy; segments separating easily; flesh dry and sweet, containing many seeds. A dessert fruit in a class by itself." (Meyer.)

40773. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**

(*Sorghum vulgare* Pers.)

From the Seychelles Islands. Presented by Mr. P. Rivaly Dupont, curator, Botanic Station. Received May 19, 1915.

"Wild sorghum from Anse aux Pins, growing in a cemetery." (Dupont.)

40774. BELOU MARMELOS (L.) Lyons. Rutaceæ. **Bael fruit.**

(*Aegle marmelos* Corr.)

From Kandawglay, Rangoon, India. Presented by Mr. J. Gibbons, superintendent, Agri-Horticultural Society of Burma. Received May 19, 1915.

"These seeds are from very good fruits and are quite fresh." (Gibbons.)

See S. P. I. No. 38664 for previous introduction and description.

40775. SOLANUM TUBEROSUM L. Solanaceæ. **Potato.**

From Guayaquil, Ecuador. Presented by Mr. Frederick W. Goding, American consul general. Received May 17, 1915.

"Violet-colored potatoes from Ecuador." (Goding.)

40776 to 40782.

From Nice, France. Presented by Dr. A. Robertson Proschowsky. Received May 15, 1915. Quoted notes by Dr. Proschowsky, except as otherwise indicated.

40776. *ALBIZZIA MOLUCCANA* Miq. Mimosaceæ.

For previous introduction and description, see S. P. I. No. 25783.

40777. *ALPINIA NUTANS* (L.) Roscoe. Zinziberaceæ. **Shell flower.**

"A magnificent ornamental plant, quite hardy here."

"Striking plant, reaching 10 to 12 feet, with long lanceolate, glabrous, long-veined leaves; flowers orchidlike, yellow with pink, sweet scented, in a long drooping terminal spikelike raceme. Fine for foliage masses and an old favorite. Said to grow 20 feet high in southern California in rich soil with plenty of water and to bloom continuously." (*Bailey, Cyclopedia of Horticulture, vol, 1, p. 265.*)

40778. *AMERIMNON SISSOO* (Roxb.) Kuntze. Fabaceæ.

(*Dalbergia sissoo* Roxb.)

"A deciduous tree of the sub-Himalayan tracts from the Indus to Assam, ascending to 3,000 feet, but probably nowhere in India, strictly speaking, indigenous. Gamble remarks that it is often, however, gregarious on the banks of sandy, stony, torrential rivers. On higher lands it may grow and grow well, though not gregariously unless planted. Cultivated and often self-sown on the plains of India. But even when the trees are growing close together the shade given is light; hence sissu is an important shade tree with tea planters of Dehra Dun. The seed on germinating at once makes a great length of root compared to its growth above ground, a circumstance that greatly minimizes the chance of its being swept away when spontaneous germination takes place within the sandy and stony beds of rivers. Sissu coppices well and reproduces itself freely from suckers. Artificially it is best grown from seed deposited in suitable positions, because transplantation is sometimes difficult and the young trees have to be protected till fairly established. It grows most luxuriantly on low-lying sandy tracts and has been successfully raised on irrigated lands. But it is reputed that the timber of trees raised under irrigation is of poor quality and subject to serious damage by fungi. When young the growth of sissu is very quick; it is said to attain a 2½-foot girth in 12 years, but as it gets older its growth gets slower. The full height of a tree is about 60 feet or so, and in girth it is rarely more than 6 feet. It is very successfully grown in Sind, and is said to be the best hardwood of the Punjab.

"The wood is very durable, seasons well, and does not warp or split. It is highly esteemed for all purposes where strength and elasticity are required, as, for example, agricultural implements, wheelwrights' work, frames of carriages, boat building, etc. At one time it was extensively employed for gun carriages, but owing to the limited supply of the timber it is now very little used for that purpose. It is one of the finest timbers in India for furniture and wood carving, and is in regular demand all over the north of India. In Upper India the shisham wood (*Dalbergia sissoo*) replaces very largely the rosewood (*D. latifolia*) of western and southern India. It attains its position of greatest importance in the United Provinces, the Central Provinces, and the Punjab, being replaced on the north by deodar and to the south by sal and rosewood. The wood

40776 to 40782—Contd. (Quoted notes by Dr. A. R. Proschowsky.)

carving of Seharunpur, Farakhabad, Lucknow, and Nagpur and the inlaid work of Chiniot, Hosiarpur, Jallandhar, and Mainpuri are largely on shisham. In Rajputana, also, this wood is to a considerable extent employed by the wood carvers, but for particulars of the methods of treatment and styles of carving the reader should consult *Indian Art at Delhi, 1903* (pp. 103, 108-9). Owing to the fact that the sissu very rarely grows straight, the timber is not of much use for beams, though it is in much demand for knees of boats. It has been successfully tried for railway sleepers; it is an excellent fuel and makes very good charcoal, but it is too expensive to be utilized for these purposes. The wood is said to yield an empyreumatic medicinal oil, and the raspings of the wood are officinal, being regarded as alterative. Near towns the trees are largely lopped for fodder, and the fallen leaves collected and valued as fuel by the sweetmeat makers." (*Watt, The Commercial Products of India, p. 485-486.*)

40779. ANNONA CHERIMOLA Miller. Annonaceæ. **Cherimoya.**

"Quite hardy here and therefore wonderfully useful as a stock upon which to graft good varieties."

40780 and 40781. COCOS ODORATA Barb. Rodr. Phœnicaceæ.

40780. "Selected from the very best of the fruits." Received as *Cocos capitata*.

40781. "Edible and of pleasant taste but many fibers. There should be little doubt that by selection better fruits could be obtained."

40782. SANTALUM ALBUM L. Santalaceæ. **Sandalwood.**

See S. P. I. Nos. 6449 and 8679 for description.

"A small evergreen tree met with in the very dry regions of South India and in North India chiefly as a cultivated plant. It affects open forest lands with grass and patches of other trees, usually frequenting red or stony soils. It is a root parasite on a long series of host plants and hence apparently the difficulties experienced in systematic plantations where provision has not been made for this requirement. On rich soil the plant grows well, but the wood is deficient in odour, consequently inferior commercially. Lushington and other officers of the Forest Department have devoted much careful study to the cultivation of sandal, more especially in relation to the production of the maximum percentage of rich-scented wood. Lushington observes: 'On the whole I am inclined to think that the best way of aiding the reproduction of sandalwood artificially is to increase the scrub, and this is best effected by merely keeping out fire and grazing. As soon as the scrub reaches 2 or 3 feet sandal reproduces naturally from seed dropped by birds, and this may perhaps be further assisted by dibbling.' Rama Rao urges that weeding is dangerous and that only surface pruning when the scrub becomes too dense should be indulged in. Lushington mentions 8 inches' growth in girth per ten years as a safe average and the exploitable age of the tree as forty years, the minimum size being then 32 inches at 4½ feet from the ground." (*Watt, Commercial Products of India, p. 976.*)

40783 and 40784. CUCUMIS SATIVUS L. Cucurbitaceæ.**Cucumber.**

From Seharunpur, India. Presented by Mr. A. C. Hartless, superintendent, Government Gardens. Received May 19, 1915. Quoted notes by Mr. Hartless.

