Issued August 17, 1917.

U. S. DEPARTMENT OF AGRICULTURE.
BUREAU OF PLANT INDUSTRY.
WILLIAM A. TAYLOR, *Chief of Bureau.*

INVENTORY

OF

SEEDS AND PLANTS IMPORTED

BY THE

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION DURING THE PERIOD FROM JANUARY 1 TO MARCH 31. 1914.

(No. 38; Nos. 36937 TO 37646.)

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1917.

Issued August 17, 1917.

U. S. DEPARTMENT OF AGRICULTURE.

BUREAU OF PLANT INDUSTRY.

WILLIAM A. TAYLOR, *Chief of Bureau.*

INVENTORY

OF

SEEDS AND PLANTS IMPORTED

BY THE

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION DURING THE PERIOD FROM JANUARY 1 TO MARCH 31, 1914.

(No. 38; Nos. 36937 to 37646.)

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1917.

BUREAU OF PLANT INDUSTRY.

Chief of Bureau, WILLIAM A. TAYLOR.
Associate Chief of Bureau, KARL F. KELLERMAN.
Officer in Charge of Publications, J. E. ROCKWELL.
Chief Clerk, JAMES E. JONES.

FOREIGN SEED AND PLANT INTRODUCTION.

SCIENTIFIC STAFF.

David Fairchild, *Agricultural Explorer in Charge.*

P. H. Dorsett, *Plant Introducer, in Charge of Plant Introduction Field Stations.*
B. T. Galloway, *Assistant to the Secretary and Plant Pathologist.*
Peter Bisset, *Plant Introducer, in Charge of Foreign Plant Distribution.*
Frank N. Meyer and Wilson Popenoe, *Agricultural Explorers.*
H. C. Skeels, S. C. Stuntz, and R. A. Young, *Botanical Assistants.*
David A. Bisset, Nathan Menderson, and Glen P. Van Eseltine, *Assistants.*
Robert L. Beagles, *Superintendent, Plant Introduction Field Station, Chico, Cal.*
Edward Simmonds, *Superintendent, Plant Introduction Field Station, Miami, Fla.*
John M. Rankin, *Superintendent, Yarrow Plant Introduction Field Station, Rockville, Md.*
J. E. Morrow, *Superintendent, Plant Introduction Field Station, Brooksville, Fla.*
Edward Goucher, *Plant Propagator.*
Collaborators: Aaron Aaronsohn, *Director, Jewish Agricultural Experimental Station, Haifa, Palestine;* Thomas W. Brown, *Gizeh, Cairo, Egypt;* H. M. Curran, *Laurel, Md.;* M. J. Dorsey, *University Farm, St. Paul, Minn.;* H. T. Edwards, *Ridgewood, N. J.;* Dr. Gustav Eisen, *California Academy of Sciences, San Francisco, Cal.;* E. C. Green, *Serviço do Algodão, Rio de Janeiro, Brazil;* A. C. Hardless, *Seharunpur Botanic Gardens, Seharunpur, India;* E. J. Kraus, *University of Chicago, Chicago, Ill.;* Barbour Lathrop, *Chicago, Ill.;* Miss Eliza R. Scidmore, *Yokohama, Japan;* Charles Simpson, *Littleriver, Fla.;* H. P. Stuckey, *Experiment, Ga.;* Dr. L. Trabut, *Director, Service Botanique, Algiers, Algeria;* E. H. Wilson, *Arnold Arboretum, Jamaica Plain, Mass.*

CONTENTS.

ILLUSTRATIONS.

INVENTORY OF SEEDS AND PLANTS IMPORTED BY THE OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION DURING THE PERIOD FROM JANUARY 1 TO MARCH 31, 1914 (NO. 38; NOS. 36937 TO 37646).

INTRODUCTORY STATEMENT.

While plants adapted to cultivation in the Southern States predominate in this inventory, it is probable that something of interest to nearly everyone who is experimenting with plants will be found described or listed in it, and this introductory statement is designed to point out certain interesting features regarding them which occur to the writer even before sufficient time has elapsed since their introduction to make anyone really familiar with their behavior in this country.

Whether the Kerguelen cabbage (*Pringlea antiscorbutica*, No. 37554), which is a low, sprawling plant with heads of leaves sometimes 18 inches across, that occurs close to the seashore on Kerguelen Island, will ever thrive in this country may be a question, but no doubt those interested in cabbages will be glad to test it. It has a dense white heart and a taste like mustard and cress, though coarser. The *Lü tou* (*Phaseolus aureus*, No. 37078), a bean from which in China a starch that is considered superior to corn or wheat starch is prepared for laundry purposes, deserves to be investigated in this country. A collection of 23 varieties of beans (Nos. 37036 to 37058) from Fusan, Chosen (Korea), may yield some valuable sorts for cultivation in our gardens after they become acclimated. And among the 98 varieties of soy beans secured through Consul General Seidmore, of Seoul (Nos. 37228 to 37325), and similar collections from Pyeng Yang (Nos. 37326 to 37356) and Kongju (Nos. 37396 to 37404), Chosen (Korea), there should be some valuable forms of this remarkable food plant. The eight named varieties (Nos. 37145 to 37152) of Japanese udo from Kanagawa Ken propagated by cuttings will doubtless make it possible to lengthen materially the season of this new spring vegetable.

Nut growers will be interested in testing the English walnut variety (No. 37225) which Dr. Trabut has sent in from the moun-

tains of Algeria, where it has been grown for centuries by the natives and appears to have become fixed in character.

The possibility of greater or less resistance of the Chinese chestnut (*Castanea mollissima*) to the chestnut bark disease will make Frank N. Meyer's discovery of two superior fruiting varieties (Nos. 37547 and 37548) in the region south of Sianfu of peculiar interest.

Varieties of Abyssinian flax from Addis Abeba (Nos. 37085 to 37089), secured through the courtesy of Capt. Sandford, of the British Legation, may be valuable to the students of the flax industry if the peculiar adaptability of Abyssinian barleys to California conditions is an indication of similarity of climate.

Egyptian-cotton growing has become an industry in California, but experimenters are still at work testing different strains, and they may find something of value in a reported nearly wild form from Angola, Africa (No. 37125), which there develops a very strong fiber. Although it is perhaps a question whether American paper manufacturers are yet ready to put on their program the investigation of any grass for paper-pulp purposes, the preliminary trial of *Ischaemum binatum* (No. 37014), which has been experimented with for this purpose in British India, can hardly fail to interest them.

There are now a number of bamboo groves in the Southern States, and the fact has been abundantly demonstrated that there are thousands of square miles of territory which might be covered with species of this remarkable plant. Whether the Takuara bamboo of Paraguay (*Bambos guadua*, No. 37009), which grows on low, sandy lands along the rivers and attains a height of 60 feet, will prove hardy remains to be determined.

The expedition from this office sent to Bahia and Rio de Janeiro to investigate the culture of the navel orange found in occasional use there as a cover crop a species of Crotalaria (No. 36969) which may prove valuable for dry or semiarid orchard lands in this country. Information has come through the same source regarding the use in that region of the fruits of the Macaúba palm (*Acrocomia sclerocarpa*, No. 37382) for hog feed. The thick layer of white, starchy material surrounding the hard kernel is said to be preferred to corn and to be very fattening. The fruit clusters of these palms weigh as much as 65 or 75 pounds.

Of grain crops for trial perhaps the most interesting are the sorghum varieties (Nos. 36960 to 36963), which are grown by the Matabele, Setchuana, Mambukuschu, and Serotse tribes of southwestern Africa, the pearl millet (No. 36959), from German Southwest Africa, and a collection of wheat, rye, barley, and buckwheat (Nos. 37154 to 37167) from the Tulun Experiment Field of Russia.

This inventory contains a number of interesting new fruits as a result of the work of the Brazilian expedition composed of Messrs.

P. H. Dorsett, A. D. Shamel, and Wilson Popenoe. These will be of special interest to experimenters in California, southern Texas, and Florida. They include a large-fruited variety of the cashew (No. 37027), a fruit tree which deserves to be better known in Florida. Not only is its fruit edible, both out of hand and preserved or in the form of an ade, but the nut when roasted is one of the most delicate of all table nuts.

The pitomba (*Eugenia luschnathiana*, No. 37017), a deep orange-colored aromatic fruit of the myrtle family which ripens in December; the imbu (*Spondias tuberosa*, No. 37018), a drought-resistant tree of the caatinga lands of the interior of Brazil, the fruits of which are consumed in great quantities, both fresh and preserved, and also used to a considerable extent in making imbuzada, a drink peculiar to the country, made of the juice and pulp of the fruit mixed with boiling milk; the so-called wild lemon (*Rheedia edulis*, No. 37384), a relative of the mangosteen; the cambucá (*Myrciaria edulis*, No. 37094), a relative of the jaboticaba, with a flavor resembling that of the passion fruit; the grumichama (*Eugenia dombeyi*, No. 36968), another species of the myrtle family, which resembles remotely our cultivated cherry and is pronounced by the members of the expedition one of the most agreeably flavored fruits of its class; the gravatá (No. 36967), a wild relative of the pineapple, with straw-colored, spicy, delightfully acid fruits and a skin containing a strong vegetable acid which attacks the hands, lips, and mouth of anyone thoughtless enough to handle it carelessly; the pera do campo (No. 37392), an extremely interesting wild fruit-bearing bush which has not yet been cultivated, although it bears large pear-shaped aromatic fruits on shoots not over 4 feet high; the laranja da terra (No. 36971), a citrus stock on which in Bahia the navel orange is grown; the laranja selecta (No. 36947), a promising variety of orange which it is thought is likely to mature its fruits in California during spring and summer, and as it has no thorns and produces fruits of ideal shape for packing, it may possibly prove to be of considerable value to citrus growers in Florida and southern California; the lime orange (Nos. 36949 to 36951), with a flavor halfway between that of the orange and the lime; a shaddock reported to be seedless (No. 36946), and a juicy pink-fleshed shaddock (No. 36945) are some of the other introductions of the expedition covered by this inventory.

The Japanese and Chinese persimmon collections now in this country have been materially added to through the introduction of 9 varieties (Nos. 37465 to 37473) collected by Mr. Meyer near Lingpao, Honan; 16 varieties (Nos. 37525 to 37540) from Nantotchu, south of Sianfu; and a collection of 46 varieties (Nos. 37168 to

37213) from Prof. Tanikawa, representing the collection growing at the Okitsu Government Horticultural Experiment Station in Japan. Those interested in the question of stocks for the cultivated pear will want to test the pear-quince hybrid Pyronia (No. 37606), which has been favorably mentioned by Dr. Trabut.

The lime growers on the Florida Keys will doubtless test the Sylhet, or Rungpur, lime (No. 37084), sent in by Mr. A. C. Hartless from Seharunpur, where it is used for softening leather.

Additions to the Chinese jujube collections have been made through the *Ya hu tsao*, or "gourd-shaped jujube" (No. 37069), sent by Dr. Yamei Kin, and the large-fruited jujubes of Lingpao (Nos. 37475 and 37476), where hundreds of acres of this fruit were seen by Mr. Meyer.

The Chinese Cudrania, a close relative of the Osage orange, has proved hardy at Washington; and as many of the Javanese trees have shown their ability to thrive in southern Florida, the introduction of both male and female forms of a Javanese Cudrania with bright orange fruits which are considered edible by the Japanese in Formosa (Nos. 36986, 37015, and 37016) is of interest, in view of the fact that hybrids have already been made between Cudrania and the Osage orange.

The following additions to the shrubs and trees suitable for door-yard and park planting appear in this inventory:

The Sumatra Casuarina (No. 37119), which, if it thrives, can scarcely fail to be more cheerful as a street tree in Florida than the Australian species; the Queensland gold-blossom tree (*Barklya syringifolia*, No. 37134), which bears racemes of golden yellow flowers; *Bauhinia hookeri* (No. 37135) from Australia, which bears white flowers with crimson edges; three hardy Chinese species of Cotoneaster (Nos. 37596 to 37598); five species of barberries (Nos. 37495 to 37499) originally from China and the mountains of tropical Asia; five distinct varieties of the Chinese allspice (*Meratia praecox*, formerly *Chimonanthus fragrans*, Nos. 37487, 37488, and 37522 to 37524), a fragrant flowering shrub of interest to florists; and the large-flowered tropical *Talauma hodgsoni* (No. 37216), which bears blooms 6 inches across, resembling the magnolia.

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 of the smaller village names, 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.

The manuscript of this inventory has been prepared by Miss May Riley, the botanical determinations of introductions have been made and the notes on geographic distribution compiled 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.

DAVID FAIRCHILD,
Agricultural Explorer in Charge.

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION,
Washington, D. C., July 29, 1916.

INVENTORY.

36937 and 36938. Linum usitatissimum L. Flax.

From Matania el Saff, Egypt. Presented by Mr. Alfred Bircher, Middle Egypt Botanic Station. Received January 3, 1914.

Secured from two different dealers in flaxseed and therefore given distinct numbers as representing perhaps two distinct varities. For the use of the Office of Cereal Investigations in its work on flax.

36939 and 36940.

From Kalat, Baluchistan. Presented by Capt. S. Williams, assistant political agent, Mastung, Kalat, Baluchistan, India. Received January 3, 1914.

36939. Hordeum vulgare L. Barley.

"Barley grown in this State." (*Williams.*)

36940. Triticum aestivum L. Wheat.
(*Triticum vulgare* Vill.)

"Wheat grown in this State." (*Williams.*)

36941. Solanum tuberosum L. Potato.

From Bogota, Colombia. Presented by Señor J. M. Vargas Vergara, Department of Agriculture. Received January 3, 1914.

"*Papa gruesa*, a variety of *tuquerrena*, selected at random, which will show you the development the tubers reach here, these presumably not being the largest." (*Vargas Vergara.*)

36942 to 36954.

From Brazil. Collected by Messrs. P. H. Dorsett, A. D. Shamel, and Wilson Popenoe, of the Bureau of Plant Industry. Received January 8, 1914.

Quoted notes by Messrs. Dorsett, Shamel, and Popenoe.

36942. Citrus sinensis (L.) Osbeck. Sweet orange.

"(No. 42. Bahia, Brazil. December 13, 1913.) Navel orange bud sticks from select tree No. 6, Dr. Fortunato da Silva's place, Cabulla. Circumference of trunk, 21½ inches; height of tree, 14 feet; spread of tree, 17 feet; habit of growth, spreading. Tree 12 feet from coffee bushes. Two main branches, forking 19 inches above ground; foliage dense, dark green; leaves elliptical, medium size, petiole medium size; no thorns. Fruits, June crop, 296; December crop, 14. No variations of fruit noticed. Fruits borne all through the tree and of yellowish brown color for the ripe ones. Navel small to medium size, mostly rudimentary. Brown and cottony scale, lichens, and several fungi on the tree. Very little mottle-leaf and very little gum disease. No plant parasites. Tree about 14 years old. Few dead branches. For trial in California for improved navel types."

36942 to 36954—Contd. (Quoted notes by Mr. Dorsett and others.)

36943. CITRUS MEDICA L. **Citron.**

"(No. 45. Bahia, Brazil. December 19, 1913.) Thirteen cuttings from the grove of Dr. Miguel de Teive e Argollo, Roma, Bahia. Typical citron of commerce of very good quality. For trial in southern California."

36944. CITRUS GRANDIS (L.) Osbeck. **Shaddock.**

"(No. 46. Bahia, Brazil, December 19, 1913.) Bud sticks of sweet shaddock or grapefruit from Dr. Miguel de Teive e Argollo's grove, Roma, Bahia. Large pear-shaped fruit, thick skinned, straw-colored flesh, sweet flavor, somewhat resembling the grapefruit in quality. Tree very productive. For trial in southern California."

36945. CITRUS GRANDIS (L.) Osbeck. **Shaddock.**

"(No. 48. Bahia, Brazil, December 19, 1913.) Thirty bud sticks of pink-fleshed shaddock or grapefruit from the orchard of Dr. Miguel de Teive e Argollo, Roma, Bahia. Mr. Popenoe says this fruit resembles the Indian pummelo. Its shape closely resembles that of a slightly flattened typical *Marsh's seedless* grapefruit, but it is two to four times the size. Very smooth, thick skin. Flesh a beautiful pink color, very attractive and striking. Fairly juicy, strong grapefruit flavor, very few seeds. This fruit is of possible value for use in salads aside from its use as a breakfast fruit. The texture of both the skin and flesh is very tender, which may render this fruit a valuable addition to our citrus fruits for making preserves. Tree productive under unfavorable conditions for fruiting. Very little mottle-leaf or gum disease and apparently resistant to both. Should be tried extensively in both Florida and California and the fruits tested for the manufacture of grapefruit products."

36946. CITRUS GRANDIS (L.) Osbeck. **Shaddock.**

"(No. 49. Bahia, Brazil, December 19, 1913.) Nineteen bud sticks of what was reported to be a seedless shaddock from the orchard of Dr. Miguel de Teive e Argollo, Roma, Bahia. Dr. V. A. Argollo Ferrão says this is the true *laranja tanja*, which is frequently recommended as a stock for budding navel oranges. The tree has very little mottle-leaf or gummosis, and under unfavorable conditions has made a very vigorous and healthy growth. Very productive. Fruits about the size of a typical *Marsh's seedless* grapefruit. Skin rather thick but tender. Flesh tender, juicy, with strong grapefruit flavor, and many seeds. Should be tried in both California and Florida, especially for breeding purposes and as a stock on which to bud the sweet orange."

36947. CITRUS SINENSIS (L.) Osbeck. **Sweet orange.**

"(No. 50. Bahia, Brazil, December 19, 1913.) Seventeen bud sticks of *laranja selecta* from Dr. Miguel de Teive e Argollo's place, Roma, Bahia. Typical fruits, averaging about 150 size (to the box), very smooth, thin skin. Very juicy, juice slightly acid; of excellent quality. Few seeds. This fruit will probably mature in California during the spring and summer seasons and may prove a valuable addition to the summer fruits in that State. Fruits very uniform on the tree, and when started the light-green color changes to deep, somewhat reddish orange. No thorns on the tree. Very vigorous in growth under unfavorable conditions. Fruits ideal shape for packing. Should be tried in Florida and California."

36942 to 36954—Contd. (Quoted notes by Mr. Dorsett and others.)

36948. CITRUS SINENSIS (L.) Osbeck. **Sweet orange.**

"(No. 51. Bahia, Brazil, December 19, 1913.) Thirty-seven bud sticks from navel orange tree No. 1–6–1, grove of Col. Demetrio Luiz de Souza, Cruz do Cosme, Bahia. This tree is the best in the De Souza grove. Height, 18 feet; spread, 21 feet. Habit of growth, spreading; height of head, 18 inches; three main branches; dense dark-green foliage. Leaves elliptical, medium size. Petiole medium, no thorns. Fruits, June crop, 237; December crop, 49; total, 286. No variations observed in the fruits. December fruits yellowish green; navel small to medium, usually rudimentary. Brown and other common scales, lichens, and common fungi on trees. Much mottle-leaf; little gummosis. Tree 25 years old, with few small dead branches. Fruits large, symmetrical, and uniform. Should be tried in California for improved navel type."

36949 to 36951. CITRUS spp. **Lime orange.**

From Bahia, Brazil. Collected December 19, 1913.

"Bud sticks of *laranja lima*, or lime orange, from trees 1 to 3, fazenda of Col. João de Teive e Argollo, Agua Comprida, 28 kilometers north of Bahia. Large, thrifty trees; very fruitful. Very little mottle-leaf or gum disease. Dense foliage, large dark-green leaves. Petioles similar to those of the navel orange. Crop borne at different intervals throughout the year, similar to the navel orange. Fruit light green in color, skin medium thick, flesh tender, very juicy, the juice spurting from fruit when cut. Flesh light golden in color, very little rag. Flavor combines that of the orange and lime; very good. With more acid, as the navel orange grown in California shows compared to the same fruit in Bahia, the *laranja lima* will furnish a valuable fruit drink. Five or six seeds were found in the fruits cut. Col. Argollo says trees come true from seed. The trees are more productive than those of the navel orange under the same conditions and sell for more money at Agua Comprida, bringing 100 to 120 reis (3½ to 4 cents) apiece throughout the year. While the leaves have the petiole of the navel orange, the shape and serrations resemble more closely those of the leaves of *lima doce*, or sweet lime. Should be tried in California and Florida, more particularly in California. The fruits produced are about the same size as navel oranges grown under the same conditions on Col. Argollo's ranch. Fruits egg shaped and of desirable shape and size for commercial packing. Will average 96 to 175 fruits to the California box."

36949. "No. 52. From tree No. 1. Tree had no thorns."

36950. "No. 53. From tree No. 2. Tree had large thorns."

36951. "No. 54. From tree No. 3. Tree had no thorns."

36952. PERESKIA sp.

"(No. 55. Bahia, Brazil, December 19, 1913.) Cuttings of the *surucucú*, from a hedge in front of the orange grove of Col. Frederico de Costa, Matatu, Bahia. The thorns of this plant, of which samples were sent, it was thought might prove valuable for phonograph needles, but trial showed them to be too brittle. The plant grows 15 to 18 feet high, with a cluster of thorns at each leaf axil. For trial in California and Florida."

36942 to 36954—Contd. (Quoted notes by Mr. Dorsett and others.)

36953. CAPRIOLA DACTYLON (L.) Kuntze. **Bermuda grass.**
(*Cynodon dactylon* Pers.)

"(No. 56. Bahia, Brazil, December 19, 1913.) Root cuttings of a grass very similar in general appearance and habit of growth to the Bermuda grass grown in California. From the fields of Col. Frederico de Costa, Matatu, Bahia."

36954. OPUNTIA sp. **Prickly-pear.**

"(No. 19. Rio de Janeiro, Brazil, November 1, 1913.) Cuttings of a spineless cactus from the garden of Señor José Esteres, rua São Gonçal. Nictheroy. The plant is about 15 feet high and is used as an ornamental.

36955 to 36958. COLOCASIA ESCULENTA (L.) Schott. Dasheen.

Grown at the Plant Introduction Field Station, Brooksville, Fla., season of 1913.

Tubers of the following; quoted notes by R. A. Young.

"The propagating stock of these strains consists of the tubers of a number of hills selected from S. P. I. No. 19224, a yautia from Paramaribo, Dutch Guiana, presented by Dr. C. J. J. Van Hall, Director of Agriculture, and received September 25, 1906. The corms from these hills were similar in quality, though varying in minor details of color, texture, and flavor."

36955. "A selected strain of dasheen in which the flesh of the corm when cooked is mealy, slightly nutty, and grayish white in color."

36956. "A selected strain of the dasheen in which the flesh of the corm when cooked is rather dry and firm, slightly nutty, and grayish white in color."

36957. "A selected strain of dasheen in which the flesh of the corm when cooked is mealy, of good flavor, and creamy white in color."

36958. "A selected strain of dasheen in which the flesh of the corms when cooked is fine grained and fairly mealy, slightly nutty, and almost white."

36959 to 36963.

From German Southwest Africa. Presented by the imperial governor, Windhoek. Received January 3, 1914.

36959. PENNISETUM GLAUCUM (L.) R. Brown. **Pearl millet.**
(*Pennisetum typhoideum* Rich.)

From Caprivizipfel. The native names used by different tribes for this variety, the name of the tribe being given in parentheses after each, are as follows: (No. 1.) *Mausa* (Sesuto and Serotse); *Labelebele* (Setchuana); *Niant* (Matabele); *Mahango* (Mambukuschu).

36960 to 36962. HOLCUS SORGHUM L. **Sorghum.**
(*Sorghum vulgare* Pers.)

From Caprivizipfel.

36960. (No. 2.) *Susue.* Generally used term.

36961. (No. 3.) *Murua.* Generally used term. Originally imported from Bechuanaland to Caprivizipfel.

36959 to 36963—Continued.

36962. (No. 4.) The native names used by the different tribes for this variety, the name of the tribe being given in parentheses after each, are as follows: *Mavela amassen* (Sesuto and Serotse); *Lukeriga* (Serotse); *Itumbi* (Mambukuschu); *Mawele* (Setchuana); *Amawele* (Matabele).

36963. HOLCUS SORGHUM L. **Sorghum.**
(*Sorghum vulgare* Pers.)

From Amboland.

(No. 5.) *Red ovambokorn.* Native name not known.

36964. NICOTIANA RUSTICA L. **Tobacco.**

From Odessa, Russia. Presented by Mr. John H. Grout, American consul. Received January 3, 1914.

"*Mahorka.* After consulting with various authorities here, I find that the name *Murchurkee* is not known in Russia, the seed desired evidently being what is known here as *Mahorka,* which I have obtained and am sending." (*Grout.*)

36965. MANGIFERA INDICA L. **Mango.**

From American Samoa. Presented by Commander C. D. Stearns, governor. Received January 7, 1914.

"From fruits which weighed over 2 pounds apiece." (*Stearns.*)

36966. TRIFOLIUM ALEXANDRINUM L. **Berseem.**

From Luxor, Egypt. Collected by Prof. S. C. Mason, of the Bureau of Plant Industry. Received January 2, 1914.

"Next to the rice in the minds of the oasis people comes the Oasis berseem for land reclaiming. They are particular in stating that it does much better following the rice on salty land than Valley berseem. I gathered that they sow about twice as much seed to the acre as we use for alfalfa. Their fields were pastured off so closely that I could not get a clear idea of the nature of their crop or how much it differs from alfalfa." (*Mason.*)

36967 to 36978.

From Bahia, Brazil. Collected by Messrs. P. H. Dorsett, A. D. Shamel, and Wilson Popenoe, of the Bureau of Plant Industry. Received January 8, 1914.

Quoted notes by Messrs. Dorsett, Shamel, and Popenoe.

36967. BROMELIA sp. **Gravatá.**

"(No. 33a. December 6, 1913.) A bromeliaceous plant, allied to the pineapple, which grows in some of the districts around Bahia. The fruit is occasionally brought to market. In form it is oblong and usually somewhat angular, about 3 inches in length and 1 inch thick. The persistent calyx crowns the apex with a tuft of dry sepals about 1 inch in length. The fruit is translucent and of a pale straw color. The skin is about one-eighth of an inch thick, with no well-marked distinction between it and the flesh, which is translucent, crisp, and juicy, containing two or three rows of small, flattened seeds, about one-fourth of an inch in diameter. The flavor is spicy and delightfully acid. The skin must be carefully removed before eating the fruit, as it contains a principle which burns the lips and mouth severely. The fruit is produced indi-

36967 to 36978—Contd. (Quoted notes by Mr. Dorsett and others.)

vidually, not united in one compound fruit as in the pineapple. Should be tried in California and Florida. The name *gravatá* is applied to a number of bromelias here."

For illustrations of the gravatá plant and fruit, see Plates I and II.

36968. EUGENIA DOMBEYI (Spreng.) Skeels. **Grumichama.**
(*Eugenia brasiliensis* Lam.)

"(No. 34a. December 13, 1913.) The *grumichama* or *grumixama*, a myrtaceous fruit, native of Brazil, both for its ornamental value and its fruit is worthy of a careful trial in California and Florida. The tree, which grows to 25 or 30 feet in height, is shapely and densely clothed with glossy deep-green foliage. The individual leaves are elliptical, about 4 inches in length, thick, and leathery. The fruits ripen here in November, and in general appearance very much resemble cherries. The form is round or slightly flattened, the color deep crimson. The stem is 1 inch or more in length. The thin skin incloses a soft, tender pulp, of mild and delicate flavor. The seeds, one to three in number, are rounded or hemispherical, about one-fourth to three-eighth of an inch in length. The grumichama is one of the most agreeably flavored myrtaceous fruits we have tasted, and in addition the tree is a beautiful and shapely ornamental."

For an illustration of the grumichama fruit, see Plate III.

36969. CROTALARIA RETUSA L.

"(No. 35a. December 19, 1913.) Seed from two plants in the orange orchard of Col. Baretto, Cabulla. Plants 2 to 3 feet high, producing from 2 to 5 main branches, each bearing from 6 to 12 seed pods containing 12 to 20 seeds each. Root development extensive, the roots finely branched and covered with medium-sized nodules. The root system closely resembles that of vetch. Stems succulent, and if plowed under at the time would quickly decompose. This plant is self-sown in all the orchards we have visited. Dr. Argollo says it is particularly suited for dry or semidry lands, and he predicts that it may become a very useful cover crop for southern California and other semiarid regions."

36970. PHASEOLUS VULGARIS L. **Bean.**

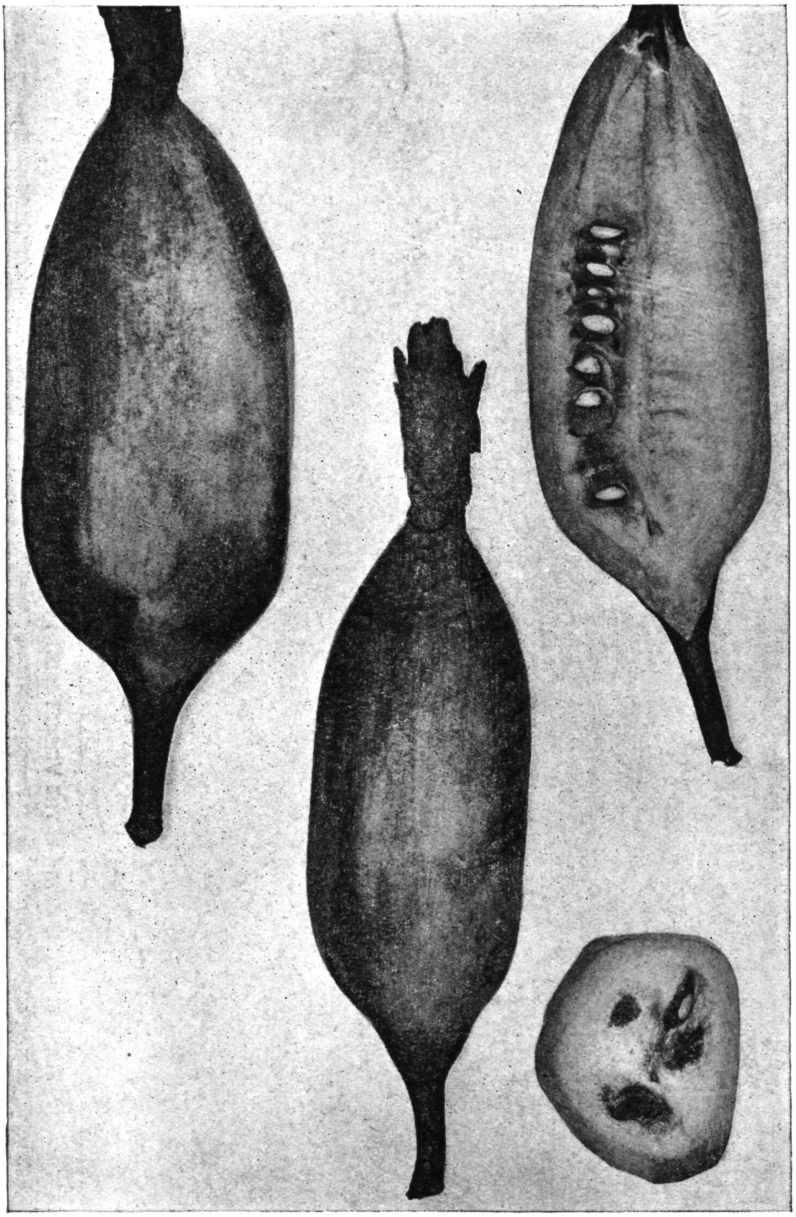
"(No. 36a. December 19, 1913.) The pink bean, *feijão*, which is the source of feijoada, one of the principal foods of the poorer class of Brazilians. Bought in the public market of Bahia at 240 reis (8 cents) per liter. Said to have been grown at Alagoinhas, in the interior of Bahia State."

36971. CITRUS AURANTIUM L. **Sour orange.**

"(No. 37a. December 19, 1913.) *Laranja da terra.* Seed from fruits grown by Col. Demetrio Luiz de Souza, Cruz do Cosme, near Bahia. This is the principal stock for the *laranja de umbigo*, or navel orange. For trial in California and Florida as stocks for other citrus fruits."

36972. Cocos CORONATA Mart. **Nicuri palm.**

"(No. 38a. December 19, 1913.) Seeds of the *Nicuri* or *Alicuri* palm, from the vicinity of Matatu, near Bahia. For a description of the plant, see S. P. I. 36927."

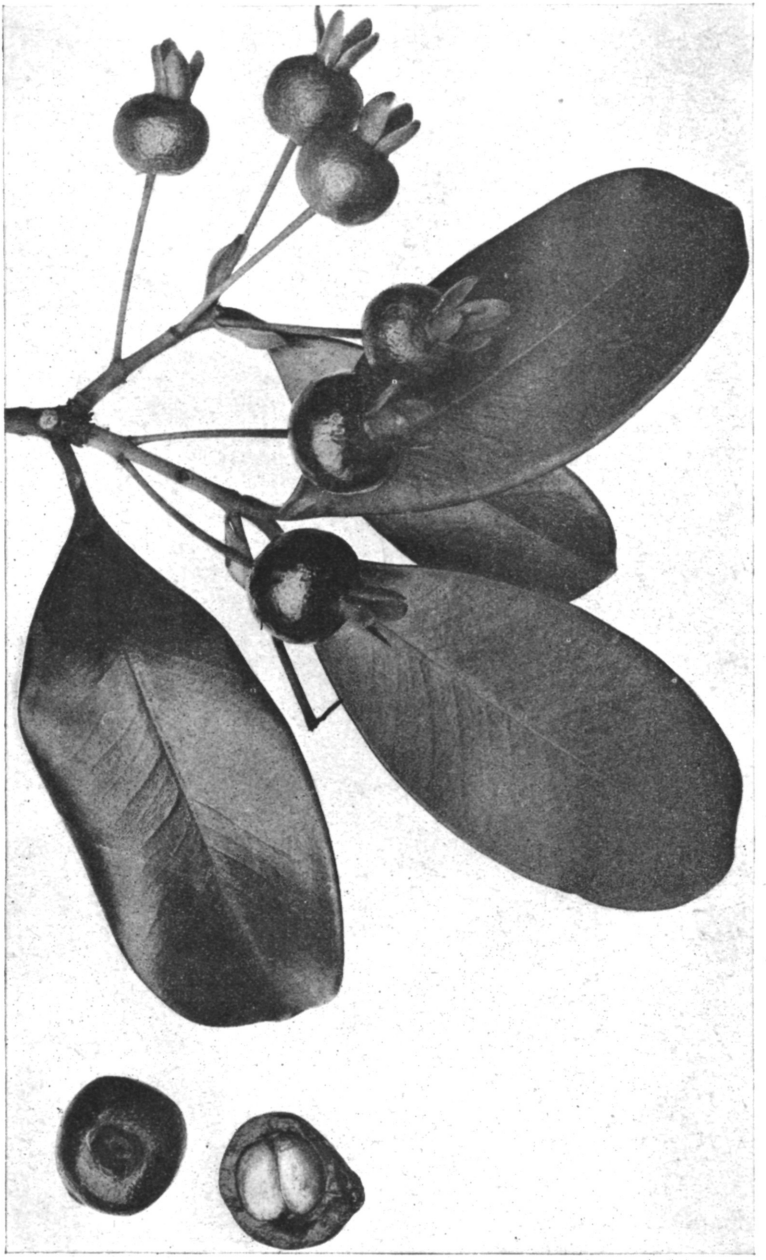


FRUITS OF THE GRAVATÁ, A BRAZILIAN BROMELIA, S. P. I. No. 36967.

When the outer skin is peeled back the fruit juices are sucked out. The fruit flesh is translucent, crisp, spicy, and delightfully acid. Under the skin is a layer of cells containing a vegetable acid much stronger than that in the pineapple, which attacks the lips and makes them raw. (Photographed (P15343FS) by Dorsett, Shamel, and Popenoe, Bahia, Brazil, November 29, 1913. Natural size.)

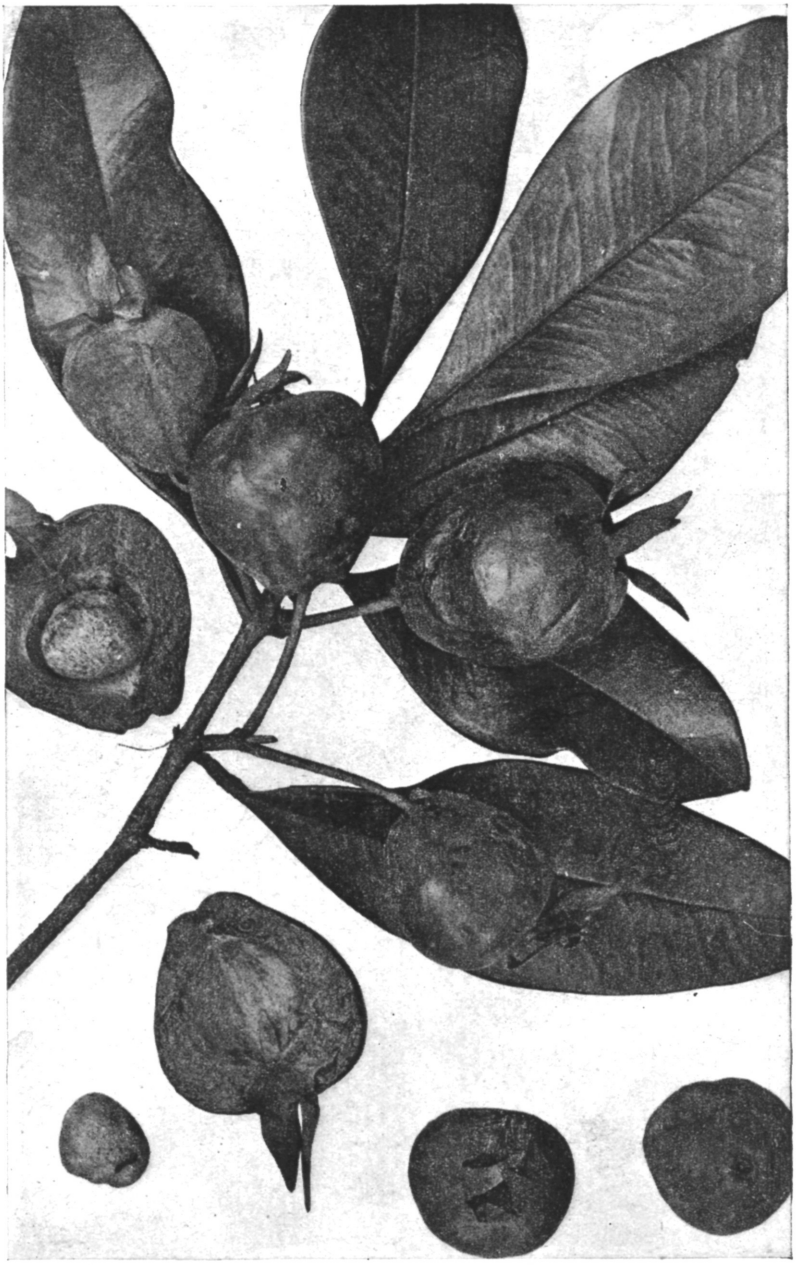
PLANT OF THE GRAVATÁ IN THE VIRGIN FOREST NEAR LAVRAS, BRAZIL, S. P. I. No. 36967.

A wild relative of the pineapple, the fruits of which are brought into the markets of Bahia. Unlike the pineapple, the individual fruits do not form a compact head. These plants should be tested in California and Florida. (Photographed (P14302FS) by Dorsett and Popenoe, January 11, 1914.)



FRUITS OF THE GRUMICHAMA (EUGENIA DOMBEYI), S. P. I. No. 36968.

The deep crimson fruits resemble cherries somewhat in appearance. They have a mild, delicate flavor, which is very agreeable, and they ripen in November in Brazil. (Photographed (P15332FS) by Dorsett, Shamel, and Popenoe, Bahia, Brazil, November 27, 1913. Natural size.)



FRUITING BRANCH OF THE PITOMBA (EUGENIA LUSCHNATHIANA), S. P. I. No. 37017.

A rare fruit belonging to the myrtle family, which is occasionally cultivated in gardens about Bahia, Brazil. It is orange yellow, thin skinned, melting, and juicy, with a very aromatic and pungent odor. (Photographed (P15387FS) by Dorsett, Shamel, and Popenoe, Bahia, Brazil, December 14, 1913. Natural size.)

36967 to 36978—Contd. (Quoted notes by Mr. Dorsett and others.)

36973. ELAEIS GUINEENSIS Jacq. **Dendé palm.**

"(No. 39a. December 20, 1913.) Seeds of the *Dendé* or *Guinea oil* palm, from trees in the vicinity of Matatu, Bahia. The fleshy pericarp of the seeds furnishes an oil which is an important food product here, especially among the negroes, with whom the palm is said to have come over from Africa. It now grows in an apparently naturalized state on the hillsides about Bahia and in many places is one of the most conspicuous features of the landscape. It is a particularly handsome plant, with long, feathery leaves and a slender trunk sometimes 50 or 60 feet high. It is probably too tropical for California, but may succeed in southern Florida, where it should be given a thorough trial both as an oil producer and as an ornamental plant."

36974. THEOBROMA CACAO L. **Cacao.**

"(No. 40a. December 19, 1913.) Seeds of *Criollo cacao* from the fazenda of Col. João de Teive e Argollo, Agua Comprida, 28 kilometers north of Bahia. For trial in Porto Rico."