40783. "This is a variety of the common cucumber of dwarf bushy habit, producing an egg-shaped fruit, dark green and more or less mottled with white markings when young and of the same rusty brown color when ripe. Although not the gherkin of the West Indies, familiar to most persons in its pickled state, its fruit resembles that of the latter; hence its Anglo-Indian appellation. Like the common climbing cucumber, it will succeed in any good soil, but it requires more aid from manure than the former to bear abundantly. When preparing the ground for the reception of the seed, it should therefore be liberally enriched with manure of the farmyard class, then laid out in ridges 6 inches high and 15 inches apart, and the seeds sown along the two sides of the ridges at 3 or 4 inches asunder. The furrows between the ridges should be watered every fourth or fifth day, and the soil stirred and loosened at every opportunity. As the plants yield the immature fruit required at table for only a limited period of time, sowings should be made at intervals of a fortnight from the beginning of March to the end of May. This variety of cucumber is a purely hot-weather crop and does not succeed if sown during the rainy season."

40784. "Long green; rainy season."

40785 to 40787.

From Tiflis, Caucasus, Russia. Presented by the director, Botanic Gardens. Received May 10, 1915.

40785. MESPIL GERMANICA L. Malaceææ.

Medlar.

(*Pyrus germanica* Hook. f.)

See S. P. I. Nos. 8298, 27702, and 29197 for previous introductions and description.

"A low deciduous tree of crooked, picturesque habit, usually under 20 feet high; young branchlets very hairy, older ones armed with stiff, straight spines one-half to 1 inch long. Leaves almost without stalks, lanceolate or oval, 2 to 5 inches long, minutely toothed, downy on both surfaces, but more so beneath. Flowers solitary at the end of short leafy branches; about 1 inch across, white or slightly pink, produced on a very short woolly stalk, in May or early June. Petals five, roundish; sepals covered with gray wool, triangular at the base, drawn out into a long, narrow point standing out beyond the petals. Fruit 5 celled, apple shaped, brown, with a broad open eye, surrounded by the persistent calyx, and showing the ends of the bony seed vessels. The wild medlar is a native of Europe and Asia Minor, and is found wild in the woods of several counties in the south of England, notably Sussex and Kent, but it is not believed to be truly indigenous. It has long been cultivated for its fruit in English orchards, and several named varieties exist. The cultivated forms are distinguished by thornless or nearly thornless branches, by larger, broader leaves, and by larger fruits, up to 1½ or 2 inches across. Although much esteemed by those who have acquired the taste for them, medlars are not a popular fruit. They should be left on

40785 to 40787—Continued.

the tree until the end of October or later, then stored in a fruit room until they are 'bletted,' a term given to indicate a state of incipient decay. A jelly made from the fruits meets a more general taste. The medlar is most closely allied to *Crataegus*, differing in the solitary flower, etc. It is very hardy, and not particular as to soil." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 81.*)

40786. *PRUNUS SPINOSA* L. Amygdalaceæ. Plum.

See S. P. I. No. 38426 for previous introduction and description.

40787. *RUBUS ULMIFOLIUS* Schott. Rosaceæ.

"A vigorous shrub whose more or less plum-colored, arching stems are clothed with starry down and armed with long, broad-based prickles; they root freely at the tips. Leaves composed of three or five leaflets radially arranged, which are slightly downy above but white-felted beneath, rather finely toothed. Flowers bright rosy red, and produced in showy, cylindrical panicles. This well-marked species is of little value as a fruiting bramble, its berries being small and dryish, but from it several ornamental garden varieties have been obtained. It is widely spread over the United Kingdom (except Scotland) and Europe generally." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 470.*)

40788 to 40797.

From Lima, Peru. Procured from Senor J. A. MacKnight, director, Escuela Normal de Varones. Received May 18, 1915. Quoted notes by Mr. MacKnight.

40788 to 40790. *SOLANUM TUBEROSUM* L. Solanaceæ. Potato.

40788. Lot 1. 40790. Lot 3.

40789. Lot 2.

40791 to 40796. *ULLUCUS TUBEROSUS* Caldas. Basellaceæ. Oca.

40791. Lot 1. "Yellowish white with red spots, fine quality."

40792. Lot 2. "Mottled, white and red, fine quality."

40793. Lot 3. "Yellowish, fine quality."

40794. Lot 4. "Mottled, round, fine quality."

40795. Lot 5. "Red, fine quality."

40796. Lot 6. "Greenish, fine quality."

Tubers.

40797. *CHENOPODIUM QUINOA* Willd. Chenopodiaceæ. Quinoa.

"Of a very fine quality."

40798 to 40802.

From Albano, Stockholm, Sweden. Presented by the director, Botanic Garden. Received May 10, 1915.

40798 to 40800. *LATHYRUS* spp. Fabaceæ.

Introduced for the breeding experiments of Mr. David Burpee.

40798. *LATHYRUS CICERA* L. Everlasting pea.

Stems usually prostrate or ascending, up to 2 dm. (8 inches) long, slightly winged, glabrous. Leaves with small winged petioles and one pair of leaflets; the upper with simple undivided tendrils, half as long as the leaflets; the lower not cirrose. Leaflets of the lower

40798 to 40802—Continued.

leaves elongate-elliptic, obtuse; those of the upper larger, lanceolate, short mucronate, from less than 1 cm. to about 9 cm. long, 4 to 10 mm. broad. Stipules large, about as long or slightly longer than the petiole, lanceolate, semisagittate. Inflorescence 1 flowered. Flowers up to 1 cm. long, erect or nodding. Petals dull red, of varying length. Standard obovate, emarginate, brown veined, seldom clear, longer than the wings; these longer than the keel. Keel whitish, dull violet on the tip. Europe. (Adapted from *Ascherson and Graebner, Synopsis der Mitteleuropäischen Flora, vol. 6, p. 1006, 1910.*)

40799. LATHYRUS PISIFORMIS L.

See S. P. I. No. 32192 for previous introduction and description.

40800. LATHYRUS SPATHULATUS Celak.

Glabrous plants with ascending, sharply angled stems. The lower stems leafless, the upper remotely leaved. Leaves subdigitate, quaternate, short petioled. Leaflets narrowly linear-lanceolate, mucronate-acuminate, short subciliolate. Stipules narrowly linear, semisagittate, longer than the short petioles. Petioles slender, elongated, much exceeding the leaves, loosely 5 to 8 flowered. Corolla blue; standard obovate-obtuse, much longer than the keel; keel obtuse, not bearded; wings covering and exceeding the keel. (Adapted from *Celakovsky, Oesterreichische Botanische Zeitschrift, vol. 38, p. 6, 1888.*)

40801 and 40802. OENOTHERA spp. Onagraceæ.

Introduced for the work of Mr. H. H. Bartlett in plant breeding.

40801. OENOTHERA ODORATA Jacq.

Evening primrose.

40802. OENOTHERA PUMILA L.

Small sundrop.

40803. LATHYRUS CYANEUS (Stev.) C. Koch. Fabaceæ.

From Paris, France. Presented by Prof. Julien Costantin, Musée d'Histoire Naturelle. Received May 10, 1915. Introduced for the breeding experiments of Mr. David Burpee.

This plant is similar to *L. sessilifolius*, but the leaves are more distinctly nerved. The standard is twice longer than the calyx (subequal in *L. sessilifolius*.) The calyx is larger and more retuse at the base. Keel less acuminate. Color of the flowers more intensely blue, with slighter tendency toward purple. The four leaflets are ensiform. (Adapted from *Steven, in Mémoires de la Société des Naturalistes de Moscou, vol. 4, p. 91, 1913.*)

40804. RAPHA TAEDIGERA Martius. Phœnicaceæ.

Palm.

From San Jose, Costa Rica. Presented by Mr. J. E. Van der Laet, director, Department of Agriculture. Received May 4, 1915.

"Seeds proportionately oily and resinous, so that they have commanded the attention of certain industries in North America." (*Van der Laet.*)

One of the most striking palms which grow in the rich alluvial bottoms along the lower Amazon River. The trunk does not exceed 6 or 8 feet in height and is about a foot in diameter, clothed for the most part with the persistent sheathing bases of the leafstalks. The leaves are feather shaped and are among the largest in the vegetable kingdom, some of them reaching 40 to 50 feet in length and covering a surface of more than 200 square feet. The flowers are of a greenish olive color and densely crowded, and the fruit is about the size of a hen's egg or smaller and is covered with large scales. The leafstalk is 12 to 15 feet long and

4 or 5 inches in diameter, and the smooth glossy rind is split off and used for making baskets and window blinds. The inner portion is used for making shutters, boxes, partitions, and even entire houses. The seed kernels are extremely hard and are said to be suitable for the manufacture of buttons. This palm also grows abundantly in the low marshy lands in the Atlantic coast region of Costa Rica, where it is called *Yolillo*. In the Amazon region it is called *Jupati*. (Adapted from *Martius, Histoire Naturelle des Palmiers vol. 3, p. 217, 1833-1850.*)

40805. COLOCASIA ESCULENTA (L.) Schott. Araceæ.

From Yokohama, Japan. Purchased from the Yokohama Nursery Company.
Received May 13, 1915.

"*Yatsu gashira.*"

"Said by Hon. T. H. Kuwashima, of Tokyo, to be similar in quality to the Trinidad dasheen." (*Fairchild.*)

Received as *Colocasia multiflora*, which seems to be only a trade name.

40806. AMYGDALUS PERSICA L. Amygdalaceæ. Peach.
(*Prunus persica* Stokes.)

From Arequipa, Peru. Presented by Mr. Leon Campbell, through Mr. W. F. Wight, of the Bureau of Plant Industry, for breeding work in Texas.
Received May 24, 1915.

"Peaches grown from seed and brought into the market by the Indians. Many of them are of excellent quality, and some may prove well adapted to regions susceptible to drought periods and also to regions of extreme heat." (*Wight.*)

40807. AMYGDALUS PERSICA L. Amygdalaceæ. Peach.
(*Prunus persica* Stokes.)

From Concepcion, Chile. Presented by Mr. G. F. Arms, through Mr. W. F. Wight, of the Bureau of Plant Industry, for breeding work in Texas.
Received May 24, 1915.

"Three varieties which were mixed by a servant while drying them." (*Arms.*)

"Peaches in Chile are grown very largely from seed and are of high quality. This lot was obtained in the market of Concepcion and had been grown without irrigation. Will probably prove of value in dry regions." (*Wight.*)

40808. CORNUS MACROPHYLLA Wallich. Cornaceæ.

From Yokohama, Japan. Purchased from the Yokohama Nursery Company.
Received May 22, 1915.

"A deciduous tree, 30 to 50 feet high; young shoots smooth or nearly so. Leaves opposite, ovate to roundish or oblong, the base rounded or tapering, the apex with a slender, often taillike point; 4 to 7 inches long, 2 to 3½ inches wide; bright green, and soon becoming smooth above; glaucous beneath, and at first clothed with pale, flattened, minute hairs attached at their middle; veins in six to eight pairs; stalks one-half to 1¼ inches long. Flowers yellowish white, numerous, produced in terminal, somewhat rounded cymes 4 to 6 inches across; each flower one-half inch diameter; petals oblong; calyx minutely toothed, grey with minute down. Fruit globose, one-fourth inch diameter, blue when ripe. Blossoms during July and August. Native of the Himalayas, whence it was introduced in 1827, China, and Japan. It is a handsome and striking

small tree, chiefly noteworthy for its fine foliage; the flowers, although profusely borne, are of too dull a white to be very effective. There is a tree approaching 40 feet in height in Coombe Wood nursery. Much confusion has existed between this species and *C. controversa* which, although an alternate-leaved species, has long been known on the Continent as *C. macrophylla*." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 390.*)

See S. P. I. Nos. 13994, 13995, and 21971 for previous introductions.

40809. CITRULLUS VULGARIS Schrad. Cucurbitaceæ.

Watermelon.

From Canton, China. Presented by Prof. G. W. Groff, Canton Christian College, through Mr. F. D. Cheshire, consul general. Received May 24, 1915.

"Obtained in March from a melon of the red variety, grown at Nanhsiung, North River, Kwangtung Province." (*Groff.*)

40810 to 40815.

From Petrograd, Russia. Presented by the director, Imperial Botanic Garden. Received May 21, 1915.

40810 to 40813. LATHYRUS spp. Fabaceæ.

Introduced for the breeding experiments of Mr. David Burpee.

40810. LATHYRUS ANNUUS Hoejer.

Stalks glabrous, prostrate, winged, 2 to 7 dm. long. Leaves with broadly winged petioles. Leaflets 3 to 4 times as long as the petioles, lanceolate, short acuminate. Stipules small, semisagittate, not as long as the petiole. Petals yellow, often reddish on the edges. Standard striped with brown. Keel greenish white. (Adapted from *Ascherson and Graebner, Synopsis der Mitteleuropäischen Flora, vol. 6, pt. 2, p. 1004.*)

40811. LATHYRUS sp.

40812. LATHYRUS sp.

This species was received as *L. lusitanicus* Mart., a name which has not yet been found in the literature of this group.