36975. CITRUS AURANTIUM L. **Orange.**

"(No. 41a. December 19, 1913.) Seeds of *laranja da terra*, from the roça of Señor Pedro F. M. de Amorim, at Brotas, in the suburbs of Bahia. See S. P. I. No. 36971. For trial as a stock for commercial fruits in California."

36976. ZEA MAYS L. **Corn.**

" (No. 42a. December 19, 1913. *Catete* corn, yellow flint, ears with 12 rows of kernels. Said to have been grown at Alagoinhas, in Bahia State."

36977. GARCINIA sp. **African mangosteen.**

"(No. 43a. December 19, 1913.) Seeds of the *Mangostão da Africa*, from the fields of Dr. Miguel de Teive e Argollo, Roma, Bahia. The name 'African mangosteen' implies that it is a Garcinia, and it has every appearance of being a member of that genus. The plant is young, about 6 feet high, broad and spreading, with oblong, elliptical, leathery, thick leaves. The fruits are broadly pyriform, about 1½ inches in length, bright orange in color. The skin is thin and surrounds a small mass of bright orange pulp in which the two very large oval seeds are embedded. The flavor is acid, but pleasant. To be grown in connection with the mangosteen experiments. May prove desirable as a stock for the mangosteen."

36978. CARYOPHYLLUS JAMBOS (L.) Stokes. **Rose-apple.**
(*Eugenia jambos* L.)

"(No. 44a. December 19, 1913.) Seeds of a good form of the *jambo* or rose-apple, from a tree on the grounds of Dr. Miguel de Teive e Argollo, Roma, Bahia. Fruits of good size and quality, the skin pale yellow. For trial in Florida and California as an improved form of this fruit."

36979 to 36983.

From Paris, France. Purchased from Vilmorin-Andrieux & Co. Received January 3, 1914. For the work of the Office of Forage-Crop Investigations.

36979 to 36983—Continued.

36979 and 36980. HOLCUS SORGHUM L. (*Sorghum vulgare* Pers.) **Sorghum.**

36981. HOLCUS HALEPENSIS L. (*Sorghum halepensis* Pers.) **Johnson grass.**

36982. HOLCUS SORGHUM L. (*Sorghum vulgare* Pers.) **Sorghum.**

36983. PENNISETUM GLAUCUM (L.) R. Brown. (*Pennisetum typhoideum* Rich.) **Pearl millet.**

36984. MUSA sp. Banana.

Collected by Dr. H. L. Shantz, of the Bureau of Plant Industry, in 1913, on the plantation of Mr. E. Z. Blackman, Miami, Fla. Received January 13, 1914.

"The plant is about 10 feet high and the fruit about 5 feet from the ground. It is thought that these plants may be the result of early importations made by the United States Department of Agriculture from the Philippines." (*Shantz.*)

36985 and 36986.

From Hongkong, China. Presented by Mr. W. J. Tutcher, superintendent, Botanical and Forestry Department. Received January 15, 1914.

36985. FORTUNELLA HINDSII (Champ.) Swingle. (*Atalantia hindsii* Oliver.) **Hongkong kumquat.**

"A shrub with compressed branchlets, ovate-elliptical, leathery leaves 1½ to 3 inches long, bearing small flowers in axillary clusters, followed by small orange-colored fruits." (*Tutcher.*)

Distribution.—Found on the wooded hills in the vicinity of Hongkong, China.

"The Hongkong kumquat (*Fortunella hindsii*) differs from the round kumquat (*F. japonica*), the oval kumquat (*F. margarita*), and the Meiwa kumquat (*F. crassifolia*) in a number of morphological characters, some of them of decided taxonomic significance in this group. It may be regarded as constituting a new subgenus.

"*Protocitrus* Swingle. Differs from *Eufortunella* (1) in having the ovary hypomerous (3 or 4 celled, not 5 celled); (2) in the ovary wall of the mature fruits having on the inside between the stalks of the pulp vesicles a number of minute wartlike pale-yellow, cellular masses; (3) in having the dissepiments of the fruit dry and the peel thin and not very fleshy; (4) in having shorter, broader, more brachytic flowers; (5) in having leaves with the veins more prominent on both faces, and less pallid below.

"The two most important characters distinguishing the subgenus *Protocitrus* from *Eufortunella* are the few-celled ovary and the dimorphic *emergencen* from the ovary wall of the fruit, viz, ordinary pulp vesicles and verruciform tufts of loosely aggregated more or less colored cells.

"The Hongkong kumquat, which, as already indicated, is the sole species of the subgenus *Protocitrus*, may be described as follows:

"A spiny shrub or small tree; twigs slender, angled when young; leaves oval-elliptical, tapering sharply at both ends, dark green above and faintly venose, paler and venose below; petioles winged, often merging into the lamina of the leaf without a separative joint. Flowers short,

36985 and 36986—Continued.

broad, not opening very widely; pistil very short; style shorter than the ovary; stigma large, cavernous; ovary 3 or 4 celled; ovules 2 in a cell. Fruits small, 1.5 to 2 cm. in diameter; subglobose, bright orange red when ripe, the color of a tangerine orange; pulp vesicles very few, small, fusiform; seeds thick, oval or ovate in outline, plump, 9 to 11 by 7 to 8 by 5 to 6 mm., pistache green in section.

"The Hongkong wild kumquat grows commonly on the dry hills about Hongkong and on the mainland of China opposite." (*W. T. Swingle, Jour. Wash. Acad. Sci., vol. 5, p. 174–175, 1915.*)

36986. CUDRANIA JAVANENSIS Trecul.

"The fruit is round, rather more than an inch in diameter, of a bright orange color, with a sweet, rather insipid taste. It is quite as good a fruit as many others which are eaten." (*Tutcher.*)

Distribution.—A shrub or small tree found in eastern Africa and in India and eastward and southeastward to China and through the Malayan Archipelago to Australia.

36987. CARICA PAPAYA L. Papaya.

From Manila, Philippine Islands. Presented by Mr. O. W. Barrett, chief, Division of Horticulture, Bureau of Agriculture. Received January 13, 1914.

"The *Dapitan,* or Singapore variety, recognized by us as distinct from the Hawaiian variety." (*Barrett.*)

36988 to 36990.

From St. Denis, Island of Reunion. Presented by Mr. August de Villiles. Received January 6, 1914.

36988. PHASEOLUS CALCARATUS Roxb. Rice bean.

"The rice bean is cultivated to a limited extent in Japan, China, India, Mauritius, Java, and the Philippines. What is supposed to be the wild original of this bean occurs in India.

"The plant is strictly an annual and is half twining in habit. Planted in rows, the different varieties grow 12 to 30 inches high and produce vining branches 3 to 6 feet long. The leaves closely resemble those of the common bean, but not infrequently are 3 lobed. The flowers are bright yellow, produced in racemes of 10 to 20. The pods are smooth, slender, falcate, straw colored, brownish, or blackish, 3 to 4 inches long, and burst open readily at maturity. Though very productive of seed, the vining habit of the plant, as well as the shattering, makes it difficult to harvest. The flowers are self-fertile, as when bagged at Arlington Farm they set pods perfectly.

"Like other annual legumes, the later varieties are much larger in growth than the early ones. The late ones are very vigorous in growth and make a thick, dense mass of foliage. Such sorts may prove valuable as cover crops in the South, but, unfortunately, they are all subject to root-knot. This, together with the shattering of the seed, will always militate against their extensive use.

"The varieties differ mainly in their periods of maturity and in the color of the seeds, which are straw-colored, brown, maroon, black, and gray marbled.

36988 to 36990—Continued.

"The plant is well adapted to practically the same area as the cowpea and will doubtless attract attention from time to time. Under present conditions it is very doubtful whether this bean can be economically utilized in this country.

"In different parts of India various vernacular names are given to this bean, among them *Sutri, Sita-mas, Pau maia, Gurush,* and *Gurounsh.*

"In Japan it is called *Tsuru adsuki;* in China, *Mu-tsa* (Shanghai), 'Crab-eye' or 'Lazy-man' pea (Soochow), and 'climbing mountain bean' (Yachow); in Cuba, where introduced, 'little devil,' or 'mambi,' bean." (*C. V. Piper.*)

36989. STIZOLOBIUM ATERRIMUM Piper and Tracy. **Mauritius bean.**

For a detailed description of this plant, with discussion of its value, see Bureau of Plant Industry Bulletin 179, entitled "The Florida Velvet Bean and Related Plants," by C. V. Piper and S. M. Tracy, 1910.

36990. VIGNA SINENSIS (Torner) Savi. **Cowpea.**

"A very late, procumbent cowpea of poor habit; apparently of no value." (*C. V. Piper.*)

36991. CARAGANA ARBORESCENS Lam. **Siberian pea tree.**

From Paris, France. Procured from Vilmorin-Andrieux & Co. Received January 9, 1914.

For propagation at the Northern Great Plains Field Station, Mandan, N. Dak.

36992. SOLANUM POLYADENIUM Greenman. **Potato.**

From Soulseat, Castle Kennedy, Scotland. Presented by Mr. J. Aikman Paton. Received January 15, 1914.

"Pubescent throughout, with hirsute spreading hairs intermixed with densely crowded stipitate glands, heavy scented. This very pronounced and very disagreeable odor corresponds absolutely to that which is given off when the leaves of *Ailanthus glandulosa* L. are crushed. It is not found to my knowledge in any other species of *Solanum* (among the tuber-bearing) and is sufficient, aside from its pale-leaved foliage of very peculiar form, resembling that of the tomato, to make it immediately distinguishable from all others. Tubers white; stems somewhat striate-angled; leaves pinnatisect, 5 to 12 centimeters long, 4 to 8 centimeters broad, usually auricled at the base by small subfalcate leaves of reduced axillary branches; segments 7 to 9, lance-oblong to ovate, 1.5 to 4 centimeters long, 0.5 to 2 centimeters broad, somewhat acuminate, obtuse, abruptly contracted below into an oblique subpetiolulate base; intermediate segments much smaller, very unequal, rarely more than a centimeter in length; inflorescence terminating the stem and branches in pedunculate falsely dichotomous, more or less horizontally spreading cymes; flowers several; peduncles 1 to 2.5 centimeters long, jointed; calyx five parted; segments sublanceolate to somewhat oblong, often abruptly contracted into an attenuated apex, persistent; corolla five angled, plicate, about 1 centimeter high and 2 centimeters broad, white; ovary and style glabrous; fruit conical-ovate, 10 to 13 millimeters long, two-thirds to nearly as broad, glabrous. Mexico, State of Hidalgo; limestone hills, El Salto station, September 15, 1902. C. G. Pringle, No. 8692 (herb. Greenman)." (*Greenman, Proc. Am. Acad. Arts and Science, vol. 39, p. 89, 1903.*)

36993. ALEURITES FORDII Hemsley. **Tung tree.**

From Hongkong, China. Presented by Mr. George E. Anderson, consul general. Received January 12, 1914.

"Wood-oil nuts from Yingtak, Kwangtung Province, China, which were brought to this office by Mr. M. P. Roach, of this city." (*Anderson.*)

36994 and 36995.

From Saigon, Cochin China. Presented by Mr. P. Morange. Received January 14, 1914.

36994. COIX LACRYMA-JOBI L. **Job's-tears.**

"This is the only variety existing in Cochin China." (*Morange.*)

36995. FERONIELLA OBLATA Swingle.

"Spiny tree, 25 to 65 feet high, native to Cambodia and Cochin China; leaves odd-pinnate, three to four pairs; leaflets covered with small whitish hairs, especially when young, pellucid-punctate, oval or obovate, crenulate when young, often emarginate, with a very short petiole; rachis pubescent; flowers in many-flowered panicles, white, very fragrant, usually five parted, with lanceolate pointed petals; stamens four times the number of the petals, anthers large, oval, filaments joined together at the base by the woolly pubescence of the appendices occurring on their inner side; flowers borne in clusters of 3 or 4, flattened spheroid. This species occurs commonly in the forests of Cambodia and is sometimes cultivated by the natives for its flowers which, when young, have a pronounced orange odor and are used as a condiment in sauces." (*W. T. Swingle. In Bailey, Standard Cyclopedia of Horticulture, vol. 3, p. 1219, 1915.*)

36996. ZEA MAYS L. **Corn.**

From Pago Pago, American Samoa. Presented by Commander C. D. Stearns, Governor of American Samoa. Received January 8, 1914.

"An ear of corn raised in American Samoa. The name of the corn is not known, and it was raised quite by accident, a woman having planted a few seeds." (*Stearns.*)

36997. SOLANUM TUBEROSUM L. **Potato.**

From Bogota, Colombia. Presented by Señor J. M. Vargas Vergara, Ministro de Obras Publicas. Received January 9, 1914.

"Seed potatoes which I have received from the region of Pamplona, Department of Santander. While the sample referred to is not precisely that which you desired, since it is not a native potato, and it has been cultivated, I believe, notwithstanding, that it will be of interest to you and I am quoting below the information given me by the prefect of the Province of Pamplona: 'The potato which is sent to-day is known as *papa montañera* and is cultivated in clayey earth at an altitude of 2,000 meters above the level of the sea at a temperature of 18° C.

"'There is a current story that a hunter found in the mountains of this country a plant called potato; he transplanted it into his garden, from which the cultivation has spread and reached to-day a point where considerable numbers are cultivated.'

"It is said that this potato resists very well the shipment to warm countries and keeps well in condition for eating for several months. My attention was called to the excellent condition in which the sample arrived with reference to this last observation, and, moreover, the complete absence of disease and insects, which invariably attack the tubers in other localities." (*Vargas Vergara.*)

36998 to 37001.

From Erfurt, Germany. Purchased from Haage & Schmidt. Received January 7, 1914. For the experiments of the Office of Forage-Crop Investigations.

36998 to 37000. HOLCUS SORGHUM L. (*Sorghum vulgare* Pers.) **Sorghum.**

36998. Black.

36999. White.

37000. Brown.

37001. HOLCUS HALEPENSIS L. (*Sorghum halepensis* Pers.) **Johnson grass.**

37002 and 37003. PHASEOLUS ANGULARIS (Willd.) Wight. **Adzuki bean.**

From Wakamatsu, Iwashiro, Japan. Presented by Rev. Christopher Noss. Received January 5, 1914.

"The adzuki used in this region seems to be identical with the sample you sent me [S. P. I. No. 17851]. I found only one other sort, the white.

"The Japanese use the adzuki in two ways. They boil them soft and mix them with boiled rice and salt, making a mass called *akameshi* (red food), which is used particularly on certain festive occasions. They also use them in confections, boiling them very soft, straining through a cloth and mixing with sugar in various ways. There is also an adzuki flour, which is used to make the same confections, but is considered less delicious, though more convenient. I should have said that in making the ordinary *an* the boiled adzuki are put through a sieve to remove the hulls and then put into a bag and squeezed to remove the excess of moisture. Brown sugars are commonly employed. One variety, *yokan*, is made by adding *kanten* [isinglass, a gelatine made from seaweed] to the *an*." (*Noss.*)

37002. Common adzuki.

37003. Yellow adzuki.

37004 and 37005.

From Peking, China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received at the Plant Introduction Field Station, Chico, Cal., January 3, 1914. Received here January 8, 1914.

Cuttings of the following; quoted notes by Mr. Meyer.

37004. FORSYTHIA SUSPENSA (Thunb.) Vahl.

"(No. 1044. December 1, 1913.) A variety of golden bell with flowers apparently larger than the ordinary sort commonly found in European and American gardens. Very resistant to drought and able to stand a fair amount of alkali in the soil. Of special value to the drier sections of the United States. Chinese name *Huang shou tan*."

37005. VIBURNUM FRAGRANS Bunge.

"(No. 1045. December 1, 1913.) A viburnum, flowering in spring before the leaves have fully come out, bearing fragrant white flowers, carried erect as round panicles. Somewhat stiff in outlines. Able to withstand drought and alkali to a fair degree. Of value in the drier sections of the United States. Chinese name *T'an ch'un*."

37006 to 37008.

From Chita, Transbaikalia, Siberia. Purchased from Mr. M. M. Timogowitsch by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received January 20, 1914.

37006. PRUNUS SIBIRICA L. **Apricot.**

Baikal apricot.

37007. BETULA FRUTICOSA Pallas. **Birch.**

This shrub, known to the Tungus as *Buhyka* or *Marak*, abounds in the swamps and stony mountains in the subalpine region of Siberia, especially around Lake Baikal, everywhere associated with *Rhododendron dauricum* L. and always resembling it. Steller observed this same shrub beyond the Lena River, and it is frequent in Kamchatka. This species is very similar to *Betula humilis* of Europe, but the leaves are more tapered toward the apex, have usually five or six pairs of veins, and the toothing is finer, sharper, and more regular; the wings of the seed are also comparatively broader than in *humilis*. It is a native of northeastern Europe and Siberia, inhabiting boggy places. (Adapted from *Pallas, Flora Rossica; Schneider, Laubholzkunde;* and *W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 257.*)

37008. MALUS BACCATA (L.) Moench. **Siberian crab apple.**
(*Pyrus baccata* L.)

"Genuine var. *vera*. Transbaikal apple."

"A tree 20 to 40 feet high, forming a rounded, wide-spreading head of branches, the lower ones arching or pendulous at the extremities; trunk 1 to 2 feet in diameter. Leaves 1½ to 3½ inches long, about half as wide; oval or ovate, rounded or tapering at the base, shallowly and bluntly toothed; smooth above, and either smooth or downy beneath; stalks slender, 1 to 2 inches long. Flowers white, produced during April in umbels; each flower 1½ inches across and borne on a slender stalk 1 to 1½ inches long. Fruit three-quarters to seven-eighths of an inch thick, globular, bright red, hollowed at the insertion of the stalk, and with a round scar, but no calyx teeth at the top.

"Widely spread in nature, this species reaches from Lake Baikal, in Siberia, eastward to Manchuria and North China, and the same or a similar tree is found in the Himalayas. Introduced to Kew in 1784. It varies considerably in the downiness of the various parts. Some of the trees in the Kew collection have smooth young shoots, leaves, calyx tube, and flower stalks; others have all these parts downy. The lobes of the calyx appear to be invariably silky hairy inside. As a tree for gardens, the Siberian crab stands in the first rank. It is pretty in April when laden with its abundant white flowers, but its great value and charm are most apparent in autumn, when its plentiful crop of cherrylike crabs turns a brilliant red. They remain long on the leafless branches, and I have seen them lighting up the garden on fine days as late as February. This tree is closely allied to *Pyrus prunifolia*, but the fruit of the latter is more elongated, not indented at the base, and nearly always crowned with the calyx teeth. The late Dr. Regel, about 30 years ago, sent seeds to Kew of about a dozen varieties with names, but when the trees flowered and bore fruit they proved indistinguishable. The fruit of *Pyrus baccata*, although harsh when eaten raw, makes a very excellent jelly." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 278–279.*)

37009 and 37010.

From Puerto Bertoni, Paraguay. Presented by Mr. G. H. Bertoni. Received January 23, 1914.

37009. BAMBOS GUADUA Humb. and Bonpl. **Bamboo.**
(*Guadua angustifolia* Kunth.)

"*Takuara.* Native Paraguayan bamboo. Grows by preference in the low, sandy lands along the rivers. Here reaches a height of 15 to 20 meters, and the culm, which reaches a diameter of 10 to 15 centimeters, is used for pots or jars." (*Bertoni.*)

37010. PHASEOLUS CARACALLA L.

"Climbing legume very similar to *Phaseolus caracalla.* In good soils grows to large size. It is annual, with good foliage, and in autumn or late summer is covered with beautiful flowers. Much used as an ornamental. This legume, originating in the warm parts of Paraguay, requires much heat for perfect development. In cold regions it generally flowers well, but does not set seed. This is no inconvenience, since the plant is easily propagated from cuttings." (*Bertoni.*)

Received as *Phaseolus bertonii* Franceschi, but apparently merely a form of *P. caracalla.*

37011. CROTALARIA MESOPONTICA Taub.

From Kyimbila, German East Africa. Presented by Mr. Ad. Stolz. Received January 15, 1914.

"The base of the stem somewhat ferruginous-villous, resembling *C. emarginata* Boj., but with the apex of the leaflets obtuse or subcordate, mucronulate, calyx hirsute, villous. From West Karagwe on laterite soil at heights of 1,400 to 1,800 meters." (*Engler, Die Pflanzenwelt Ost-Afrikas, p. 207, 1895.*)

"This plant grows very quickly, might be transplanted for annual or perennial cultivations, as it is a perennial bush and forms a cushion of 2 to 3 feet diameter." (*Stolz.*)

37012. HIBISCUS SABDARIFFA L. **Roselle.**

From Donna, Tex. Presented by Mr. Eltweed Pomeroy. Received January 10, 1914.