40813. LATHYRUS PISIFORMIS L.

See S. P. I. Nos. 32192 and 40799 for previous introductions and description.

40814. PAEONIA ANOMALA L. Ranunculaceæ.

Var. *beresowskii* Komar.

40815. PRUNUS PROSTRATA Labill. Amygdalaceæ.

Bush cherry.

See S. P. I. Nos. 28945 and 37642 for previous introductions and description.

40816 to 40823. CERATONIA SILIQUA L. Cæsalpiniaceæ. Carob.

From Valencia, Spain. Presented by Mr. Claude I. Dawson, American consul. Cuttings received May 24, 1915.

40816. "Matalafera."

See S. P. I. Nos. 30914 and 35239 for previous introductions and description.

40816 to 40823—Continued.**40817.** "*Casuda.*"

See S. P. I. Nos. 30915 and 35238 for previous introductions and description.

40818. "*Roja Vera.*"

See S. P. I. Nos. 30918 and 35245 for previous introductions and description.

40819. "*Macho de Flor Colorada.* Red-flowered male."

See S. P. I. Nos. 30916 and 35230 for previous introductions and description.

40820. "*Macho de Flor Amarilla.* Yellow-flowered male."

See S. P. I. Nos. 30917 and 35242 for previous introductions and description.

40821. "*Vera.*"

See S. P. I. No. 35240 for previous introduction.

40822. "*Flor de Altramuz.*"

See S. P. I. No. 35244 for previous introduction.

40823. "*Roja Vera.*"

See S. P. I. Nos. 30918 and 35245 for previous introductions and description.

40824. CITRUS HYSTRIX DC. Rutaceæ.**Wild orange.**

From Tutuila, American Samoa. Presented by the governor of American Samoa, through Mr. W. E. Safford, of the Bureau of Plant Industry. Received June 2, 1915.

"Collected April, 1915. Seeds of the wild orange of Samoa, *Citrus hystrix* DC. (*Citrus aurantium saponacea* Safford, Contr. U. S. National Herb., vol. 9, p. 226, 1905), called *moli* or *moli vao* (forest moli) or *moli u'u* (anointing moli) by the natives, who use it for washing. On account of its use as a detergent the name *moli* is applied by the Samoans to soaps of all kinds. The *moli vao* is a thorny tree growing spontaneously in the forests of Samoa, where it was undoubtedly established in prehistoric times. It also occurs in Fiji, and bears the same common name there. The glossy dark-green leaves have a crenate margin and a very broadly winged petiole, sometimes almost as large as the leaf itself. The flowers occur in axillary or terminal clusters. The smooth spheroid fruit is usually greenish yellow or lemon colored. The pulp is pleasantly aromatic, but not edible. It leaves a peculiar fragrance in the hair when used as a shampoo, and the natives say that it prevents dandruff and stimulates the growth of the hair. They make an infusion of the scraped bark of the tree as a remedy for pectoral affections and use a hot decoction of the leaves for asthma. This species is introduced as a possible stock for other less robust species of *Citrus*." (*Safford.*)

40825 to 40827.

From Buitenzorg, Java. Presented by the director, Botanic Garden. Received June 2, 1915.

40825. ARTOCARPUS INTEGRÆ (Thunb.) L. Moraceæ.**Jack fruit.**

(*Artocarpus integrifolia* L.)

See S. P. I. Nos. 27170 and 38890 for previous introductions and description.

40825 to 40827—Continued.

40826. *DURIO ZIBETHINUS* Murray. *Bombacaceæ.* **Durian.**

See S. P. I. Nos. 28082, 34073, 37103, and 39709 for previous introductions and description.

40827. *CANARIUM INDICUM* Stickman. *Balsameaceæ.*
(*Canarium commune* L.)

See S. P. I. Nos. 20808, 21280, and 25684 for previous introductions and description.

"A large, handsome Malayan tree, characterized by a remarkable buttressed trunk and laterally compressed aerial basal roots; the latter develop enormous erect flanges of uniform thickness, so that solid circular pieces may occasionally be cut out from them to form ready-made cart wheels. The tree is much cultivated for shade or ornament in Java. It bears in great abundance large pendent clusters of dark-purple fruits, which are of the size of small plums; these are produced all the year round, but chiefly in June. The kernel of the fruit is edible, being similar in flavor to sweet almonds; it yields by expression an oil used for burning in lamps and for cooking purposes. A desirable tree for planting in avenues, etc. It thrives in hot and moist districts up to about 1,500 feet elevation and prefers deep, well-drained soil. Propagated by seed, which may be sown in nursery beds and kept moist and shaded until germinated." (*MacMillan, Handbook of Tropical Gardening and Planting.*)

40828 and 40829.

From Japan. Presented by Mr. Risaburo Ota, Hamamatsu, Shizouka Ken, Japan. Received May 28, 1915.

40828. *CUCUMIS SATIVUS* L. *Cucurbitaceæ.* **Cucumber.**

"A fine Japanese cucumber."

40829. *CUCURBITA PEPO* L. *Cucurbitaceæ.* **Squash.**

"*Chirimen.* A squash from Japan of very fine quality."

See S. P. I. Nos. 25594 and 26427 for previous descriptions.

40830. *MALUS SYLVESTRIS* Miller. *Malaceæ.* **Apple.**

From Angol, Chile. Presented by Mr. Manuel V. Bunster. Received May 29, 1915.

"Seeds of our *Huidobro* apple, which is quite as resistant to the woolly aphid as your *Northern Spy*. This apple is sweet and pleasant to eat and is esteemed by Chileans, but, nevertheless, to my taste, it can not compete with the *Newtown*, *Baldwin*, *Northern Spy*, or any other first-class European or American apple. These seeds have been extracted from picked apples, and you will find them very plump. This apple is ideal for those people who are too lazy to spray the trees. They bear early and heavily." (*Bunster.*)

40831. *MACADAMIA TERNIFOLIA* F. Mueller. *Proteaceæ.*

Queensland nut.

From Sydney, New South Wales. Purchased from Anderson & Co. Received at the Plant Introduction Field Station, Chico, Cal., May 29, 1915.

See S. P. I. Nos. 18382, 33912, and 34437 for previous introductions and description.

40832. HOLCUS SORGHUM VERTICILLIFLORUS (Steud.) Hitchcock.
Poaceæ. Sorghum.

From Pretoria, Union of South Africa. Presented by Mr. I. B. Pole Evans, Department of Agriculture, Pretoria, through Mr. C. V. Piper, of the Bureau of Plant Industry. Received June 7, 1915.

Collected at our station at Tzaneen in northern Transvaal. (*Pole Evans.*)

40833. PERILLA FRUTESCENS (L.) Britton. Menthaceæ.
 (*Perilla ocymoides L.*)

From Yokohama, Japan. Purchased from the Yokohama Nursery Co. Received June 3, 1915.

See S. P. I. Nos. 22419, 27558, and 30298 for previous introductions and description.

40834. JUGLANS PORTORICENSIS Dode. Juglandaceæ.
Porto Rican walnut.

From Porto Rico. Presented by Mr. D. W. May, Agricultural Experiment Station, Mayaguez. Received June 5, 1915.

See S. P. I. No. 40236 for previous introduction and description.

40835 and 40836. ANNONA spp. Annonaceæ.

From Cajabon, Guatemala. Presented by Mr. W. E. Curley, at the request of Mr. O. F. Cook, of the Bureau of Plant Industry. Received June 3, 1915.

40835. ANNONA SCLERODERMA Safford. Custard-apple.
 "*Pox-te.*"

See S. P. I. No. 40805 for previous introduction and description.

40836. ANNONA RETICULATA L. Custard-apple.
 "*Red pox.*"

40837. PASSIFLORA LAURIFOLIA L. Passifloraceæ. Passion fruit.

From Honolulu, Hawaii. Presented by Mr. Garret P. Wilder. Received May 29, 1915.

"This strong-growing, glabrous vine, climbing by tendrils, is a native of tropical America and known there as the *yellow water-lemon*. The date when it was introduced to Hawaii and by whom is not known, but in the Hilo and Hamakua districts of Hawaii this variety grows wild. Its thick leaves are oval, oblong, and entire, and have a short, sharp point. The flowers are about 2½ inches across, are white with red spots on them. The fruit is slightly oblong, 2 inches in diameter, and very regular in size and shape. When ripe, it is yellow, spotted with white. It has a medium-hard shell or skin, and the edible pulp is whitish yellow and contains many flat, black seeds." (*G. P. Wilder, Fruits of the Hawaiian Islands, p. 214.*)

40838. CEDRELA ODORATA L. Meliaceæ. Cedro.

From Santiago de las Vegas, Cuba. Presented by Mr. J. T. Crawley, director, Agricultural Experiment Station, at the request of Mr. H. A. Van Hermann. Received June 1, 1915.

See S. P. I. Nos. 11769 and 26178 for previous introductions and description.

40839. (Undetermined.)**Monkey bread.**

From Mt. Coffee, Liberia. Presented by Mr. Henry O. Stewart. Received June 1, 1915.

40840. BRASSICA PEKINENSIS (Lour.) Skeels. Brassicaceæ.**Pe-tsai.**

From Chefoo, China. Presented by Mr. A. Sugden, Commissioner of Chinese Customs, through Mr. John F. Jewell, American consul. Received May 27, 1915.

"Shantung cabbage."

40841. TELOPEA SPECIOSISSIMA (Smith) R. Brown. Proteaceæ.**Waratah.**

From Lawang, Java. Presented by Mr. M. Buysman, Botanic Garden. Received June 1, 1915.

See S. P. I. Nos. 15696 and 40064 for previous introductions and description.

"Although this beautiful and very uncommon evergreen shrub was introduced from the Blue Mountains of New South Wales as long ago as 1789, it has been seen very rarely in flower in England. The deep-crimson, tubular flowers are about 1 inch long, and are borne in a dense globular head surrounded by an involucre of ovate-lanceolate blood-red bracts, each measuring from 2 to 3 inches in length. The firm leathery leaves are cuneate-oblong in shape and measure about 6 inches long by 1½ inches broad. They are toothed in the upper part and are dark green above and paler below." (*Proc. Royal Hort. Soc., vol. 40, p. 130, 1915.*)

40842. PHYLLOSTACHYS sp. Poaceæ.**Bamboo.**

From Burroughs, Ga. Plants secured by Mr. Edward Simmonds, through Mr. S. B. Dayton, Savannah, Ga. Received June 5, 1915.

"From J. T. Smith's place, Burroughs, Ga. A bamboo reported to have been brought from India in 1890 and planted near Savannah, where it attains a height of at least 50 feet and a diameter of 3 inches." (*Dayton.*)

For an illustration of the Smith bamboo grove, see Plate VI.

40843. PASSIFLORA ALATA Curtis. Passifloraceæ. Passion fruit.

From Honolulu, Hawaii. Presented by Mr. Garret P. Wilder. Received June 9, 1915.

"This is a strong, vigorous vine, very suitable for arbors and trellises. It is not commonly found in Hawaii; however, a very fine specimen of its kind is growing in Dr. St. D. G. Walter's garden in Honolulu. The leaves are oval to ovate, the petioles having two glands. The fragrant purple flowers are about 2 inches in diameter. The ovoid-pointed fruit has a tough, leathery shell, which, when green, is 6 striated, with white stripes; when quite ripe the fruit is a dull orange-yellow. The numerous seeds are imbedded in the juicy, scented pulp, which is aromatic and delicious. Propagation is by seed and by cuttings." (*G. P. Wilder, Fruits of the Hawaiian Islands.*)

40844 and 40845.

From Johannesburg, Union of South Africa. Presented by Mr. J. Burt Davy, botanist, Agricultural Supply Association. Received June 7, 1915.

40844. CLEMATIS STANLEYI Hooker. Ranunculaceæ. Clematis.

"An erect, robust herb, 3 feet in height with biternate, silky, wedge-shaped leaves and large white to pink-purple flowers, 1 to 3 inches across." (Davy.)

40845. PROTEA sp. Proteaceæ.

40846 and 40847. PHASEOLUS LUNATUS L. Fabaceæ.

Madagascar butter bean.

From Marseille, France. Presented by Dr. E. Heckel, Colonial Institute, through the American consul general. Received May 29, 1915.

40846. "Speckled with red." **40847.** "White."

40848. HOLCUS SORGHUM L. Poaceæ.

Sorghum.

(*Sorghum vulgare* Pers.)

From the Seychelles Islands. Presented by Mr. P. Rivaly Dupont, curator, Botanic Station. Received June 22, 1915.

"Seeds of wild sorghum collected at Anse aux Pins, Mahe, Seychelles. The three species got mixed while drying." (Dupont.)

40849. MISANTECA TRIANDRA (Swartz) Mez. Lauraceæ.

(*Acrodictidium jamaicense* Nees.)

From Miami, Fla. Presented by Mr. D. Sturrock. Received June 12, 1915.

"A tall ornamental and shade tree with flaky bark and dense lustrous foliage; leaves elliptic-oblong. Native of the Antilles. Does well in southern Florida." (Sturrock.)

"This species has the foliage of *M. capitata* with the inflorescence of *M. anacardioides*. It is referred both by Grisebach and by Meissner to *Acrodictidium jamaicense*, as a broad-leaved variety, and is, indeed, very nearly allied to that species, which seems to connect the two genera, as the thick stamens are more or less united at the base, though free at the summit. It has, however, the large glands at the base of the stamens of *Acrodictidium*, although no staminodia as in most *Misantea*." (Hooker, *Icones Plantarum*, vol. 3, p. 47.)