"Seed collected from plants grown at Donna, Tex. A showy annual. The young calyces and stems and leaves of the plant when cooked make a delicious jelly, similar to that made from cranberries or red currants. The plant requires a long growing season to reach maturity and is injured by light frosts; therefore it is adapted only to the Tropics or the warmer temperate zones." (*Peter Bisset.*)

37013. ARTABOTRYS UNCINATUS (Lam.) Merrill. **Ylang-ylang.**
(*Artabotrys odoratissimus* R. Br.)

From Gotha, Fla. Presented by Mr. H. Nehrling. Received January 22, 1914.

"A shrub with climbing divaricate branches; young branches slightly pubescent at first, at length glabrous, more or less zigzag; leaves lanceolate or oblong-lanceolate, acuminate, usually acute at the base, glabrous on both sides, glossy and with short, thick petioles, 5 to 10 inches long by 2 to 3 inches broad;

hooked peduncles glabrous, curved downward almost like a spiral, somewhat flattened, usually opposite a leaf, often with the portion of the branch above it more or less aborted, so as to make it appear terminal; calyx three parted, the divisions ovate-acute; petals six, ovate lanceolate, brownish red on the upper part, with broad claws, woolly or pubescent (cotoneux), concave within and constricted between the claws and the limb, the three outer petals about three-fourths of an inch long, somewhat larger than the inner, and relatively broader; ovaries about 8 to 12, gradually tapering upward to the obtuse stigmatic apex, clothed with minute hairs, and containing two basal collateral erect ovules; fruits several, rounded ovoid, abruptly pointed at the apex, nearly sessile, about the size of a walnut inclosed in its hull, at length smooth, lightly punctate, and enclosing two oblong seeds truncated at the base rising side by side from the base, more or less compressed and bearing a marginal groove around the periphery of the hard bony testa. This species was described by Lamarck from specimens collected by Sonnerat in the East Indies and Madagascar. *Artabotrys uncinatus* is frequently planted in the warm regions of the Eastern Hemisphere for the sake of its fragrant flowers." (*W. E. Safford.*)

37014. ISCHAEMUM BINATUM (Retz.) Buse.
(*Spodiopogon angustifolius* Trin.)

From Calcutta, India. Presented by Mr. D. Hooper, Economic Botanist to the Botanical Survey of India. Received January 23, 1914.

"This grass is a wild plant, chiefly produced by root cuttings from old clumps, and its seeds are thus seldom, if ever, harvested. They have to be produced by special requisition, but the plant is abundant in hilly localities, where the simple cultivators seldom care to depart from their established primitive methods." (*Hooper.*)

"A perennial grass, plentiful in drier tracts of India, from Chota Nagpur and Rajmahal to Nepal and Garhwal, also throughout the plains northward, viz, in the Central Provinces, Central India, and Rajputana to the Punjab, Kashmir, and Afghanistan, ascending to altitudes of 7,000 feet. The grass, from the most ancient times, in the localities where it abounds, has been extensively used for making ropes, string, and mats, and utilized in the construction of rope bridges, and to some extent takes the place of jute in agricultural sacking.

"Sir D. Brandis was the first to recognize that Royle, Wallich, and others were in error in overlooking the grass Ischaemum as the most important, if not the true *bhabar*. Stewart (*Jour. Agri. Hort. Soc. Ind., 1863, xiii, 293*), while acknowledging his indebtedness for this correction, expressed the opinion that the grass should in the future play an important part as a paper material; he was thus apparently the first to suggest that use for the grass. Duthie led to a true identification botanically, and Sir George King pioneered the trade as a paper material. In the Annual Report for the Botanic Gardens of Calcutta for 1893–94, he tells us that he had sent home in 1873 samples of the grass to a paper maker in Scotland, who reported favourably on it, and again in 1877 had furnished the late Mr. Routledge, through the India Office, with a consignment for experiment in Sunderland. Investigations were also made in India from 1882, the first by Mr. Deveria, and finally by the Bally Mills Company (Ltd.) and others, until the grass became firmly established as a paper material.

"The *Kew Bulletin* and the *Indian Forester* have devoted much attention to this subject for some years past, and the Annual Administration Reports of

the Forest Department have recorded the measures taken to foster and extend production. The grass has thus been systematically placed before the public. It has, in consequence, become an assured paper material, restricted alone by the insufficiency of the supply. The attempt has accordingly been made to cultivate the plant in localities more accessible to the paper mills, thereby lowering the ruinously heavy freight charges. More or less successful experiments of this kind have been conducted in Poona, Mysore, Hyderabad Deccan, and in Hyderabad Sind. Systematic cultivation has also been undertaken in Manbhum, Birbhum, and Murshidabad. In Poona it has been announced that the yield is 24 cwt. of dry grass per acre. It was, however, ascertained that when grown on soils of a better class than in its wild habitat or under warmer and moister conditions, it tends to flower too profusely, and this lowers its value as a paper material.

"In Murshidabad, according to Mr. B. C. Bose, assistant director of agriculture, Bengal, it is now planted in clumps along the borders of mulberry fields. Two cuttings are taken in the year, one in September and the other in March. With irrigation, three or four crops can be had. This is, at any rate, the experience in Poona. The March crop is cut after the grass has flowered and yields very inferior fiber. No steps are taken to remove the flower stalks, no doubt owing to the cost of picking them out. The September crop does not flower and yields the best fiber. The people look upon the formation of the flower stalks as a necessary evil which they have no means of checking." (*Watt, Commercial Products of India.*)

Distribution.—The warmer parts of India, ascending to 7,000 feet in the Himalayas and eastward to China and the Philippines.

37015 and 37016. CUDRANIA JAVANENSIS Trecul.

From Taihoku, Formosa, Japan. Presented by the Bureau of Productive Industry. Received January 23, 1914.

37015. Five male plants. **37016.** Five female plants.

"The fruit of *Cudrania javanensis* is considered edible in Japan, but not eaten with a relish."

37017 to 37028.

From Bahia, Brazil. Collected by Messrs. P. H. Dorsett, A. D. Shamel, and Wilson Popenoe, of the Bureau of Plant Industry. Received January 22, 1914.

Quoted notes, except as indicated, by Messrs. Dorsett, Shamel, and Popenoe.

37017. EUGENIA LUSCHNATHIANA Berg. Pitomba.

"(No. 45a. December 20, 1913.) A rare and interesting myrtaceous fruit seen in two gardens at Cabulla, near Bahia, and called by the natives *pitomba*. Berg (in Martius, Flora Brasiliensis) gives Bahia as its habitat, but adds that there are other species which produce edible fruits as well, so this may not necessarily be the above species. Seeds from the gardens of Col. Elvidio Esteres Assis and Dr. Fortunato da Silva, Bahia. The tree is 20 to 30 feet in height, compact, densely foliated, and very handsome in appearance. The individual leaves are elliptical lanceolate, acuminate, about 3½ inches in length, thick and leathery, glossy, deep green above, light green beneath. Veins scarcely discernible on the upper surface. The fruits which are produced on the small branches, are broadly obovate in form, about 1 inch in length and seven-eighths of an inch in breadth on an average. The stem is 1 inch or more in

37017 to 37028—Contd. (Quoted notes by Mr. Dorsett and others.)

length, slender. Apex flattened and broad, crowned by the persistent calyx, with four or five green lanceolate sepals one-half inch or more in length. Color of fruit deep orange-yellow, when fully ripe almost bright orange. Skin thin, tender, and easily broken, inclosing a soft melting pulp, bright orange in color, very juicy, and of an acid, very aromatic flavor. The aroma of the fruits themselves is very penetrating. The seeds, normally one in number, but sometimes two, three, or rarely four, are attached to one side of the seed cavity and do not adhere to the flesh. When single the seed is nearly round, slightly less than half an inch in diameter, the seed coat whitish. When more than one, the seeds are hemispherical or angular. The season here is December. The trees which we have seen do not produce as heavy a crop as the *grumichama* or some other myrtaceous fruits, but nevertheless bear fairly abundantly. The fruit is especially esteemed for making jellies and is also used for jams and sherbets, while the negroes relish them when eaten out of hand. The flavor, however, is somewhat acid when they are eaten in this way, and the fruit will probably be of the greatest value for culinary use rather than dessert. The pitomba should be tried in the warmest parts of Florida and California. It seems to be vigorous and easily grown, great numbers of volunteer seedlings springing up around the base of the tree after the fruit has dropped."

For illustrations of the pitomba tree and fruit, see Plates IV and V.

37018. SPONDIAS TUBEROSA Arruda. **Imbu.**

" (No. 46a. December 26, 1913.) Seeds of the *imbu*, from fruits purchased in the Bahia market. This tree is not common here on the coast, but is said to grow profusely on the dry caatinga lands of the interior of Bahia State. The tree is low and spreading in habit, with a dense, umbrageous head of light-green foliage. The leaves are compound, about 6 inches in length. The fruits are oval to nearly round, about 1 inch in diameter on an average, and pale greenish yellow in color when fully ripe. The large, hard seed is surrounded by soft, juicy pulp, of a rather acid flavor, much esteemed when prepared with milk to form the popular *imbuzada*. For trial in California and Florida."

For an illustration of the imbu tree, see Plate VI.

37019. AMBURANA CLAUDII Schwacke and Taub. **Umburana.**

" (No. 47a. December 26, 1913.) *Umburana*. Seed presented by Mr. Gulins Frank, of Conquista, State of Bahia. Said to be a large tree, very common in the interior of that State. The seeds are aromatic and are used by the natives to mix with tobacco."

37020. (Undetermined.)

"(No. 48a. December 26, 1913.) *Fructa de sabão* (soap fruit). Seeds presented by Mr. Gulins Frank, of Conquista, State of Bahia. The ripe fruits are macerated, put in boiling water, and the fat skimmed off as it rises to the surface. The fruit ripens in August and September. The fat is used in place of soap. For trial in California and Florida."

37021. Cocos SCHIZOPHYLLA Mart. **Nicuri palm.**

"(No. 49a. December 26, 1913.) Seeds of the *Nicuri* palm, obtained from trees growing on a hillside at Retiro, near Bahia. For a description of a related species, see S. P. I. No. 36927."

37017 to 37028—Contd. (Quoted notes by Mr. Dorsett and others.)

37022. VIGNA SINENSIS (Torner) Savi. **Cowpea.**

"(No. 50a. December 26, 1913.) *Feijão fradinho.* Two liters of seed cost 280 reis [9 cents] per liter, at Mercado Novo, Bahia. A cowpea used by the natives as food when cooked. Raised in dry lands of the State of Bahia."

37023. PHASEOLUS VULGARIS L. **Bean.**

" (No. 51a. December 26, 1913.) *Feijão preto* or black bean. Grown on dry lands of the interior of Bahia State. Widely used by the Brazilians to make *feijoada.*"

37024. PHASEOLUS VULGARIS L. **Bean.**

"(No. 52a. December 26, 1913.) *Mulata gorda* bean, bought in Mercado Novo at 240 reis [8 cents] per liter. Name means 'fat mulattress.' Raised on dry lands of the interior of Bahia State."

37025. OPUNTIA sp. **Prickly-pear.**

"(No. 44. December 19, 1913.) Pads of a spineless Opuntia secured from Col. Frederico da Costa's place, Matatu, near Bahia, December 8, 1913. There is a large plant at each corner of the avenue leading from the house to the road. The pads are all free from spines."

37026. EUGENIA UNIFLORA L. **Pitanga.**

"(No. 54a. December 26, 1913.) *Pitanga* seed, from the roça of Dr. Miguel de Teive e Argollo, Roma, Bahai. This plant is already grown in California and Florida to a limited extent, but, so far as we know, its value as a hedge plant is not realized in those States. Here in Bahia it is one of the commonest hedges, and seems to be admirably adapted to this use. Seed to be grown for distributing plants in Florida and southern California on a scale large enough to determine its value as a hedge plant for those regions.

"It can be made a most useful and valuable ornamental plant for gardens, for hedges about gardens, city property, and orange groves; and from the fruit a large number of really desirable ices, jams, and preserves can be made. I like it better than the guava, and the trees and fruits are extremely attractive."

37027. ANACARDIUM OCCIDENTALE L. **Cashew.**

"(No. 55a. December 26, 1913.) Seeds of the *cajú manteiga,* from the island of Itaparica. The name means 'butter caju.' The *cajús* of Itaparica are considered the best in this district, and of all the trees on the island the one which produces the *cajú manteiga* is considered one of the very best. The fruits are extremely large, a beautiful light yellow in color, and of good flavor. Should be tried in Florida."

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

37028. ANACARDIUM OCCIDENTALE L. **Cashew.**

"(No. 57a. December 26, 1913.) Seeds of particularly large and fine specimens of *cajú amarella,* or 'yellow caju,' from Itaparica. See notes under 55a [S. P. I. No. 37027]. For trial in Florida."

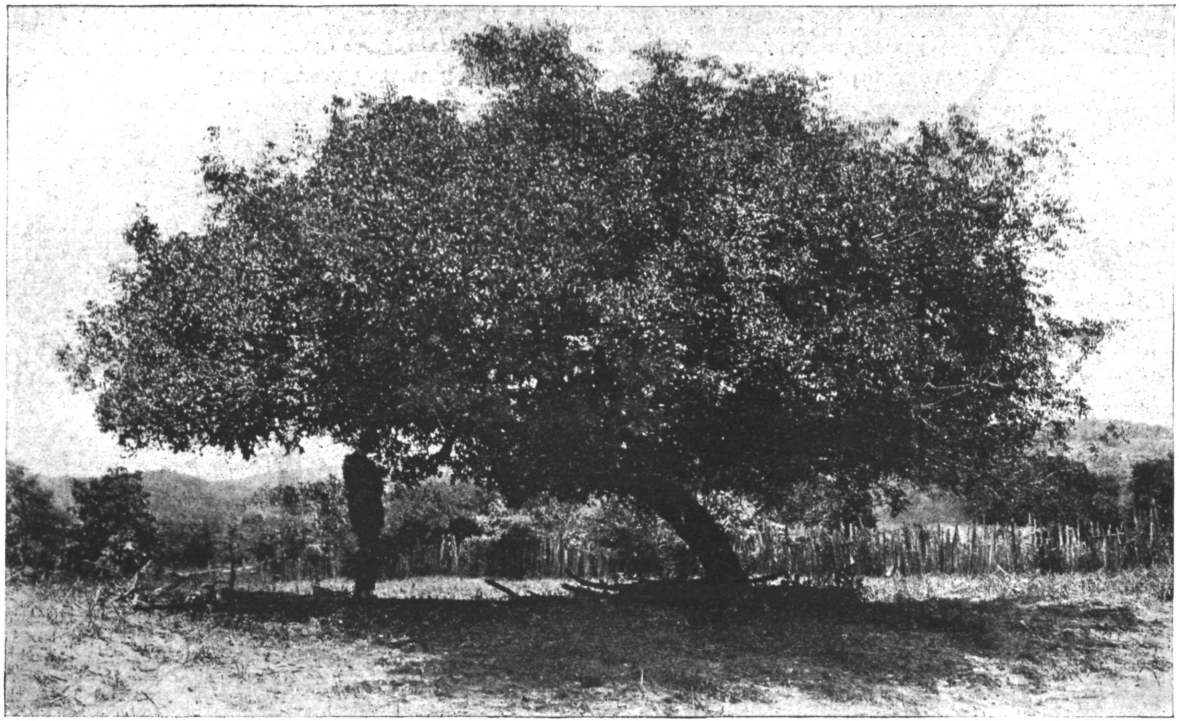
37029. PUNICA GRANATUM L. **Pomegranate.**

From Algiers, Algeria. Presented by Mr. Bernard G. Johnson. Received January 23, 1914.

"Pomegranate cuttings from the Algerian oasis, Laghouat. I found these pomegranates of exceptionally fine flavor." (*Johnson.*)

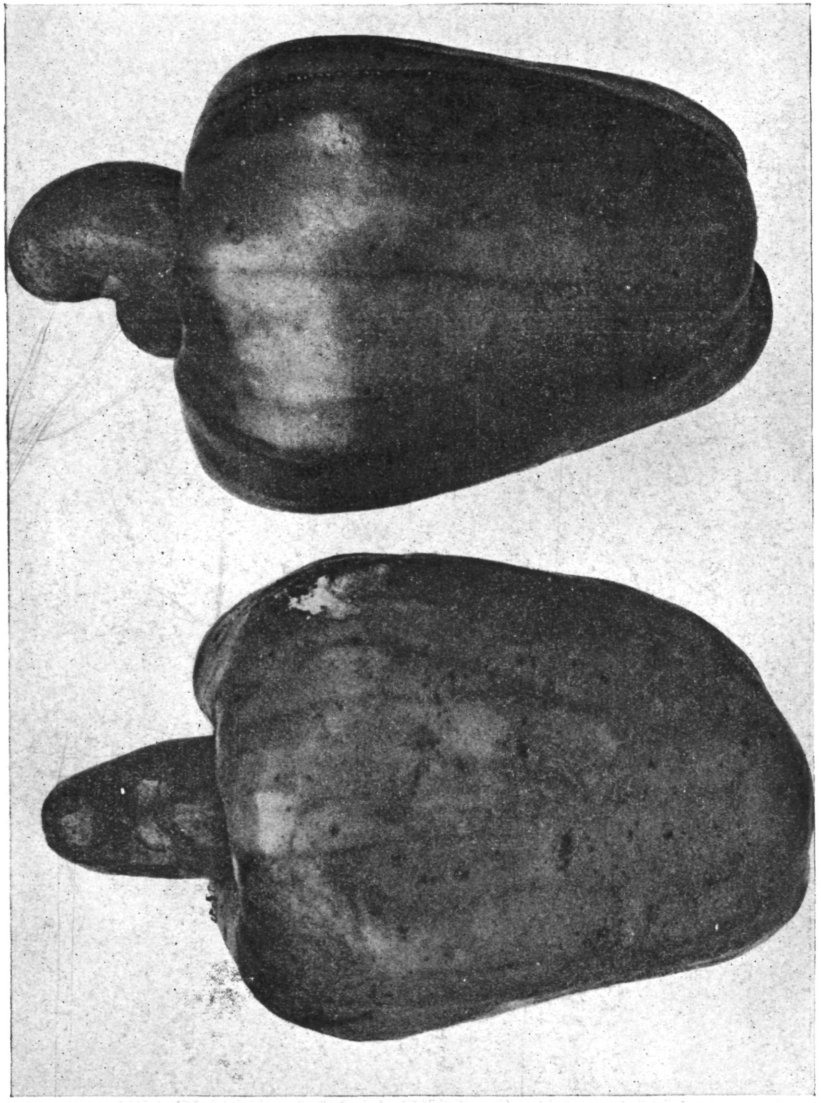
THE PITOMBA TREE OF BRAZIL (EUGENIA LUSCHNATHIANA), S. P. I. No. 37017.

A tropical fruit tree of the myrtle family which deserves to be tested in Florida and southern California because of its value as an ornamental and fruit tree, bearing remarkably attractive, rich orange-yellow fruits about the size and shape of a small Seckel pear, with long persistent sepals. (Photographed (P14549FS) by Dorsett, Shamel, and Popenoe, Bahia, Brazil, December 20, 1913.)



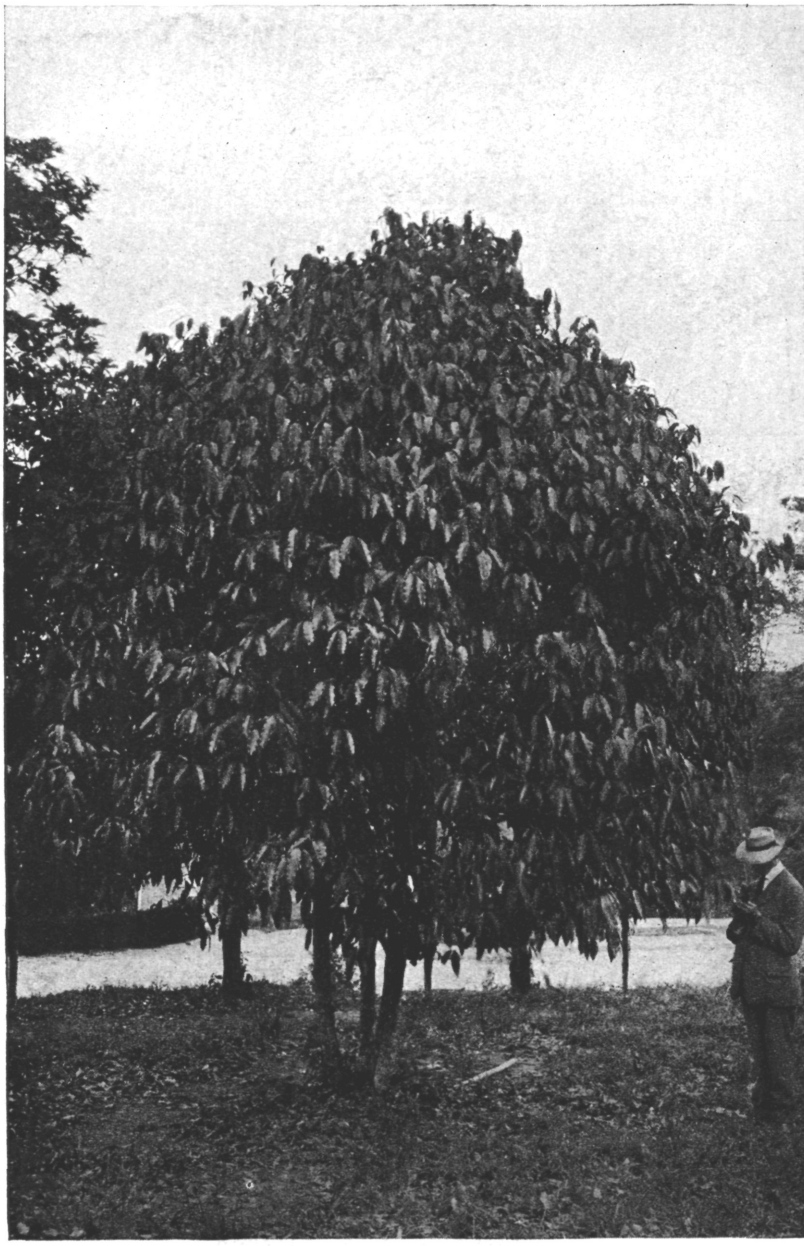
AN OLD IMBÚ TREE (SPONDIAS TUBEROSA) AT BREJO, BRAZIL, S. P. I. No. 37018.