40850. LITCHI CHINENSIS Sonner. Sapindaceæ.

Litchi.

(*Nephelium litchi* Cambess.)

From Honolulu, Hawaii. Purchased from Mr. J. E. Higgins, horticulturist, Hawaii Experiment Station. Received June 24, 1915.

See S. P. I. Nos. 36042, 36066, and 38779 for previous introductions and description.

40851. PHYLLOSTACHYS sp. Poaceæ.

Bamboo.

From Savannah, Ga. Presented by Mr. S. B. Dayton. Received June 24, 1915.

This plant is supposed to be the same variety as S. P. I. No. 40842.

40852 and 40853.

From Guemes, Argentina. Presented by Mr. H. F. Schultz, director, Agricultural Experiment Station, through Mr. Eli Taylor, American vice consul, Buenos Aires, Argentina. Received June 21, 1915. Quoted notes by Mr. Schultz.

40852. *PASSIFLORA EDULIS* Sims. Passifloraceæ. **Passion fruit.**

"I returned last night from a trip to Jujuy, where I found another variety of edible *Passiflora*, which, I think, is superior to the variety I mailed you before. The fruit is roundish, smooth, and of a very attractive yellow color, of a rather pale shade, and not unlike a *Yellow Richard* apple. The fruit is slightly larger than S. P. I. No. 40075, measuring about 7 to 8 cm. in diameter. The pulp is bluish purple in color and, in my opinion, a little more spicy than the other variety. The proprietor, however, claims that S. P. I. No. 40075 is a better fruit, which proves again that 'de gustibus non est disputandum.' The plants are very precocious and good, strong growers, for which reason they should be planted about 8 meters apart and be trained on four or five wires, a foot apart each, the upper one about 1.80 m. high. I do not know where the variety originally came from. A friend of the proprietor purchased some fruits in Covent Garden, London, and brought him the seeds. The price for the fruit there at that time was two pence each, while the fruits of the Queensland variety sold at three pence each."

40853. *ZIZIPHUS MISTOL* Griseb. Rhamnaceæ. **Mistel.**

"A small tree with spiny, tortuous branches; subrotund, coriaceous, minutely serrulate leaves; inconspicuous flowers; and small edible drupes with large stones. Introduced as a possible stock for the Chinese jujube and for comparison with the Brazilian *Jua* (*Ziziphus joazeiro*). Found throughout northern Argentina as far south as the Province of Cordova."

40854 to 40873.

From China. Purchased from Dr. Camillo Schneider, Arnold Arboretum, Jamaica Plain, Mass. Received June 14, 1915. Quoted notes by Dr. Schneider, except as otherwise indicated.

40854 and 40855. (Undetermined.) Lauraceæ.

40854. "(No. 422.) From Talifu, Yunnan, China. Cultivated and grows wild, shrub 3 to 5 m., fruits ovate-elliptic, dark red. October, 1914."

40855. "(No. 422.) From Talifu, Yunnan, China."

40856. *PUNICA GRANATUM* L. Punicaceæ. **Pomegranate.**

"(A.) Cultivated. From Talifu, Yunnan, China."

40857. *PRIMULA LITTONIANA* G. Forrest. Primulaceæ. **Primrose.**

"(No. 609.) From Talifu, Yunnan, China."

"*P. littoniana*, though by no means the most beautiful of the new hardy Chinese primulas, has an altogether unique character that is bound to carry it into a permanent place in the heart of the primrose lover. The small lilac blossoms, as well as the lilac leaves, are somewhat like those of *P. denticulata*, but here resemblance ceases. Instead of the usual primula umbel, the scape terminates in a long flower spike, set thickly with bloom. The calyces are a rich maroon and the remarkable

40854 to 40873—Continued. (Quoted notes by Dr. C. Schneider.)

effect comes when these form a point above a sort of ruff of the lilac blossoms. Small wonder that it fairly dazzled George Forrest, the collector, when he found it massed naturally in the high mountains of China. There the flower stalks sometimes rise to a height of 2½ feet." (*H. S. Adams, Garden Magazine, May, 1914.*)

- 40858 and 40859. CUCURBITA PEPO L. Cucurbitaceæ. Pumpkin.
 40858. "(No. 448.) From Talifu, Yunnan, China. Cultivated. Fruits large, round; yellowish red when ripe. October, 1914."
 40859. "(No. 449.) From Talifu, Yunnan, China. Cultivated. Fruits large; yellowish red when ripe."
40860. LAGENARIA VULGARIS Ser. Cucurbitaceæ. Calabash gourd.
 "(No. 450.) Cultivated cucurbit. Fruit green and pale yellow."
40861. CUCURBITA PEPO L. Cucurbitaceæ. Pumpkin.
 "(No. 452.) From Talifu, Yunnan, China. Cultivated. Fruits large; yellowish red when ripe."
40862. VITIS sp. Vitaceæ.
 "(NC.) From Talifu, Yunnan, China."
 Introduced as a small-fruited kaki, but evidently there is some mistake.
40863. DIOSPYROS KAKI L. f. Diospyraceæ. Persimmon.
 "(B.) From Talifu, Yunnan, China. The common form, cultivated."
40864. AMYGDALUS sp. Amygdalaceæ. Wild peach.
 "(No. 549.) From Likiang, China. Semiwild and planted. September, 1914. Fruits yellowish."
- 40865 to 40871. PYRUS sp. Malaceæ. Pear.
 40865. "(D.) From Talifu, Yunnan, China. Cultivated pear, Talifu market, October, 1914. Yellow with brown points, 7 cm. long by 8 cm. broad. All these seeds from 50 fruits."
 40866. "(E.) Cultivated pear, Talifu market, October, 1914. Yellowish brown. sun side red, 7 cm. long by 7 cm. broad. Seeds from more than 50 fruits."
 40867. "(F.) From Talifu, Yunnan, China. Cultivated pear, similar to S. P. I. No. 40865 but thicker, 6.5 cm. long by 10 cm. broad."
 40868. "(G.) Cultivated pear, Talifu market, October, 1914. Yellow with red (sun side), numerous fine dark points, 5.5 cm. long by 8 cm. broad."
 40869. "(H.) Cultivated pear, Talifu market, October, 1914. Leather-colored, light points, 7 cm. long by 8.5 cm. broad."
 40870. "(K.) Cultivated pear, Talifu market, October, 1914. Yellow and red, fine points, 7 cm. long by 9 cm. broad."
 40871. "(L.) Cultivated pear, Talifu market, October, 1914. Yellow, fine points difficult to see, 8 cm. long by 12 cm. broad."
40872. MIRABILIS JALAPA L. Nyctaginaceæ. Marvel of Peru.
 "(No. 399.) From Talifu, Yunnan, China, October, 1914."
 See S. P. I. Nos. 24033 to 24044 for previous introductions.
40873. RICINUS COMMUNIS L. Euphorbiaceæ. Castor bean.
 "(No. 537.) Talifu, Yunnan, China. October, 1914."