The cattle browse on the lower branches of the imbú and the ground underneath is often carpeted with the plumlike juicy fruits, which are pale greenish yellow in color and of an acid taste. A popular drink called imbuzada is prepared by mixing the pulp with milk. (Photographed (P14830F S) by Dorsett and Popenoe, February 14, 1914.)



FRUITS OF THE CASHEW (ANACARDIUM OCCIDENTALE), S. P. I. No. 37027.

A single tree of this large-fruited variety, which is known as the butter cashew (*caju manteiga*), occurs on the island of Itaparica, off the coast of Bahia, Brazil. Although it has a good deal of fiber it is exceedingly juicy and beautifully colored. The cashew is popular as a table fruit in Brazil. The cashew nut, one of the best table nuts known, is contained in the kidney-shaped end of the fruit. It is surrounded by a layer of cells containing a very poisonous juice which produces an eruption like that caused by poison ivy, but being volatile this is driven off when the nuts are roasted. (Photographed (P15403FS) by Dorsett, Shamel, and Popenoe, Bahia, Brazil, December 24, 1913. Natural size.)



RHEEDIA EDULIS A WILD RELATIVE OF THE MANGOSTEEN, S. P. I. No. 37384.

This small, very handsome tree is known in the region around Lavras, Brazil, as the Limão do matto, or wild lemon, because of the appearance and acid taste of its bright-yellow juicy fruits, which are eaten out of hand and also preserved. It may prove a stock for the mangosteen. (Photographed (P14643FS) by Dorsett and Popenoe, Lavras, Brazil, January 12, 1914.)

37030. PANICUM MAXIMUM Jacq. **Guinea grass.**

From Mayaguez, Porto Rico. Presented by Mr. D. W. May, Agricultural Experiment Station. Received January 23, 1914.

37031. HORDEUM VULGARE L. **Barley.**

From Aleppo, Syria. Presented by Mr. Jesse B. Jackson, American consul. Received January 23, 1914.

"Black barley. The grain is very hard, and it is claimed that it will resist insects for five or six years if kept in dry places." (*Jackson.*)

37032 and 37033.

From Pago Pago, American Samoa. Presented by Commander C. D. Stearns, governor. Received February 3, 1914.

37032. MUSA sp. **Banana.**

37033. COLOCASIA sp. **Taro.**

Plants.

37034. MYRCIARIA CAULIFLORA (Mart.) Berg. **Jaboticaba.**

From Rio de Janeiro, Brazil. Collected by Messrs. P. H. Dorsett, A. D. Shamel, and Wilson Popenoe, of the Bureau of Plant Industry. Received February 2, 1914.

"(No. 19a. November 4, 1913.) Seeds from about 40 pounds of fruits purchased in the public market at a cost of 5 milreis (about one dollar) for the lot. The fruit appears to be of an entirely different type from those the seed of which was sent in under S. P. I. Nos. 36702 and 36709, suggesting that they may even be distinct species, since there are two or more species of Myrciaria in Brazil known under the common name of jaboticaba. The fruit of this variety is uniformly round or slightly oblate in form and variable in size, the best specimens being slightly less than 1 inch in diameter and of about the same length. The skin is smooth and glossy, deep purplish maroon in color over the entire surface. The pulp is very juicy and of pleasant vinous flavor. Seeds one to four, two being the commonest number in good-sized fruits. For further data concerning the jaboticaba, see notes under S. P. I. No. 36702." (*Dorsett, Shamel, and Popenoe.*)

37035. PERSEA AMERICANA Miller. **Avocado.**

(*Persea gratissima* Gaertn. f.)

From Bahia, Brazil. Presented by Dr. V. A. Argollo Ferrão, through Mr. A. D. Shamel, of the Bureau of Plant Industry. Received January 22, 1914.

"Dr. Argollo secured from a friend of his near Bahia a lot of avocado fruits, typical of the best commercial variety, for experimental shipment to New York. These fruits were packed in a tight box and upon arrival in Washington in February, 1914, the fruits were examined for commercial condition. While some of the fruits were found to have carried through the voyage from Bahia to Washington in good condition, most of them were affected by a species of Colletotrichum. This development interfered with the quality of the fruit, so that a satisfactory judgment as to its comparative commercial value was not possible. The fruits were rather pear shaped, with fairly large seeds and a hard rind. The meat was yellowish white and about half an inch in thickness around the seed. The color of the rind was green. The size of the fruits was about 5 to 6 inches long and from 2½ to 3 inches in maximum diameter. Dr. Argollo did not know of any local name for this variety, except the name avocado." (*Shamel.*)

37036 to 37058.

From Fusan, Chosen (Korea). Presented by Rev. George H. Winn, Presbyterian Mission. Received January 28, 1914.

Quoted notes by Mr. Winn.

"The white beans are the ones that are generally raised. In the cultivation of the beans they are generally planted in rows about 2 feet apart, sometimes a little wider, and are well fertilized. Needless to say the weeds are kept down by hand hoeing three or four times during the summer. The beans are planted here in May or early in June and harvested in November as a rule, though even in October we occasionally see the harvesting of the beans in specially well-favored places. The harvesting is entirely done by hand (as is all farm work except plowing) after which the beans are carried to the thrashing floor, where they are thoroughly dried in the sun and thrashed by the flail."

37036 and 37037. SOJA MAX (L.) Piper. **Soy bean.**
(*Glycine hispida* Maxim.)

37036. "No. 1. *Yulgochi* bean. Very hardy, will grow and produce where the ordinary beans will not amount to much."

37037. "No. 2. *Kambool.* Very commonly found in the markets."

37038 and 37039. PHASEOLUS ANGULARIS (Willd.) W. F. Wight. **Adzuki bean.**

37038. "No. 3. The gray bean; very hardy, will grow and produce where the ordinary beans will not amount to much."

37039. "No. 4. The white-eye black bean; carefully cultivated and given sufficient fertilizer."

37040 to 37055. SOJA MAX (L.) Piper. **Soy bean.**
(*Glycine hispida* Maxim.)

37040. "No. 5. Brown mottled bean; carefully cultivated and given sufficient fertilizer."

37041. "No. 6. Brown. Planted around the edges of the rice fields or where there is a small corner that can be utilized, they are very hardy and will grow and produce where the ordinary beans will not amount to much."

37042. "No. 7. Large white-eyed bean; carefully cultivated and given sufficient fertilizer."

37043. "No. 8. Large green bean. The larger beans are all carefully cultivated and given sufficient fertilizer."

37044. "No. 9. Black mottled brown bean. As a rule, the smaller beans are planted around the edges of the rice fields or where there is a small corner that can be utilized. They are very hardy and will grow and produce where the ordinary beans will not amount to much."

37045. "No. 10. White mottled black bean; carefully cultivated and given sufficient fertilizer."

37046. "No. 11. Ordinary green bean. As a rule, these beans are planted around the edges of the rice fields or where there is a small corner that can be utilized. They are, however, often planted

37036 to 37058—Continued.

in fields. They are very hardy and will grow and produce where the ordinary beans will not amount to much."

37047. "No. 12. Brown mottled bean; often planted around the edges of rice fields and where there is a small corner that can be utilized; very hardy and will grow and produce where ordinary beans will not amount to much."

37048. "No. 13. Large blue bean; carefully cultivated and given sufficient fertilizer."

37049. "No. 14. Large black bean; carefully cultivated and given sufficient fertilizer."

37050. "No. 15. Small black bean; grown around the paddy fields. It is cultivated in larger areas because it is supposed to be extra nourishing, and some seem even to suppose it has medicinal properties, but I fear there is not much to it."

37051. "No. 16. The larger beans are all carefully cultivated and given sufficient fertilizer."

37052. "No. 17. The red bean; carefully cultivated and given sufficient fertilizer."

37053. "No. 18. Black mottled yellow. Small beans which are planted around the edges of the rice fields or where there is a small corner that can be utilized; very hardy and will grow and produce where the ordinary beans will not amount to much."

37054. "No. 19. Maroon bean. One of the larger beans, all of which are carefully cultivated and given sufficient fertilizer; but this is not very commonly found."

37055. "No. 20. Ordinary white bean. One of the larger beans; carefully cultivated and given sufficient fertilizer."

37056. PHASEOLUS AUREUS Roxb. **Mung bean.**

"*Green pot* bean. It is very closely allied to the soy bean, but is not used in making soy as far as I know. It is used in making cakes and candies. It is also eaten with rice, being cooked with it. It is often used for invalids' food, being cooked and strained and made into a sort of gruel."

37057 and 37058. PHASEOLUS ANGULARIS (Willd.) W. F. Wight. **Adzuki bean.**

37057. "*Red pot* bean. The pot bean is very closely allied to the soy bean, but it is not used in making soy as far as I know. It is used in making cakes and candies. It is also eaten with rice, being cooked with it."

37058. "*White pot* bean. This variety is very rarely seen."

37059. PERSEA AMERICANA Miller. **Avocado.**
(*Persea gratissima* Gaertn. f.)

From Pago Pago, American Samoa. Presented by Commander C. D. Stearns, governor. Received February 6, 1914.

37060. PHOENIX DACTYLIFERA L. **Date.**

From Cairo, Egypt. Procured by Mr. S. C. Mason, of the Bureau of Plant Industry. Received January 29, 1914.

"*Saidy* date. Purchased in the market at Abshawai. These dates were sold simply as *Wahi*, or 'desert' dates, to the village merchants, who do not concern themselves about desert names. The trader said they were *Saidy* and were brought from the oasis of Baharieh, four days' journey, with camel." (*Mason.*)

37061. PERSEA AMERICANA Miller. **Avocado.**

(*Persea gratissima* Gaertn. f.)

From Honolulu, Hawaii. Presented by the Hawaii Agricultural Experiment Station. Received February 2, 1914.

"No. 1454. A chance seedling about 15 years of age; origin unknown. Form pyriform; size small to medium, cavity shallow and somewhat abrupt; stem medium long and quite thick; surface undulating, hard, coriaceous, and slightly pitted and mottled; color green, with small, very abundant yellowish dots; apex a depressed dot; skin quite thin, separating fairly well from the pulp; flesh yellow, running into green at the rind, fine grained, oily, and somewhat buttery, 60 per cent of the fruit; seed very large, conical, fitting loosely in the cavity; flavor rich and nutty. Season, September to January. This tree is very vigorous and symmetrical. Height, 25 feet; spread, 25 feet." (*Higgins, The Avocado in Hawaii.*)

37062 and 37063. SOJA MAX (L.) Piper. **Soy bean.**

(*Glycine hispida* Maxim.)

From Harbin, China. Presented by Mr. Southard P. Warner, American consul, at the request of the American consul at Newchwang. Received February 5, 1914.

See report on the "Soya Bean of Manchuria," 1911.

37062. Grown south of Harbin. 37063. Grown north of Harbin.

37064. CAMPOMANESIA OBVERSA (Miq.) Berg. **Guadiloba.**

From Asuncion, Paraguay. Presented by the Museum of Natural History. Received January 28, 1914.

"Branching shrub, leaves obovate to lanceolate-oblong, membraneous, puberulent above, pubescent below, peduncle solitary, opposite, 1-flowered. Called *Guadiloba* by the natives in the Province of Minas Geraes, where it is common." (*Martius, Flora Brasiliensis, vol. 14, pt. 1, p. 445.*)

37065 to 37068.

From Buitenzorg, Java. Presented by Dr. C. J. J. Van Hall, Department of Agriculture. Received January 26, 1914.

37065. CROTALARIA QUINQUEFOLIA L.

Distribution.—An erect annual found in India and eastward through the Malay Archipelago to the Philippines.

37066. STIZOLOBIUM VELUTINUM (Hassk.) Piper and Tracy (?).

37067. INDIGOFERA TINCTORIA L. **Indigo.**

37068. INDIGOFERA HIRSUTA L.

Annual or biennial, suberect, reaching 2 to 4 feet high, the pubescence gray or brown. Leaves short petioled, 2 to 5 inches long; leaflets mem-

37065 to 37068—Continued.

braneous, gray-green, glaucous below, reaching 1 to 2 inches long, densely coated with adpressed hairs; stipules setaceous, plumose. Racemes short peduncled, very dense, 2 to 6 inches long. Calyx one-eighth inch, densely pubescent, teeth setaceous, long, plumose, corolla red, not much exserted. Pod one-half to three-fourths of an inch long, densely clothed like the branches. This species is distributed over tropical Africa, tropical America, Java, Philippines, and north Australia. In India on the plains from the Himalayas (ascending to 4,500 feet in Kumaon) to Ceylon, Ava, and Tenasserim. It flowers during the rainy and cold seasons. (Adapted from *Hooker, Flora of British India, vol. 2, p. 98,* and *Roxburgh, Flora Indica, vol. 3, p. 376.*)

37069 to 37083.

From Tientsin, China. Presented by Dr. Yamei Kin, Peiyang Woman's Medical School and Hospital. Received February 6, 1914.

Material as follows; quoted notes by Dr. Kin, except as indicated.

37069. ZIZIPHUS JUJUBA Miller. **Jujube.**
(*Ziziphus sativa* Gaertn.)

"Bud wood of the *Ya hu tsao*, 'gourd-shaped jujube,' so named on account of the shape of the fruit, which has a constriction in the middle like a gourd. The fruit is said to be large, measuring from 2½ to 3 inches, and is of sweet flavor and crisp texture. Chihli Province."

37070. ZIZIPHUS JUJUBA Miller. **Jujube.**
(*Ziziphus sativa* Gaertn.)

"From Chihli Province. *K'ang tsao.* The very large ones that I spoke of before, of which it took but seven or eight to make a catty. I trust that you will find this bud wood clean, for they say that the *tsao* trees are singularly free from pests. The insects that disturb them apparently confine their labors chiefly to the leaves."

37071. PYRUS sp. **Pear.**

"Bud wood of the *Pan chin li*, 'half catty pear,' so called on account of the large size and good flavor; when well grown two will weigh on an average a catty. It is said to require the yellow earth on a mountain slope for the best development. The flesh is fine and white."

37072 and 37073. PRUNUS ARMENICA L. **Apricot.**

"To be grown in yellow earth which is hot in the daytime, but at night draws moisture from the depths and shows a good dewfall. A mountain slope protected from early cold winds in spring is the favorite locality."

Bud wood.

37072. "*Pai hsiang hsing êrh*, 'white fragrant apricot' from Chihli Province. The wood apparently makes very slow growth, for you will perhaps notice that though the branches I send are short, yet there are slight divisions, showing that they are of three years' growth. The directions say to get the wood for budding of one year's growth, but even at three years the branches are to my mind remarkably short. The buds are nice and fat, and the Chinese say they just graft the whole stem in rather than merely bud it."

37069 to 37083—Continued. (Quoted notes by Dr. Yamei Kin.)

37073. "White apricot, round late variety, from Chihli Province."

37074 and 37075. SOJA MAX (L.) Piper. **Soy bean.**
(*Glycine hispida* Maxim.)

37074. "*Yüeh ya tou,* literally 'moon-tooth' bean, so called from the edge of the green peeping outside of the black thick skin like the crescent moon in the sky. Is largely used for making bean sprouts, which they say requires a bean that is not mealy or farinaceous, as that kind becomes mushy in the process of germination and has no taste left. Also is good for feeding animals, requiring to be lightly steamed before feeding, not boiled, for then the oil escapes and the flavor is lost. This kind is valued for its oil, which it contains in a great amount, and for making bean curd. This must be grown in a well-drained clay soil; black or moist earth will not do."

37075. "*Cha tou.* Specially used for making bean curd and bean sprouts."

37076. VIGNA SINENSIS (Torner) Savi. **Cowpea.**

"*P'a tou.* A mealy, farinaceous bean just to cook in the ordinary way."

37077. SOJA MAX (L.) Piper. **Soy bean.**

"*Huang tou.* Used for making bean curd as well as starch and vermicelli."

37078. PHASEOLUS AUREUS Roxb. **Mung bean.**

"*Lü tou.* This makes a better quality of starch than anything else. It is curious that in China starch for laundry purposes obtained from maize or wheat is not valued so highly as that made from this bean. Vermicelli is also made from the starch of this bean, and one can at once distinguish it from that made from ordinary starch by the fact that it keeps its clearness and shape much better, no matter how much it is boiled. It also has a better flavor and good keeping qualities. Perhaps it might be an addition to the laundry starches of America, as I fancy it would take a much better gloss, as it is harder than the ordinary starch and would not need so much paraffin added to make a gloss. I doubt if the American palate would care for the vermicelli; it is clear, like glass, and the long strings are surpassingly slippery to eat, worse than the round Italian spaghetti."

37079. PHASEOLUS VULGARIS L. **Bean.**

"*Hung yün tou.* Though the bean itself can be eaten, it is usually used with the pod and all, like a string bean, and it is prized generally for its long bearing qualities, producing, once it begins, for three months at least."

37080. SOJA MAX (L.) Piper. **Soy bean.**
(*Glycine hispida* Maxim.)

"*Ching tou.* Used only for the oil expressed and fodder purposes."

37081. DOLICHOS LABLAB L. **Bonavist bean.**

"*Kuan tung ching.* (The Manchurian peninsula is often spoken of as the Kuan tung district.) The common name is 'old-woman's-ear,' and it is a specialty at the north. The ripe beans can be used like any other

37069 to 37083—Continued.

beans, but are generally used in the pod like string beans. As it grows readily and likes the cold weather, just so that the blossoms do not actually freeze, it thus provides a green bean when the other string beans are gone. In cooking, the object is not to make it soft, but just to plunge it into boiling hot water and not much more than scald it, so that it still remains crisp enough for salad; then it is dressed with vinegar and oil. It should be grown on a trellis. The pods when full grown measure from 4 to 6 inches in length and about 2 inches across; people do not generally wait till it is full grown, but begin to eat it when young, so that the whole pod can be used."

37082 and 37083. HOLCUS SORGHUM L. **Sorghum.**
(*Sorghum vulgare* Pers.)

37082. "Brown kaoliang. Apparently identical with Redstem, S. P. I. No. 22011 (C. I. No. 327), except the peduncle is not red." (*C. R. Ball.*)

37083. "These white varieties go by the common name of 'Stepgrandma White.' Exactly why they should be called 'Stepgrandma' I do not know as yet; possibly I shall hear the legend of it sometime later when I go to the place myself. Used largely for human consumption. Grows to a height of 20 feet."

"Blackhull kaoliang. Undoubtedly the same as Brill Blackhull (Agrost. No. 1442), S. P. I. No. 6710 (Agrost. No. 1457), S. P. I. No. 17920 (C. I. No. 120)." (*C. R. Ball.*)

37084. CITRUS sp. **Lime.**

From Seharunpur, India. Presented by Mr. A. C. Hartless, superintendent, Government Botanical Gardens. Received January 31, 1914.

"*Sylhet* or *Rungpur*. It is one of our oldest varieties; our oldest catalogue, dated 1854, mentions it. I can not even ascertain why the name of *Sylhet* or *Rungpur* is given to it. These are distinct places in India, and widely apart. It is a very hardy tree, and makes good hedges, always productive and ornamental. I have extracted and kept its juice and found it refreshing, but the natives do not care for it, as it is too sour for them. They use it very largely, however, for softening leather. It forms a part of the daily supply of fruits, as it is used so much for our boots and cleaning. It comes true from seed." (*Hartless.*)

37085 to 37089. LINUM USITATISSIMUM L. **Flax.**

From Addis Abeba, Abyssinia. Received through the British Legation at that place January 31, 1914.