40874. CLAUCENA LANSIUM (Lour.) Skeels. Rutaceæ. Wampi.
(*Clausena wampi* Oliver.)

From Honolulu, Hawaii. Presented by Mr. J. E. Higgins, horticulturist, Hawaii Experiment Station. Received June 28, 1915.

See S. P. I. Nos. 38708 and 39568 for previous introductions and description.

40875 and 40876. LATHYRUS spp. Fabaceæ.

From Buenos Aires, Argentina. Presented by Mr. Benito J. Carrasco, director general, Botanic Gardens. Received June 28, 1915.

40875. LATHYRUS MAGELLANICUS Lam.

"Usually perennial. Stem 3 to 5 feet long, smooth, angled, somewhat branched; leaflets ovate or oblong-linear; tendrils branched; stipules cordate-sagittate, broad; peduncles long. 3 to 4 flowered, flowers dark purple-blue. A strong-growing, woody, almost evergreen species covered with a bluish bloom. Since it is a maritime plant, salt is said to assist its growth. It is sometimes regarded as an annual." (*Bailey, Standard Cyclopedia of Horticulture, vol. 4, p. 1826.*)

40876. LATHYRUS NERVOSUS Lam.

"Glabrous plants with stems about 1 foot long. The leaves are composed of two nearly sessile, large, oval, acute leaflets having conspicuous reticulate nerves. Tendrils trifid. Stipules large, sagittate, nerved, somewhat shorter than the leaves. Peduncles solitary, 2 inches long, bearing 5 to 7 purple flowers." (*Lamarck, Encyclopedia, vol. 2, p. 708.*)

40877 and 40878. ZIZIPHUS JUJUBA Miller. Rhamnaceæ.

(*Ziziphus sativa* Gaertn.)

Jujube.

From China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received May 11, 1915. Quoted notes by Mr. Meyer.

40877. "(No. 120b. From Pinchow, Shensi, China. January 20, 1915.)"

A very good quality of jujube, having large and heavy fruits of elongated shape; considered to be the second best in China, the *Ta yüan tsao* of Pailhsiangchen, Shansi, coming first. Chinese name *Chin tsao* and *Fei tsao*, meaning 'Golden jujube' and 'Fat jujube.' Scions sent under No. 1252 [S. P. I. No. 40506]."

40878. "(No. 121b. From Lingpao, Honan, China. January 31, 1915.)"

A medium-large variety of jujube, of round-flattened shape and of brown-red color. Meat sweet, but of loose texture; much used baked in bread and boiled with millet. Chinese name *Ta hung tsao*, meaning 'large red jujube.' Apparently the same as sample 77b, of which scions were sent under No. 1058 [S. P. I. No. 37476]."

40879. TRITICUM AESTIVUM L. Poaceæ.

Wheat.

(*Triticum vulgare* Vill.)

From Manila, Philippine Islands. Presented by Mr. Adn. Hernandez, Acting Director of Agriculture. Received June 11, 1915.

"*Spanish Zarraceno* or *Candcal*. Grown in Cagayan Province. Introduced into the Philippines 50 years ago. Is planted at end of rainy season; is grown on high lands and matures in 90 days." (*Hernandez.*)

See S. P. I. No. 39152 for previous introduction.

40880. ZINZIBER OFFICINALE ROSC. Zinziberaceæ. Ginger.

From China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received June 30, 1915.

"(No. 1256. Peking, China. May 6, 1915.) A variety of wet-land ginger, said to come from southern China, retailing in Peking at 10 cents (Mexican silver) per catty of 16 ounces. Much used shredded in various diseases as a condiment." (Meyer.)

Rhizomes.

40881. ACROCOMIA FUSIFORMIS (Swartz) Sweet. Phœnicaceæ.

From Santiago de las Vegas, Cuba. Presented by Mr. Juan T. Roig, botanist, Agricultural Experiment Station. Received June 28, 1915.

"*Macaw tree* of Jamaica, *Corozo de Jamaica* of Cuba. Trunk 10 to 30 feet high, fusiform or swollen above the middle, armed with spines in rings. Leaves pinnate, petioles and rachis densely armed. Inflorescence inclosed in two spathes, inner complete, sparingly armed. Peduncles also armed with long black spines. Fruit depressed globose, about 1 inch in diameter, smooth. Seed very hard, 1 celled, foramina lateral. A remarkably strong fiber called *pita de corozo* is extracted from the rachis of the leaves of this palm and is used in Cuba in the manufacture of brushes." (C. B. Doyle.)

Erroneously referred to *Acrocomia lasiospatha* by Martius and Grisebach.

40882 to 40885. ORYZA SATIVA L. Poaceæ. Rice.

From Athens, Greece. Presented by the Société Royale D'Agriculture Hellénique. Received June 16, 1915.

40882. "*Ostyllia*. Thessalian Lazarina rice."

40883. "*Beloca*. Thessalian Lazarina rice."

40884. "No. 43. Seed of Macedonia Edessa rice."

40885. "No. 44. Seed of Macedonia Edessa rice."

40886 to 40889.

From Calcutta, India. Presented by Mr. William Bembower, Collins, Ohio. Received June 25, 1915.

40886. BAMBOS TULDA Roxb. Poaceæ. Bamboo.

"The common bamboo of Bengal, where it grows in great abundance everywhere, flowering in May. Not uncommon in the deciduous forests of Pegu, generally occupying lower and moister stretches of ground in company with *tinwa*, *Cephalostachyum pergracile*, the dry hills surrounding being covered with *Dendrocalamus strictus*." (Brandis.)

"An evergreen or deciduous, cæspitose, arboreous, gregarious bamboo. Culms green or glabrous when young, gray-green when older, sometimes streaked with yellow, 20 to 70 feet high, not or little branched below; 2 to 4 inches in diameter; nodes not swollen, the lower ones fibrous rooted; internodes 1 to 2 feet long, white scurfy when very young, ringed with white below the nodes, the walls thin, 0.3 to 0.5 inch; branches many from nearly all nodes, those of lowest ones thin, nearly leafless, horizontal." (J. S. Gamble, *Bambusæ of British India*. In *Annals of the Calcutta Museum*, vol. 7, p. 30.)

See S. P. I. Nos. 19269 and 21002 for previous introductions and description.

40886 to 40889—Continued.