Quoted notes by Capt. D. A. Sandford.

"Flax (local name, *talba*) grows in most parts of Abyssinia. It is usually sown in July and reaped in November. The natives use it for cooking purposes and its oil also medicinally as a laxative. The general price of the seed is 25 pounds to the dollar (Maria Theresa), but the white variety is preferred to the others and is slightly more expensive."

37085. "Black. From Mundjar, 40 miles east of Addis Abeba. Requires a warmer climate than other varieties."

37086. "White. From Soddo, 25 miles south of Addis Abeba."

37085 to 37089—Con. (Quoted notes by Capt. D. A. Sandford.)

37087. "Dark red. From Boulga, 40 miles northeast of Addis Abeba."

37088. "Black and white. From Soddo, 25 miles south of Addis Abeba. It is sown mixed."

37089. "Red. From Metcha, 40 miles west of Addis Abeba."

37090 to 37095.

From Rio de Janeiro, Brazil. Collected by Messrs. P. H. Dorsett, A. D. Shamel, and Wilson Popenoe, of the Bureau of Plant Industry. Received February 5, 1914.

Quoted notes by Messrs. Dorsett, Shamel, and Popenoe.

37090. MYRCIARIA JABOTICABA (Vell.) Berg. **Jaboticaba.**
(*Myrcia jaboticaba* Baill.)

"(No. 58a. January 5, 1914.) Seeds from a batch of fruits purchased in the market here. The presence of a short stem on the fruit leads to the belief that they are of the species *Myrciaria jaboticaba* and not *M. cauliflora*, of which seeds have already been sent in. The size is variable, the best specimens being about 1 inch in diameter. Color dark purplish maroon. The skin seems a little tougher than the *M. cauliflora* and the flavor is more acid and not quite so pleasant. Seeds normally four, rarely one, two, or more commonly three."

37091. OCOTEA REGELIANA (Meissn.) Mez.

"(No. 59a. January 6, 1914.) Seeds from a tree growing on the hillside above the Hotel Internacional. Slender in form, about 30 feet high, leaves light green, stiff, somewhat glossy, elliptical acute, 2½ to 3 inches long. Fruits oval, three-fourths of an inch long, purplish black, glossy, with a woody calyx. Pulp one-eighth of an inch thick, bluish purple."

37092. GARCINIA sp.

"(No. 60a. January 6, 1914.) Seeds from a tree in the Jardin Botanico bearing the number 54. We believe that this species has already been introduced into the United States, but are sending a few seeds for possible use in connection with the mangosteen experiments."

37093. OCOTEA sp.

"(No. 61a. January 6, 1914.) Seeds of an arborescent shrub growing on the hillside west of the Hotel Internacional. Leaves deep green, thick, oblong-lanceolate, acuminate, 3 to 4 inches in length. For trial as an ornamental in Florida and southern California."

37094. MYRCIARIA EDULIS (Vell.) Skeels. **Cambucá.**
(*Eugenia edulis* Vell.)

"(No. 62a. January 6, 1914.) Seeds of the *cambucá*, from fruits purchased in the market. A very interesting myrtaceous fruit, closely resembling in foliage and general character of fruit the jaboticaba. Leaves lanceolate-elliptical, acuminate, deep green above, lighter green beneath, 4 to 5 inches long. Fruits oblate in form, 2 inches in width and 1½ inches long, sessile, surface smooth, bright orange-yellow in color (Code de Couleurs 156). Skin thin, outer flesh one-fourth of an inch thick, tough and acid, inner pulp or edible portion surrounding the seed about the same thickness, soft, translucent, juicy, of average subacid flavor, somewhat resembling that of *Passiflora edulis*. Seed oval, compressed laterally, one-eighth of an inch long. For trial in Florida and California."

37090 to 37095—Continued.

37095. BACTRIS CARYOTAEFOLIA Mart. **Palm.**

"(No. 68a. January 6, 1914.) Seeds from palm fruits bought in the market, where they are called *sucum* (*tucum?*). The thin pulp surrounding the seed is edible, rather acid in flavor. Fruits black, about three-quarters of an inch in diameter. For trial in Florida and California."

37096 to 37099.

From Joinville, Brazil. Presented by Mr. Jean Knatz. Received February 5, 1914.

37096 and 37097. COLOCASIA ESCULENTA (L.) Schott.

37096. "Green *yama*." 37097. "Purple *yama*."

37098 and 37099. XANTHOSOMA sp.

37098. "Green *taya*." 37099. Purple *taya*."

"The quality of the tubers of these *yamas* and *tayas*, as grown at the Plant Introduction Field Station, Brooksville, Fla., in 1914, was very poor, and the varieties will be of interest mainly for botanical study." (*R. A. Young.*)

37100 to 37102. ECHIUM spp.

From Santa Ursula, Teneriffe, Canary Islands. Presented by Dr. George V. Perez. Received January 26, 1914.

37100. ECHIUM PEREZII Sprague.

An erect plant, 2 meters high, resembling *Echium wildpretii* in its silky leaves, rose-colored corolla, and long exserted straight filaments, which radiate regularly from its mouth, but differing from that species in the broad lax inflorescence and longer style arms. A recently discovered species from Punta Llana and Barranco del Agua, Punta, Canary Islands, sent to Kew by Dr. George V. Perez, for whom the species is named. (Adapted from *Kew Bulletin, 1914, pp. 210 and 267.*)

37101. ECHIUM PININANA Webb and Berth.

"A very rare plant indeed." (*Perez.*)

For previous introduction and description, see S. P. I. No. 32263.

37102. ECHIUM WILDPRETII Pearson.

For previous introduction and description, see S. P. I. No. 35097.

37103. DURIO ZIBETHINUS Murray. **Durian.**

From Singapore, Straits Settlements. Presented by Mr. I. Henry Burkhill, Botanic Gardens, Singapore. Received February 6, 1914.

See S. P. I. No. 28082 for previous introduction.

"Civet-cat fruit. A very large, handsome, pyramid-shaped tree, native of the Malayan Archipelago, and commonly cultivated in the Straits, Burma, Java, etc., for the sake of its celebrated fruit. The latter is produced on the older branches, varies somewhat from round to oval in shape, and usually weighs from 5 to 7 pounds or more. It is armed with thickly set, formidable prickles about one-half inch long; when ripe it becomes slightly yellow, and possesses an odor which is intensely offensive to most people, especially on first acquaintance with it. The cream-colored pulp surrounding the seed is the edible portion; this is most highly prized by the Malays and other oriental people, and is also relished by Europeans who acquire a taste for it. Firminger describes it as

'resembling blancmange, delicious as the finest cream,' whilst Mr. Russell Wallace considered that 'eating durians is a sensation worth a voyage to the East.' The large seeds may be roasted and eaten like chestnuts. Pounded into flour, they are said to be sometimes made into a substance like 'vegetable ivory.' The durian tree thrives in the moist low country of Ceylon up to 2,000 feet elevation, and luxuriates in deep alluvial or loamy soil. In Peradeniya gardens there are magnificent specimens well over 100 feet in height. They usually flower in March and April, and the fruit is ripe in July or August. Durian fruits are variable in size, shape, flavor, and quantity of pulp, according to variety. The trees also vary in productiveness, some varieties being almost barren. Selection and high cultivation should, therefore, be practiced in order to obtain the best fruits. The tree is readily propagated by seed if sown fresh; the seed is of short vitality and germinates in seven to eight days." (*Macmillan, Handbook of Tropical Gardening and Planting.*)

37104 to 37116.

From Zaria, Northern Nigeria, Africa. Presented by Mr. K. T. Rae, Department of Agriculture. Received February 4, 1914.

Quoted notes by Mr. Rae.

37104 to 37111. VIGNA SINENSIS (Torner) Savi. **Cowpea.**

37104. "No. 1. *Dariya amariya* (Hausa name). These are grown, though not extensively, in the pagan districts of this province."

37105. "No. 2. *Hunum marini* (Hausa name). These are grown though not extensively, in the pagan districts of this province. They were experimented with for the first time this year, and under unfavorable conditions, with a rainfall of only 27.9 inches, about 5 inches below the average, this variety proved to be the second best yielder, giving 41 pounds per acre."

37106. "No. 3. *Zaria wake* (Hausa name)."

37107. Red. Selected from No. 3. *Zaria wake.*

37108. Spotted. Selected from No. 3. *Zaria wake.*

37109. "No. 4. *Saka-baba-sata.* These cowpeas were experimented with for the first time this year, and under unfavorable conditions, with a rainfall of 27.9 inches, about 5 inches below the average, this variety proved to be the best yielder, giving 56 pounds per acre."

37110. "No. 5. *Farin wake* (Hausa name)."

37111. (No data.)

37112. PHASEOLUS LUNATUS L. **Lima bean.**

"No. 1. Small black and white bean. Edible climbing bean."

37113. PHASEOLUS LUNATUS L. **Lima bean.**

"No. 2. Large pure white bean. Edible climbing bean."

37114 to 37116. HOLCUS SORGHUM L. **Sorghum.**
(*Sorghum vulgare* Pers.)

37114. "No. 1. Locality, Kano. Local name *Kaura.* One of the most common varieties grown here, both for human consumption and for stock."

37104 to 37116—Continued.

37115. "No. 2. Locality, Kano. Local name *Fara fara.* One of the varieties most commonly grown here, both for human consumption and food for stock."

37116. "No. 3. This variety is grown in much smaller amounts and the grain, as will be seen, is a very poorly developed one. This fact would seem to support the statement made on page 146 of Dudgeon's 'Agricultural Products of British West Africa,' i. e., that the stem is particularly rich in saccharine juice and that this variety is mainly used as a cattle food."

37117. ANNONA CHERIMOLA Miller. Cherimoya.

From San Jose, Costa Rica. Presented by Mr. Carlos Wercklé, Department of Agriculture. Received January 30, 1914.

"*Jara.* Fruit tree; hot climate." (*Wercklé.*)

37118. CARICA PAPAYA L. Papaya.

From Angola, Africa. Presented by Rev. W. P. Dodson. Received January 26, 1914.

"Seeds that are acclimatized here for a generation. It is not the United States variety, but rather that of South America, and is a most delicious soft fruit that grows abundantly. It ought to grow in southern Florida or southern California, quite south (Imperial Valley)." (*Dodson.*)

37119 to 37121.

From Buitenzorg, Java. Presented by the Department of Agriculture. Received January 29 and February 6, 1914.

37119. CASUARINA SUMATRANA Jungh.

"Introduced as a better style of *Casuarina,* forming a large and more graceful tree than *C. equisetifolia,* used so commonly as a street tree in Florida." (*Fairchild.*)

"A shrub which in greenhouse cultivation may attain a height of 1½ meters or more, excessively branched. Branches spread out, elegantly bent down by the weight of the twigs. Branches, twigs, and little twigs are three cornered, very thin, destitute of leaves, gracefully arched, sometimes pendent, forming by their union plumy masses or a kind of foxtail, the whole of a deep shining green. Few plants are prettier, and above all more suitable for commercial ornamentation, either for bouquets or decorations for ballrooms. This species has a considerable number of thin twigs, which give to the whole an excessive lightness which can be compared to the marabous employed for decorating headdresses. Another advantage yet which these twigs present is that, being completely destitute of leaves, and owing their plumy lightness to the delicacy of the different parts, they retain their ornamental character for a very long time, which does not take place when this character is due to the leaves. This species is cultivated in a light and firm mixture consisting of vegetable mold and peat, to which is added a small quantity of very sandy soil, in pots well drained and relatively large. However, a better way is to cultivate them in the ground in a hothouse, or, at the least, in a good temperate house. Then the plants are very hardy and one can, at need, cut off the branches to make bouquets or other forms of ornamentation.

37119 to 37121—Continued.

It goes without saying that, cultivated in pots, this species will serve in the decoration of apartments, in the filling of jardinieres, etc." (*E. A. Carrière in Revue Horticole, 1889, p. 467.*)

37120. COIX LACRYMA-JOBI L. **Job's-tears.**

For a detailed account of this crop plant, see the Agricultural Ledger, 1904, no. 13.

37121. CORDIA SUAVEOLENS Blume.

A large boraginaceous tree up to 60 feet in height, with alternate, variable leaves, equal or unequal at the base, acute or slightly obtuse, rotund elliptic or narrowly ovate, papery, hairy in the axils of the nerves; flowers small and white in terminal or axillary cymes. (Adapted from *Koorders and Valeton, Mededeelingen uit 'sLands Plantentuin, vol. 42, p. 69, 1900.*)

37122 to 37124. CARICA PAPAYA L. **Papaya.**

From San Jose, Costa Rica. Presented by Mr. Carlos Wercklé, Department of Agriculture. Received January 31, 1914, in three separate packets, but without varietal names or descriptions.

37125. GOSSYPIUM BARBADENSE L. **Cotton.**

From Angola, Africa. Presented by Rev. W. P. Dodson. Received January 26, 1914.

"I have often thought of how highly Egyptian cotton has been spoken of and thought you would like to try some from Angola. As the natives make it up it is very strong. The truth is, that even the natives prize these seeds they are so scarce, owing to the fact that it is practically a wild plant. This cotton is very strong. A single thin cord of it is used by the native to sew up his cloth or mulele. Many old men are found spinning, and ten years ago a few used to weave, but weaving is now almost a lost art. I have in America a sample of the cloth, about four yards of it, sewed together. It is coarse, but good and very strong work. When a native has such a cloth it lasts him for as long as ten years." (*Dodson.*)

37126. CHAYOTA EDULIS Jacq. **Chayote.**

From Altadena, Cal. Procured from the West India Gardens. Received February 7, 1914.

Secured for experimental work at one of the plant introduction field stations.

37127. CRATAEGUS PINNATIFIDA Bunge. **Hawthorn.**

From Soochow, China. Presented by Mr. N. Gist Gee, Soochow University. Received February 10, 1914.

See S. P. I. No. 35456 for previous introduction and description.

37128. FURCRAEA ELEGANS Todaro.

From La Mortola, Ventimiglia, Italy. Presented by Mr. Alwin Berger, curator of the garden. Received February 9, 1914.

"This is one of the seventeen species of the genus Furcraea, succulent desert plants from Central America and particularly from Mexico. The perianth is whitish and wheel shaped. The cushions have a swelling at the base, in which respect it differs from Agave, a genus bearing a somewhat close resemblance.

The species of Furcraea are cultivated in much the same way as those of Agave except that the former are given more heat and water. As a rule, Furcraeas bear fruit not more than once and then die without producing suckers. They do, however, produce when in flower an immense number of bulbils which may be used for propagation. It is impossible to say at what size or age the plant will bloom. Grown in pots they may take a century. On the other hand, plants from bulbils have been known to flower in three years. The leaves of *F. elegans* measure 4 to 5 inches at the broadest part and 3 inches above the base. They are rough on the back and are armed with large prickles. The peduncles are from 20 to 25 feet long. The branches are slightly compound and the panicles often reach from 10 to 12 feet." (*L. H. Bailey, Cyclopedia of American Horticulture.*)

Bulbils.

37129 and 37130.

From Lal Bagh, Bangalore, India. Presented by Mr. G. H. Krumbiegel, economic botanist, Mysore Government Botanical Gardens. Received February 9, 1914.

37129. BAMBOS sp. **Bamboo.**

This was received in response to a request for "bamboo rice" listed in the Official Handbook of Exhibits of the Mysore Dasara Industrial and Agricultural exhibition, 1911, among the rices, with the description: "*Kiri bidari* rice (bamboo rice). This is prepared out of bamboo paddy which is grown in the bamboo trees once in 60 years. This is used as food by the poor during distress and also used as medicine for those that are suffering from enlargement of the spleen."

37130. ORYZA SATIVA L. **Rice.**

"*Kembuti bhatta.*"

37131. GARCINIA MULTIFLORA Champion.

From Hongkong, China. Presented by Mr. W. J. Tutcher, Botanical and Forestry Department. Received February 9, 1914.

An opposite-branched clusiaceous shrub, with entire, ovate or obovate, short-stalked, thick leaves, 3 to 3½ inches long, and terminal corymbs of 4-petaled flowers. Common toward the Black Mountain, Hongkong, flowering in the heat of summer. (Adapted from *Bentham, Flora Hongkongensis, p. 25, 1861.*)

37132 and 37133. CUCURBITA PEPO L. Squash.

From Rome, Italy. Presented by Dr. Gustav Eisen. Received February 9, 1914.

"*Zucchetta.* A peculiar kind of squash. This squash is eaten green and while the flower is yet adherent to the fruit, and never when the fruit is ripe, at least I have never seen it eaten at that stage. Used stewed, fried, etc., in many different ways, like squash or green peas. It is most delicious when boiled in fresh butter and is fully equal to tender green peas, though of a different flavor. I prefer *zucchetta* to any other fresh vegetable in this country. Many eat the flowers when the new fruit is not more than 1 or 2 inches long, though generally they are sold when the fruit is between 6 and 10 inches, always while green." (*Eisen.*)

37132. "*Zucchetta nana, 'Cerbero,'*"

37133. "*Zucchetta nana, 'Romana.'*"

37134 to 37144.

From Brisbane, Australia. Presented by Mr. J. F. Bailey, Botanic Gardens, through Dr. E. C. Joss, Portland, Oreg. Received February 4, 1914.

37134. BARKLYA SYRINGIFOLIA Mueller. **Gold-blossom tree.**

This is the only species of a genus belonging to the section of the pea family bearing regular flowers. It is a large tree, with alternate simple coriaceous leaves, which have long stalks, and are in form like those of the lilac (Syringa), but have seven radiating nerves. The flowers are golden yellow, very numerous, and disposed in axillary or terminal racemes. The pods are stalked, about half an inch long, thin, containing few seeds. The plant is a native of eastern Australia, and is found near the Brisbane River. It is commonly known as the *Queensland gold-blossom* tree. The wood is hard, close grained, of a blackish gray color, and might be suitable for tool handles. The tree is, however, of greater value to the horticulturist than to the timber merchant, its pleasant foliage and luxuriant yellow flowers rendering it a pretty object in the gardens. Diameter, 12 to 15 inches; height, 40 to 50 feet. (Adapted from *Lindley, Treasury of Botany; Maiden, Useful Native Plants of Australia, p. 384;* and *Guilfoyle, Australian Plants, p. 70.*)

37135. BAUHINIA HOOKERI Mueller.

"This is a large tree, with a spreading head, usually quite glabrous. Leaflets quite distinct, very obliquely and broadly ovate or obovate, very obtuse, three-fourths of an inch to 1½ inches long, finely 5 to 7 nerved, with a small thick point terminating the petiole between them. Flowers white, edged with crimson, few, in short terminal racemes, the pedicels very short. Calyx glabrous, or nearly so, 1 inch long or even more, the disk-bearing base narrow cylindrical, the free part about as long, divided nearly to the base into five narrow lobes. Petals clawed, ovate, nearly equal, the lamina nearly 1½ inches long, slightly villous outside near the base. Stamens ten, rather longer than the petals. Ovary on a long stipe; stigma large. Pod stipitate, flat, 1 to 1¼ inches broad. Northern Australia: Arnhem Bay, Port Essington. Queensland: Broad Sound, Gilbert River, Sutton River, Rockhampton, and islands of Torres Strait." (*Bentham, Flora Australiensis, vol. 2, p. 296, 1864.*)

37136. BRACHYCHITON ACERIFOLIUM Mueller. **Lacebark tree.**
(*Sterculia acerifolia* Cunn.)

This is a semideciduous tree of New South Wales and is commonly called the *Illawarra flame tree, or Lacebark tree.* The flowers are of a bright-red color, which make the trees a conspicuous object at a distance. It attains a height of 60 to 120 feet and a diameter of 2 to 3 feet. The bark is used by the aborigines for making fishing nets. The wood is soft and spongy. (Adapted from *Lindley, Treasury of Botany;* and *Von Mueller, Select Extra-Tropical Plants, p. 81.*)

37137. CASSIA BREWSTERI TOMENTELLA Mueller.

A tree attaining to a height of 30 to 40 feet, with the branches, under side of leaflets, and inflorescence minutely hoary tomentose. The leaflets are small and short and the flowers rather small. The seeds of this

37134 to 37144—Continued.

species appear to be flattened at right angles to the embryo, which, in the other sections of Cassia, lies parallel to the valves. This variety is found in Queensland on hilly pastures and river banks on the Burdikin at Rockhampton, at Port Denis, and on the Fitzroy River. (Adapted from *Bentham, Flora Australiensis, vol. 2, p. 282, 1864.*)

37138. CASTANOSPERMUM AUSTRALE Cunn. and Fraser.

Moreton Bay chestnut.

See S. P. I. No. 32087 for previous introduction and description.

37139. ERYTHRINA sp.

37140. FICUS MACROPHYLLA Desf. **Moreton Bay fig.**

See S. P. I. No. 3494 for previous introduction and description.

37141. FICUS RUBIGINOSA Desf. **Port Jackson fig.**

This is one of the hardiest of all the fig trees, and very eligible among the evergreen shade trees, particularly for promenades. This fig, like all other figs, exudes a juice when the bark is wounded, but at present it is put to no useful purpose. The resinous exudation of this tree resembles Euphorbium in appearance, and varies in color from dirty yellow or red to almost white, solid, generally brittle, but tough in the interior of large pieces, opaque, with dull and waxlike fracture; at 30° C. it softens and becomes plastic, like gutta-percha, but not sticky, provided it has been previously wetted with water. In its natural state it has neither taste nor odor but evolves an odor like that of wax when heated, and evinces a characteristic taste on being masticated. It is quite insoluble in water, either hot or cold. The greater part of it is soluble in cold alcohol, and a considerable portion of the remainder in hot alcohol. The names commonly given to this plant are *Port Jackson* fig, *narrow-leaved* fig, and *native banyan.* (Adapted from *Maiden, Useful Native Plants of Australia, p. 225,* and *Von Mueller, Select Extra-Tropical Plants, p. 228.*)

37142 and 37143. PHORMIUM TENAX Forster. **New Zealand flax.**

37142. **37143.** Variegated.

37144. STENOCARPUS SINUATUS Endl.

"This tree is known as the 'tulip tree' or 'fire tree' and is so called on account of the brilliancy of its flowers. To the aborigines of northern New South Wales it is known as *yiel-yiel,* or *yill-gill.* The wood is nicely marked, and admits of a good polish. It is close grained, hard, and durable. It is used for staves and veneers, and is also suitable for cabinetwork. It is not a plentiful tree. Diameter 24 inches, height 60 to 70 feet. Northern New South Wales and Queensland." (*Maiden, Useful Native Plants of Australia, p. 600.*)

37145 to 37152. ARALIA CORDATA Thunberg. **Udo.**

From Yokohama, Japan. Procured from L. Boehmer & Co. Roots received February 12, 1914.

"This material came from Kanagawa Ken." (*L. Boehmer.*)

37145. *Kan.*
37146. *Yama.*
37147. *Wase white.*
37148. *Oku white.*
37149. *Yakate red.*
37150. *Yakate white.*
37151. *Wase red.*
37152. *Oku red.*

37153. SCHIZONOTUS SORBIFOLIUS (L.) Lindl.
(*Spiraea sorbifolia* L.)

From Peking, China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received February 17, 1914.

"(No. 1046. December 1, 1913.) A variety of the ordinary Sorbus-leaved Spiraea, which is very impartial to adverse conditions. See description of No. 1986a [S. P. I. No. 36799] for further details." (*Meyer.*)

"A shrub 3 to 6 feet high, which suckers freely; stems erect, very pithy, varying from nearly smooth to downy. Leaves 8 to 12 inches long, composed of 13 to 25 leaflets, which are lanceolate, 2 to 3½ inches long, one-half to 1 inch wide; sharply and conspicuously double toothed, green on both sides; usually quite smooth above and the same beneath. Flowers one-third of an inch across, white, produced during July and August in a stiff, erect raceme 6 to 10 inches high; flower stalks downy and glandular; ovaries smooth or nearly so.

"Native of northern Asia from the Ural Mountains to Japan; introduced in 1759. It is distinguished from its near allies *Spiraea lindleyana* and *S. aitchisoni* by its comparatively dwarf, stiff habit, and narrower, stiffer flower panicles. Grown in rich soil it makes a handsome shrub." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 543*, under *Spiraea sorbifolia.*)

Cuttings.

37154 to 37167.

From Tulun, Russia. Presented by Mr. Victor Pissareff, Tulun Experiment Field. Received February 11, 1914.

Quoted notes by Mr. Pissareff.

37154. TRITICUM AESTIVUM L. **Wheat.**
(*Triticum vulgare* Vill.)

"Common summer wheat of the country. Province Irkutsk, latitude 52° 16′; Malta country, 1913."

37155. SECALE CEREALE L. **Rye.**
"Native summer rye. Province of Yakutsk, latitude 62° 1′ N."

37156. HORDEUM VULGARE L. **Barley.**
"Summer barley. Province of Yakutsk, latitude 62° 1′ N."

37157. TRITICUM AESTIVUM L. **Wheat.**
(*Triticum vulgare* Vill.)

"Summer wheat from native wheat. Somewhat frozen, 1913."

37158. TRITICUM AESTIVUM L. **Wheat.**
(*Triticum vulgare* Vill.)

"Summer wheat *Amerikanka.* Province Yakutsk, latitude 62° 1′ N."

37159. TRITICUM DURUM Desf. **Wheat.**
"Summer macaroni wheat. Atbasar Agricultural School, Province of Akmolinsk, crop of 1912."

37160. TRITICUM AESTIVUM L. **Wheat.**
(*Triticum vulgare* Vill.)

"Winter wheat *Sandomyrka*, Province of Tomsk, Siberia."

37161. TRIFOLIUM PRATENSE L. **Red clover.**
"Wild red clover collected at Tulun Experiment Field, Province of Irkutsk, 1913."

37154 to 37167—Continued.

37162. PHLEUM PRATENSE L. **Timothy.**

"Timothy grass, crop of 1912. Irkutsk, from Bajandai field."

37163. VICIA AMOENA Fisch. **Vetch.**

"Wild vetch collected at Tulun, Irkutsk, 1913."

37164. TRITICUM AESTIVUM L. **Wheat.**
(*Triticum vulgare* Vill.)

"Summer wheat. Province of Yakutsk, 1912."

37165. TRIFOLIUM LUPINASTER L. **Clover.**

"Wild clover collected at Tulun, Government of Irkutsk, 1913."

37166. FAGOPYRUM VULGARE Hill. **Buckwheat.**
(*Fagopyrum esculentum* Moench.)

"Native buckwheat, Irkutsk, Malta country, crop of 1913."

37167. TRITICUM AESTIVUM L. **Wheat.**
(*Triticum vulgare* Vill.)

"Native summer wheat. Province of Yakutsk."

37168 to 37213. DIOSPYROS KAKI L. f. **Persimmon.**

From Okitsu, Japan. Presented by Mr. T. Tanikawa, in charge of the Government Horticultural Experiment Station. Received February 19, 1914.

"We take great pleasure in sending you scions of all the *kakis* which we now have in our garden.

"These *kakis* were gathered from several localities of this country as promising varieties. We must confess that it is very difficult to collect all the varieties named in our 'Special Bulletin No. 28,' because many of them are seedlings of some varieties and named by the finder or the cultivator. Such *kakis* are almost always inferior in quality and too scarce in number to be recognized as a variety. For those reasons we regret that we can not send such *kakis* to you." (*Tanikawa.*)

Sweet varieties, as follows:

37168. No. 1. *Tenjin-gosho.*
37169. No. 2. *Ama-hyakume.*
37170. No. 3. *Fuyu.*
37171. No. 4. *Yedoichi.*
37172. No. 5. *Hana-gosho.*
37173. No. 6. *Mizu-shima.*
37174. No. 7. *Jiro.*
37175. No. 8. *Oranda-gosho.*
37176. No. 9. *Oku-gosho.*
37177. No. 10. *Otera.*
37178. No. 11. *Kiara.*
37179. No. 12. *Zenji-maru.*
37180. No. 13. *Ye-gosho.*
37181. No. 14. *Yashima.*
37182. No. 15. *Yedoichi.*
37183. No. 16. *Sekaiichi.*
37184. No. 17. *Tsukiyo.*
37185. No. 18. *Toyo-oka.*
37186. No. 19. *Ogosho.*
37187. No. 20. *Kanro.*

Astringent varieties, as follows:

37188. No. 1. *Handai.*
37189. No. 2. *Shiroto-damashi.*
37190. No. 3. *Saijo.*
37191. No. 4. *Koshu-hyakume.*
37192. No. 5. *Kawa-bata.*
37193. No. 6. *Oyotsu-mizo.*
37194. No. 7. *Takura.*
37195. No. 8. *Akadansu.*

37168 to 37213—Continued.

37196. No. 9. *Yamagaki* (For stocks).
37197. No. 10. *Omidansu.*
37198. No. 11. *Shozayemon.*
37199. No. 12. *Dojo-hachiya.*
37200. No. 13. *Monbei.*
37201. No. 14. *Aizu-mishirazu.*
37202. No. 15. *Fuji.*
37203. No. 16. *Hira-gaki.*
37204. No. 17. *Yotsu-mizo.*
37205. No. 18. *Tanenashi.*
37206. No. 19. *Yemon.*
37207. No. 20. *Hira-tanenashi.*
37208. No. 21. *Meotogaki.*
37209. No. 22. *Yokono.*
37210. No. 23. *Gi-ombo.*
37211. No. 24. *Inayama.*
37212. No. 25. *Obi-shi.*
37213. No. 26. *Onihira.*

37214. LINUM USITATISSIMUM L. **Flax.**

From Hoshangabad, Central Provinces, British India. Presented by Mr. A. Howard, Imperial Economic Botanist, Agricultural Research Institute, Pusa, Bengal, India. Received February 20, 1914.

37215. ORYZA SATIVA L. **Rice.**

From Lima, Peru. Presented by Mr. Benton McMillin, American minister. Received February 17, 1914.

"Highland rice, grown in the montaña of Peru. It is a species produced without irrigation and at an elevation several thousand feet above the sea level. It is quite possible you might develop it into a valuable food product." (*McMillin.*)

37216. TALAUMA HODGSONI Hook. f. and Thoms.

From Sibpur, near Calcutta, India. Presented by the superintendent, Royal Botanic Gardens. Received February 17, 1914.

This is a tender evergreen tree belonging to the Magnoliaceæ. It is 50 to 60 feet tall, bearing cup-shaped fragrant flowers fully 6 inches across and 4 inches deep, blooming in early spring. The ivory-white petals are quite thick and contrast finely with the glaucous purplish blue sepals. Leaves, 8 to 20 by 4 to 9 inches, obovate oblong, cuspidate or obtuse, leathery, glaucous; flowers solitary, terminal; sepals 3 to 5, purple outside, petals about six in number. This species is a native of the Himalayas, a region which is perhaps richer in handsome magnolialike trees than any other area of equal size in the world. This species grows at altitudes ranging from 5,000 to 6,000 feet. (Adapted from *Hooker and Thomson, Botanical Magazine, pl. 7392,* and *Bailey, Cyclopedia of American Horticulture.*)

37217 and 37218.

From Barberton, Transvaal. Presented by Mr. George Thorncroft. Received February 21, 1914.

37217. CEROPEGIA THORNCROFTII N. E. Brown.

"This is a climber 4 to 5 feet, always found growing up an acacia tree in the dry veldt." (*Thorncroft.*)

"*Ceropegia thorncroftii* closely resembles *C. crispata* N. E. Br., not only in its habit and as regards its foliage, but also in having a cluster

37217 and 37218—Continued.

of thick fleshy roots instead of a tuber. But while it is nearly allied to *C. crispata*, *C. thorncroftii* differs markedly from that species in having much smaller flowers characterized by the gibbous projection at the middle of the keel on the inner side of the lobes, of which there is no trace in *C. crispata*. Mr. Lynch informs us that *C. thorncroftii* requires the usual treatment under ordinary tropical conditions of the other species of the genus except that in winter it appears to demand a rather higher temperature than the majority and to prefer a greater degree of dryness. It has done well in the stove, but has not succeeded in the cactus house. The masses of fleshy roots appear to be sensitive to any excess of moisture, especially if associated with too low a temperature." (*Curtis's Botanical Magazine, 1912, tab. 8458.*)

37218. DIMORPHOTHECA SPECTABILIS Schlechter.

"Magenta color, disk purple, attains a height of 2 feet on the mountain stony places, altitude 5,000 feet. This plant appears after the first rains in October, and is burnt off in the winter by the veldt fires. A very beautiful plant." (*Thorncroft.*)

37219. ZEA MAYS L. **Corn.**

From Puerto Bertoni, Paraguay. Presented by Dr. Moises S. Bertoni. Received February 21, 1914.

"Seeds of a new variety of early hard maize, *communis minor*. This is a new variety which we believe will be of great interest in those countries in which the early European maize gives good results with difficulty. It is a new variety which we have obtained in this agronomic station by hybridization and selection of various species of hard and soft maizes of different degrees of earliness. It is almost as early a ripener as the variety of *Early Soft* maize, which serves as the base, and almost as hard and good as the *Hardy Canary* maize, with which it was first crossed. It is notably hardy and drought resistant. The plant is small and of good production." (*Bertoni.*)

37220. PHASEOLUS VULGARIS L. **Bean.**

From Bahia, Brazil. Collected by Messrs. P. H. Dorsett, A. D. Shamel, and Wilson Popenoe, of the Bureau of Plant Industry. Received January 22, 1914.

"(No. 53a. December 26, 1914.) *Mulatinha* (little mulattress), a bean grown on the dry lands of the interior of Bahia State. One liter of seed purchased in the Mercado Novo at 240 reis [8 cents]." (*Dorsett, Shamel, and Popenoe.*)

37221 and 37222.

From Nice, France. Presented by Dr. A. Robertson Proschowsky. Received February 6, 1914.

37221. ANNONA CHERIMOLA L. **Cherimoya.**

"Seeds of the anona which this year produced a few quite good fruits in my garden. This species fruits every year, but usually the fruits are full of seeds and have little edible substance." (*Proschowsky.*)

37222. SECAMONE WIGHTIANA (Hook. and Arn.) Schumann.
(*Toxocarpus wightiana* Hook. and Arn.)

"Small shrub, showy orange-colored flowers, rather thorny." (*Proschowsky.*)

Distribution.—The Provinces of Hupeh and Kwangtung in China and the islands of Hongkong and Hainan.

37223. DENDROCALAMUS STRICTUS (Roxb.) Nees. **Bamboo.**

From Lansdowne, India. Collected by Mr. R. S. Woglum, Bureau of Entomology, while on his trip to India in 1911.

"A very useful and strong bamboo of India, formerly used universally for spear shafts. 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. (*Woglum.*)

37224 and 37225.

From Algiers, Algeria. Presented by Dr. L. Trabut, director, Service Botanique. Received February 20, 1914.

37224. CORDIA OBLIQUA Willd.

"A beautiful tree, very vigorous with us, introduced as seed from Cochin China." (*Trabut.*)

Distribution.—Western India, extending from the Punjab region southward to Ceylon.

A small, twisted, boraginaceous tree, up to 20 feet in height, with alternate, ovate leaves, smooth above, hairy on the veins below; and lateral or terminal cincinnal inflorescences of small white flowers. From Java and Sumatra. (Adapted from *Koorders and Valeton, Mededeelingen uit 'sLands Plantentuin, vol. 42, p. 67, 1900.*)

37225. JUGLANS REGIA L. **Walnut.**

"The nut has been cultivated in the mountains by the natives from the most ancient times; they propagate them by sowing seed, and they have thus obtained some very fine varieties, which are fixed." (*Trabut.*)

37226. COLOCASIA ANTIQUORUM Schott. **Taro.**

From Mr. H. B. Shaw, who obtained them as a sample from a shipment from Beirut, Syria, imported by M. J. Corbett & Co., brokers, of New York. Corms received February 1, 1914.

"A variety of taro apparently identical with the Egyptian taro. The quality is inferior." (*R. A. Young.*)

37227. COIX LACRYMA-JOBI L. **Job's-tears.**

From Pamplemousses, Mauritius. Presented by the overseer, Royal Botanic Garden. Received February 26, 1914.

37228 to 37325. SOJA MAX (L.) Piper. **Soy bean.**
(*Glycine hispida* Maxim.)

From Seoul, Chosen (Korea). Presented by Mr. George H. Scidmore, American consul general. Received February 17, 1914.

"I submit the following information, which has been obtained, for the most part, from the Director of the Department of Agriculture, Commerce, and Industry, of the General Government of Chosen. The same officer has very kindly supplied samples of 98 varieties of soy beans.

"The usual period during which the seed is sown extends from the middle of May to about July 10. In case the sowing is postponed till the latter part of that period the fields from which wheat has already been harvested are used. The soil is first prepared by plowing and is then shaped into small hemispherical hillocks about 4 feet in diameter. The seed is planted in drill holes on the

top of these hillocks, 6 or 7 inches being left between drill holes and 5 or 6 seeds being sown together in a hole. As a general rule, no manure or other fertilizer is used, but when it is desired to enrich the soil ashes are most commonly employed.

"After the plants have sprouted sufficiently, the shoots are thinned out so as to leave two or three only to each drill hole. This process takes place at the time of the first weeding. The ground surrounding the plants is gone over with a hoe or other implement two or three times to turn over the soil and to weed the field. The process outlined above gives briefly the method of cultivation generally in use throughout Chosen, and is applicable whether the beans are planted in separate fields by themselves or in the same fields with other crops.

"It is used mainly for its food value, the oil, and the residue as a fertilizer after the oil has been expressed. It is valuable as a food product for both men and cattle, the latter finding it a very excellent fodder when the whole plant is used. The principal food products for human consumption derived from the soy bean are bean paste, soy, bean curd, meal, etc." (*Scidmore.*)

37228. "A1. *Six Months.* Yellow. From South Chusei Province, Koshu district."

37229. "A2. *Widower.* Yellow. From North Heian Province, Seisen district."

37230. "A3. *Broad River.* From South Heian Province, Junan district."

37231. "A4. *White.* Yellow. From North Zenra Province, Chinan district."

37232. "A5. *Early Yellow.* Yellow. From North Heian Province, Kokai district."

37233. "A6. *White Stalk.* Yellow. From Kokai Province, Hakusen district."

37234. "A7. *White.* Yellow. From South Zenra Province, Kokujo district."

37235. "A8. *Chestnut.* Yellow. From Keiki Province, Koka district."

37236. "A9. *Yellow.* From North Heian Province, Jijo district."

37237. "A10. *Rengyo Egg.* Yellow. From North Kankyo Province, Kichishu district."

37238. "A11. *White.* Yellow. From South Chusei Province, Koshu district."

37239. "A12. *Chodan.* Yellow. From Keiki Province, Hotoku district."

37240. "A13. *White.* Yellow. From Kogen Province, Heisho district."

37241. "A14. *White.* Yellow. From North Kankyo Province, Shojo district."

37242. "A15. *Food.* Yellow. From South Keisho Province, Genyo district."

37243. "A16. *Small White.* Yellow. From South Heian Province, Eiju district."

37244. "A17. *White Vegetable.* Yellow. From South Chusei Province, Enki district."

37245. "A18. *Rat's Eye.* Yellow. From Keiki Province, Hotoku district."

37228 to 37325—Continued.

37246. "A19. *Large-Grained White.* Yellow. From South Keisho Province, Sensei district."

37247. "A20. *White Rat's Eye.* Yellow. From North Chusei Province, Injo district."

37248. "A21. *White.* Yellow. From Keiki Province, Kokusan district."

37249. "A22. *Soja bean.* Yellow. From Keiki Province, Kaijo district."

37250. "A23. *White Horse.* Yellow. From Keiki Province, Yojo district."

37251. "A24. *White.* Yellow. From South Zenra Province, Defuku district."

37252. "A25. *White King.* Yellow. From Kokai Province, Inritsu district."

37253. "A26. *White.* Yellow. From South Heian Province, Junan district."

37254. "A27. *Burnt.* Yellow. From Kokai Province, Hakusen district."

37255. "A28. *Rich and Virtuous.* Yellow. From Kogen Province, Seizen district."

37256. "A29. *White.* Yellow. From South Chusei Province, Rinsen district."

37257. "A30. *Early White.* Yellow. From North Heian Province, Neihen district."

37258. "A31. *Soja bean.* Yellow. From Kokai Province, Kinsen district."

37259. "A32. *White Rat's Eye.* Yellow. From Keiki Province, Yochi district."

37260. "A33. *White.* Yellow. From South Kankyo Province, Kosan district."

37261. "A34. *Golden.* Yellow. From North Keisho Province, Junko district."

37262. "A35. *White Rat's Eye.* Yellow. From North Chusei Province, Eishun district."

37263. "B1. *Large Date.* Gray. From Keiki Province, Chikusan district."

37264. "B2. *Red.* Gray. From South Heian Province, Eiju district."

37265. "B3. *Tea.* Gray. From South Keisho Province, Shinshu district."

37266. "B4. *Indigo.* Gray. From Keiki Province, Fuhei district."

37267. "B5. *Date.* Gray. From Keiki Province, Maden district."

37268. "B6. *Large Date.* Gray. From Keiki Province, Yojo district."

37269. "B7. *Six Months.* Gray. From South Kankyo Province, Rigen district."

37270. "B8. *Swallow.* Gray. From South Keisho Province, Genyo district."

37271. "B9. *Great Date.* Gray. From North Keisho Province, Hoki district."

37272. "B10. *Red.* Gray. From Kogen Province, Seizen district."

37228 to 37325—Continued.

37273. "B11. *Date.* Gray. From Keiki Province, Yosen district."