40887. CEPHALOSTACHYUM PERGRACILE MUNRO. Poaceæ. Bamboo.

"A deciduous arboreous, tufted bamboo, with glaucous-green culms 30 to 40 feet high, 2 to 3 inches in diameter, and rather thin walled, the walls usually about one-half inch thick. It is one of the chief bamboos of Burma and one of those most frequently found in association with teak." (*Brandis.*)

"This beautiful species is probably the most common of all Burmese bamboos except *Dendrocalamus strictus*, and, as I am informed by J. W. Oliver, it may be found almost any year flowering sporadically like *D. strictus* and *D. hamiltonii*, but not generally producing good seed on such occasions. The Kolhan and Assam localities would point to its having a wider range than is generally supposed. The culms are largely used for building and mat making and other purposes, and in Burma the joints are used for boiling kauknyin or glutinous rice, the effect being to make a long mold of boiled rice which can be carried about to be eaten on journeys. It is at once recognized by the characteristic inflorescence, the short sheaths with rounded, long-fringed auricles, and long bifidly mucronate palea." (*J. S. Gamble, Bambuseæ of British India. In Annals of the Calcutta Museum, vol. 7, p. 109.*)

See S. P. I. Nos. 21236 and 21943 for previous introductions and description.

40888. DENDROCALAMUS HAMILTONII Nees and Arnott. Poaceæ.

Bamboo.

"A common bamboo in the eastern Himalayas from Kumaon to Assam. It is generally a tall grass 40 to 60 feet in height, but sometimes found as a long and tangled bush. The young shoots are used as food, being boiled and eaten in Sikkim, Bhutan, and Assam. The haulms are large, 3 to 6 inches in diameter, rather hollow, and not always straight, but they are used for every variety of purpose." (*Brandis.*)

"This is the common bamboo of the Darjiling Hills and Terai, of the Duars and the Assam Valley, and is in universal employment for building and basket and mat work, though as a building bamboo its comparative softness and thin walls make it inferior to such species as *B. tulda* and *balcooa*. The young shoots are eaten as a vegetable. The inner layer of the culm sheath is used for covering Burmese cigarettes. This bamboo flowers usually sporadically, so that clumps in flower may almost always be found, and consequently it has been largely and often collected; at the same time, like other species, it sometimes flowers gregariously, as it is doing this year (1894) both in Sikkim and in Dehra Dun. Of its straggling habit, so noticeable in the forests of Bengal and Burma, but curiously much less so in the Dun, J. W. Oliver remarks, 'When they have no trees to support them the main stems bend over, forming impenetrable thickets, and the lateral branches ascend vertically, often forming shoots nearly as long as the main stems.' This species is very easily identified by its panicle of bright purple-red flowers; and when out of flower the gray stems, long, nearly glabrous stem sheaths, and straggling habit cause it to be easily recognized. The long, hairy points to the anthers are also remarkable." (*J. S. Gamble, Bambuseæ of British India. In Annals of the Calcutta Museum, vol. 7, p. 85.*)

See S. P. I. Nos. 38736 and 39178 for previous introductions.

40886 to 40889—Continued.

40889. *DENDROCALAMUS STRICTUS* (Roxb.) Nees. Poaceæ. Bamboo.

"A very useful and strong bamboo of India, formerly used universally for spear staffs. The plant flowers frequently and does not die down after flowering, as is the case with so many bamboos. The culms are said sometimes to reach a height of 100 feet." (*Brandis.*)

"This is the most common and most widely spread and most universally used of the Indian bamboos, and is commonly known as the 'male bamboo.' Its culms are employed by the natives for all purposes of building and furniture, for mats, baskets, sticks, and other purposes. It furnishes, when solid culms are procurable, the best material for lance shafts. In Burma, when large culms are obtainable, they are much in request for masts for native boats. It flowers gregariously over large areas, as it did in the Central Provinces in 1865, but it may be found flowering sporadically, a few clumps at a time, almost every year, in any locality, and such clumps then usually die off. These flowerings, however, do not produce as much good seed as when the gregarious flowering takes place. The flowers appear in the cold season between November and April, the seed ripening in June. The leaves fall in February or March, and the young new ones appear in April. The young culms are rather late, usually beginning to appear in July some time after the rains begin." (*J. S. Gamble, Bambuseæ of British India. In Annals of the Calcutta Museum, vol. 7, p. 79.*)

See S. P. I. Nos. 21548, 23476, and 37223 for previous introductions.

40890 and 40891. *DIOSPYROS* spp. Diospyraceæ.

From Lal Bagh, Bangalore, India. Presented by Mr. William Bembower, Collins, Ohio. Received June 25, 1915.

40890. *DIOSPYROS* sp.

Received as *Diospyros embryopteris*, for which we are using the name *Diospyros peregrina*, with which the seeds do not agree.

40891. *DIOSPYROS MONTANA* Roxb.

"A deciduous and small erect tree, growing to a height of about 30 feet. Is quite ornamental and useful where small trees are desirable." (*Bembower.*)

See S. P. I. Nos. 31644, 32799, and 35084 for previous introductions and descriptions.

40892. *DIOSCOREA ACULEATA* L. Dioscoreaceæ.

From Manila, Philippine Islands. Presented by Mr. H. T. Edwards, director, Bureau of Agriculture. Tubers received June 2, 1915.

"No. 19-1017. *Tugue*. Flesh white and mealy, but firm and a little fibrous; sweetish. The quality is not equal to that of the *Yampi* of Jamaica." (*R. A. Young.*)

40893. *CITRUS GRANDIS* (L.) Osbeck. Rutaceæ. Pummelo.

From Nagasaki, Japan. Collected by Mr. W. T. Swingle, of the Bureau of Plant Industry. Received by the Office of Crop Physiology and Breeding Investigations, June 26, 1915.

"I found at Nagasaki Experiment Station a most excellent pummelo, the *Hirado Buntan*, better than the Hongkong pummelo, though not seedless. I

send seeds from a choice fruit given me at the experiment station May 23. The pith of the fruit is small and solid, the color like a good grapefruit." (Extract from letter from W. T. Swingle, dated "Off Shanghai, China, May 25, 1915.")

40894 and 40895. CRACCA spp. Fabaceæ.

From Peradeniya, Ceylon. Presented by Mr. H. F. Macmillan, superintendent, Royal Botanic Gardens. Received June 29, 1915.

40894. CRACCA CANDIDA (DC.) Kuntze.
(*Tephrosia candida* DC.)

"Well known in the East as *Boga-medelloa*. This grows rapidly and attains a height of 8 to 10 feet or more. It is a favorite plant for planting among crops for green manuring and is probably the best for the purpose in tropical latitudes." (*Macmillan.*)

40895. CRACCA VILLOSA PURPUREA (L.) Kuntze. Kavalai.
(*Tephrosia purpurea* Pers.)

"A perennial herb, 1 or 2 feet high, with few-flowered racemes of purplish pink flowers, used in the low country of Ceylon as a green manure and in the dry regions as a mulch and sand binder. A decoction of the bitter root is used by the Hindoos for dyspepsia, diarrhea, and flatulence. (Adapted from *Macmillan, Handbook of Tropical Gardening*, and *Lanessan, Les Plantes Utiles.*)

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