37274. "B12. *Red.* Gray. From North Keisho Province, Neikal district."

37275. "B13. *Red.* Gray. From South Chusei Province, Kosan district."

37276. "B14. *Red.* Gray. From South Kankyo Province, Bunsen district."

37277. "B15. *Red Rat.* Gray. From South Heian Province, Eiju district."

37278. "B16. *Red Rice.* Gray. From Kokai Province, Kokusan district."

37279. "B17. *Rat's Eye.* Gray. From North Heian Province, Kijo district."

37280. "C1. *Blue.* Green. From South Kankyo Province, Tansen district."

37281. "C2. *Bluish.* Green. From Kokai Province, Chosen district."

37282. "C3. *Blue.* Green. From North Chusei Province, Mokusen district."

37283. "C4. *Blue.* Green. From South Chusei Province, Koshu district."

37284. "C5. *Blue.* Green. From Keiki Province, Koka district."

37285. "C6. *Blue.* Green. From North Kankyo Province, Meisen district."

37286. "C7. *Barbarian Blue.* Green. From North Kankyo Province, Kichishu district."

37287. "C8. *Clasped Hands.* Green. From Kogen Province, Waiyo district."

37288. "C9. *Clear Green.* Green. From North Chusei Province, Teisen district."

37289. "C10. *Blue.* Green. From Keiki Province, Yojo district."

37290. "C11. *Blue.* Green. From Kogen Province, Seizen district."

37291. "C12. *Camphor.* Green. From North Kankyo Province, Kichishu district."

37292. "C13. *Blue.* Green. From South Chusei Province, Yokusen district."

37293. "C14. *Blue.* Green. From South Heian Province, Junan district."

37294. "C15. *Small Blue.* Green. From South Chusei Province, Ranho district."

37295. "C16. *Blue.* Green. From South Chusei Province, Eisan district."

37296. "C17. *Clear Blue.* Green. From North Heian Province, Jijo district."

37297. "C18. *Barbarian.* Green. From North Heian Province, Neihen district."

37298. "C19. *Yellow Powder.* Green. From South Keisho Province, Shinshu district."

37228 to 37325—Continued.

37299. "C20. *Yellow Roll.* Green. From South Keisho Province, Genyo district."

37300. "C21. *Blue.* Green. From South Kankyo Province, Bunsen district."

37301. "C22. *Blue.* Green. From North Keisho Province, Genfu district."

37302. "D1. *Black.* From South Kankyo Province, Rigen district."

37303. "D2. *Rich Black.* From North Chusei Province, Seisan district."

37304. "D3. *Black Chestnut.* From South Chusei Province, Taiko district."

37305. "D4. *Black.* From Kogen Province, Koryo district."

37306. "D5. *Large Black.* From South Zenra Province, Nanpei district."

37307. "D6. *Black.* From North Keisho Province, Ennichi district."

37308. "D7. *Black.* From North Zenra Province, Chinan district."

37309. "D8. *Black.* From South Keisho Province, Kicho district."

37310. "D9. *Black Rat's Eye.* Black. From North Chusei Province, Tanyo district."

37311. "D10. *Black.* From North Kankyo Province, Kainei district."

37312. "D11. *Rat's Eye.* Black. From South Zenra Province, Reisui district."

37313. "D12. *Rat's Eye.* Black. From Kokai Province, Inritsu district."

37314. "D13. *Black Vegetable.* Black. From South Kankyo Province, Kanko district."

37315. "D14. *Rat's Eye.* Black. From South Kankyo Province, Bunsen district."

37316. "D15. *Rat's Eye.* Black. From South Keisho Province, Genyo district."

37317. "D16. *Black Rat's Eye.* Black. From Keiki Province, Inchiku district."

37318. "E1. *Confucian Scholar.* Striped. From South Heian Province, Tokusen district."

37319. "E2. *Bird's Egg.* Striped. From Keiki Province, Hotoku district."

37320. "E3. *Bird's Egg.* Striped. From North Keisho Province, Guni district."

37321. "E4. *Black Striped.* From North Keisho Province, Eisen district."

37322. "E5. *Food.* Striped. From South Zenra Province, Reisui district."

37323. "E6. *Purple.* Striped. From Keiki Province, Hosen district."

37324. "E7. *Red Striped.* From Kokai Province, Choen district."

37325. "E8. *Thousand Tied.* Striped. From North Heian Province, Neihen district."

37326 to 37376.

From Pyeng Yang, Chosen (Korea). Presented by Rev. W. M. Baird, Union Christian College, through the American consul. Received February 17, 1914.

"Bean seeds. I have been unable to find out their characteristics. Many kinds of beans are grown here. I was able to secure some privately; also at one of the public exhibitions I was able to secure from Honorable Matsunagi, governor of this province, who was the patron of the fair, samples of all the seeds exhibited there, but without descriptions." (*Baird.*)

37326 to 37356. SOJA MAX (L.) Piper. (*Glycine hispida* Maxim.) **Soy bean.**

37326. Green.
37327. Brown.
37328. Small black.
37329. Large black.
37330. Cream with tan markings.
37331. Small black.
37332. Large black.
37333. Small green.
37334. Chocolate color, large.
37335. Cream mixed with brown and green.
37336. Chocolate color.
37337. Green.
37338. Cream with black saddle.
37339. Black with white veining.
37340. Green.
37341. Yellow.
37342. Small brown.
37343. Black and white.
37344. Small yellow.
37345. Large yellow.
37346. Black.
37347. Small brown.
37348. Small black.
37349. Yellow.
37350. Dark brown.
37351. Small dark brown.
37352. Black.
37353. Greenish yellow.
37354. Yellow.
37355. Yellow.
37356. Dark brown.

37357 to 37366. PHASEOLUS ANGULARIS (Willd.) W. F. Wight. **Adzuki bean.**

37357. Purple.
37358. Blue black.
37359. Gray mottled.
37360. Blue and gray mottled.
37361. Red and gray mottled.
37362. Red.
37363. Gray.
37364. Gray mottled.
37365. Purplish.
37366. Purplish.

37367 and 37368. PHASEOLUS AUREUS Roxb. **Mung bean.**

37367. Very small green.
37368. Small green.

37369 to 37374. PHASEOLUS VULGARIS L. **Bean.**

37369. White with purple spots.
37370. Tan with purple spots.
37371. White and brown.
37372. Black.
37373. Light brown.
37374. Red.

37326 to 37376—Continued.

37375. VIGNA SINENSIS (Torner) Savi. **Cowpea.**
Small, flesh colored.

37376. PISUM SATIVUM L. **Pea.**

37377 to 37379. HOLCUS SORGHUM L. **Sorghum.**
(*Sorghum vulgare* Pers.)

From San Giovanni a Teduccio, Italy. Purchased from Dammann & Co. Received January 30, 1914.

37377. "Sugar millet." **37379.** (No data.)

37378. "Red seeded."

37380. DIOSPYROS LOTUS L. **Khurma persimmon.**

From Batum, Russia. Presented by Mr. Leslie A. Davis, American consul, who procured them through the courtesy of Prof. A. N. Krasnoff, director of the botanical garden near Batum. Received February 25, 1914.

37381. GARCINIA VIDALII Merrill. **Libas.**

From Manila, Philippine Islands. Presented by Mr. O. W. Barrett, chief, Division of Horticulture, Bureau of Agriculture. Received February 28, 1914.

"(No. 3941. *Libas* seeds.)"

"This characteristic species of Garcinia is a native of the Province of Rizal, Luzon. It is easily recognized by its rather large, numerously veined leaves, which are broadly rounded at the apex and frequently retuse. It is a tree attaining a height of about 12 meters, the branches and branchlets being stout and somewhat angular, brownish or yellowish, rugose when dry. The leaves are opposite, and obovate or elliptical obovate, 15 to 25 cm. long and 6 to 14 cm. wide. The flowers are 5-merous, the staminate ones with stout, 4-angled, about 5 mm. long pedicels. The fruit is fleshy, greenish, and smooth when fresh, subglobose, 5 to 6 cm. in diameter, edible." (*E. D. Merrill, in Philippine Journal of Science, vol. 3, p. 361, 1909.*)

"This species occurs in the Province of Agusan, northeastern Mindanao." (*Barrett.*)

37382 to 37392.

From Lavras, Minas Geraes, Brazil. Collected by Messrs. P. H. Dorsett, A. D. Shamel, and Wilson Popenoe, of the Bureau of Plant Industry. Received February 28, 1914.

Quoted notes by Messrs. Dorsett, Shamel, and Popenoe.

37382. ACROCOMIA SCLEROCARPA Martius. **Macaúba palm.**

"(No. 64a. January 22, 1914.) *Macaúba* palm, a beautiful pinnate-leaved species, which grows wild in this region. The trunk reaches a height of 50 feet or more and is profusely covered with sharp spines, varying from 1 to 4 inches in length and black in color. Its distribution in this part of Brazil is very wide; we have observed considerable numbers at altitudes of 900 meters, which leads to the belief that it may prove adaptable to southern California.

37382 to 37392—Contd. (Quoted notes by Mr. Dorsett and others.)

"The leaves are very graceful and somewhat finer than *Cocos plumosa*. As an ornamental plant this palm should be of value. The fruit is produced in clusters sometimes weighing 30 to 40 kilograms. The hard kernel is surrounded by a thick layer of white starchy material, somewhat mucilaginous in texture. Hogs are very fond of the fruits; according to Prof. Hunnicutt, of the Escola Agricola, they will eat them in preference to corn, and they are said to be very fattening."

37383. CUPRESSUS sp. **Cypress.**

"(No. 65a. January 22, 1914.) Seed from a coniferous tree along the main walk leading to the Gymnasio de Lavras. A very handsome tree, compact and symmetrical, glaucous in color. At present the trees are about 20 feet in height. They were introduced here from Sao Paulo."

37384. RHEEDIA EDULIS (Seem.) Planch. and Triana.

"(No. 66a. January 22, 1914.) Seeds from a row of trees growing in the grounds of the Instituto Evangelico. The fruit, which is now ripe, is called *limão do matto* (lemon of the forest) by the natives. The trees are 20 to 25 feet in height, pyramidal in form, and handsome in appearance with their deep-green, glossy foliage. The leaves are 4 to 6 inches in length, oblong lanceolate, acute at the apex, thick, stiff, the veins scarcely visible on the upper surface, prominent beneath. In general characteristics the fruit is almost identical with that of *Rheedia brasiliensis*. The form is elliptical, frequently tapering at both ends, and even prominently pointed at the apex. The length is about 2 inches, diameter 1½ inches, color bright orange-yellow. Stem three-fourths of an inch to 1 inch in length, stout; skin one-eighth of an inch or more in thickness, terebinthine and disagreeable in taste, rather brittle, easily separable from the snowy white pulp which surrounds the seeds. The flavor is acid unless the fruit is almost overripe, and strongly resembles that of *Lansium domesticum*. The character of the pulp is similar to that of the mangosteen, melting, juicy, and beautiful in appearance. The seeds vary from one to three, two being the commonest number, and they are oblong-oval in form, about 1 inch in length, adhering closely to the pulp; when cut, a yellow gamboge oozes out of them. Boys are very fond of this fruit, but the Americans here do not care for it. It is said to make a very superior *doce* or preserve. For trial in California and Florida."

For an illustration of the *Rheedia edulis* tree, see Plate VIII.

37385. EUGENIA sp.

"(No. 67a. January 22, 1914.) A small, guavalike fruit, about three-fourths of an inch in length, oval, orange-yellow in color, produced by a tree 40 to 50 feet in height growing in the virgin forest here. The flower is rather acid but agreeable, and the fruit is very attractive in appearance. For trial in California and Florida."

37386. BEGONIA sp. **Begonia.**

"(No. 69a. January 22, 1914.) A flowering vine growing along the railroad track at Cambuhy, State of Minas Geraes. To be tried in California and Florida."

37387. ZEA MAYS L. **Corn.**

"(No. 70a. January 22, 1914.) Yellow flint corn grown by Pedro de Paulo Lemos, at Pratinha, State of Minas Geraes."

37382 to 37392—Contd. (Quoted notes by Mr. Dorsett and others.)

37388. MELINIS MINUTIFLORA Beauv. **Gordura grass.**

"(No. 71a. January 22, 1914.) Seed of *Capim gordura*, the principal forage grass of this region, from the fazenda of Pedro de Paulo Lemos, at Pratinha, State of Minas Geraes."

37389. CROTALARIA ANAGYROIDES H. B. K.

"(No. 72a. January 22, 1914.) Seed of the *amendoim do matto*, probably a Crotalaria, growing along a watercourse in the Fazenda Modelo of the Instituto Evangelico. A small shrub, 4 to 6 feet high, with bright yellow flowers. For trial in the warmer parts of the United States as a cover crop."

37390. (Undetermined.)

"(No. 73a. January 22, 1914.) A shrub, 6 to 10 feet high, frequent on the campo here. Leaves oblong, obtuse, 2 to 3 inches in length. The fruit is more or less round, about an inch in diameter, and bright orange in color. Surrounding the single large seed is a layer of fibrous pulp, very sweet in taste, and exuding a milky fluid when the fruit is plucked from the stem. For trial in California and Florida."

37391. INDIGOFERA SUFFRUTICOSA Miller. **Indigo.**
(*Indigofera anil* L.)

"(No. 74a. January 23, 1914.) *Anil*, a small wiry shrub, 5 to 6 feet in height, which grows in the pastures around the edge of town. Dr. Argollo, of Bahia, thinks it may prove of considerable value as a cover crop for dry lands. For trial in the southern United States."

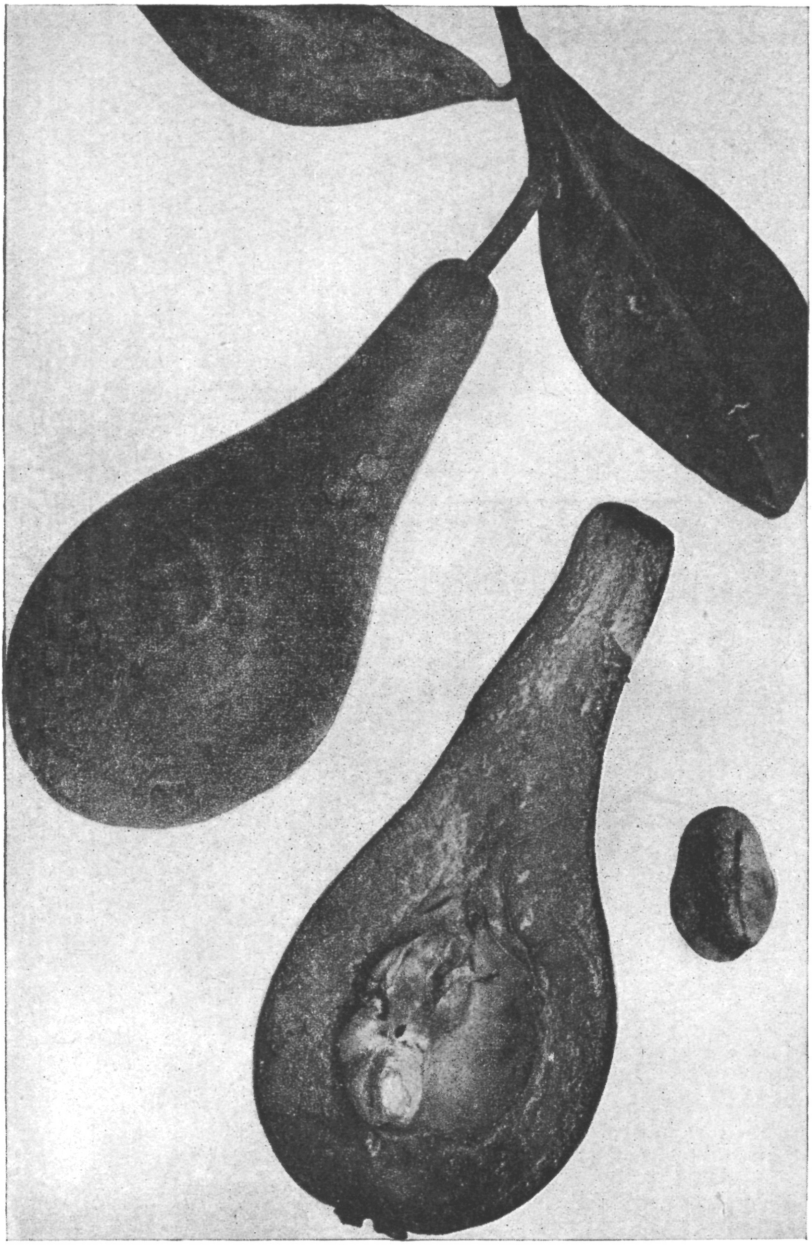
37392. EUGENIA KLOTZSCHIANA Berg. **Pera do campo.**

"(No. 75a. January 23, 1914.) *Cabacinha do campo*, or *pera do campo*. A pear-shaped, very fragrant fruit produced by a small wiry shrub occasionally seen on the campo here. The plant grows to a height of 4 or 5 feet under favorable conditions, with very few branches; when growing on land that is pastured it grows only 2 feet high, with many unbranched stems arising from the ground. The leaves are oblong lanceolate, rather hard and tough, tomentose beneath, and alternate. The fruits are strikingly similar in appearance to a small russet pear. They vary from 2 to 3 inches in length and are russet brown in color, with a thick tomentum on the surface; the skin is thin and surrounds a whitish, very juicy, and aromatic pulp, so fragrant that its odor can be detected several yards away. The flavor is rather acid, but very aromatic. The seeds vary from one to three or four, and are oval or somewhat irregular in shape, about half an inch in diameter. The proportion of seed to flesh is small for wild fruit. The season is said to be November and December; there are very few fruits left now. A very superior *doce* is said to be made from this fruit, and the shrub seems on the whole unusually promising for trial in the mildest parts of the United States."

For an illustration of the pera do campo, see Plate IX.

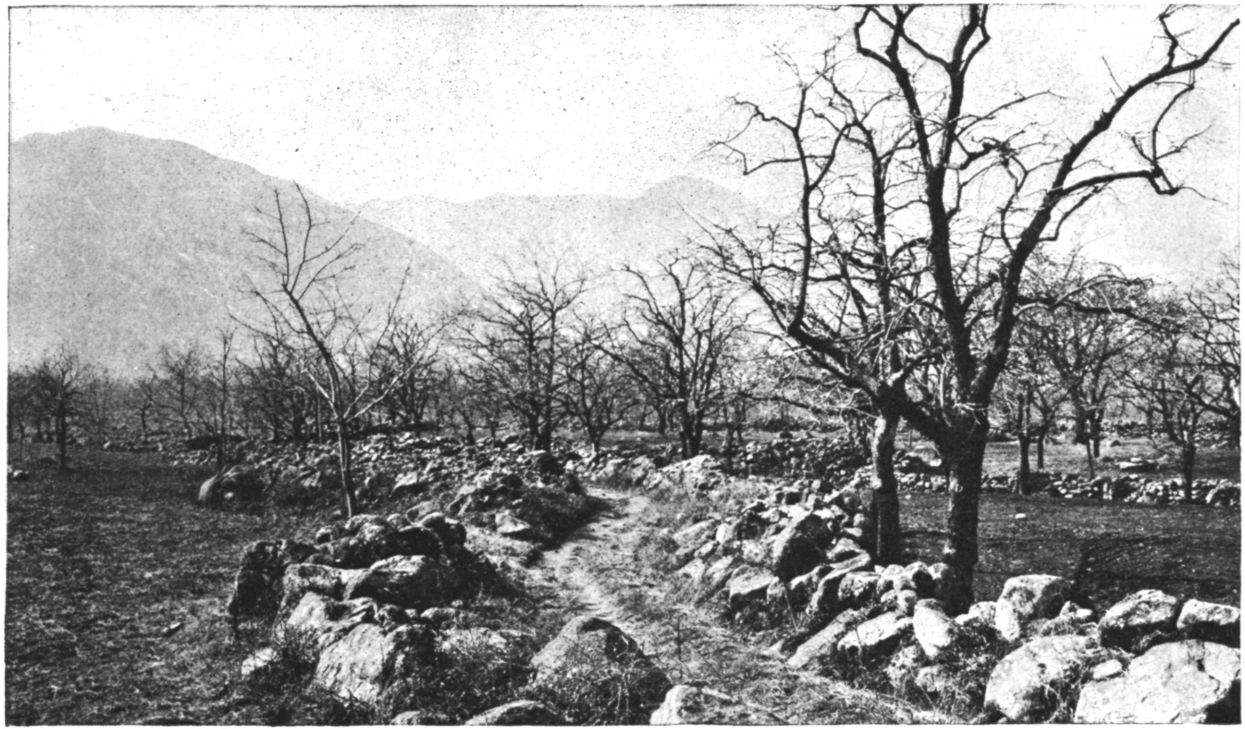
37393 and 37394.

From Los Angeles, Cal. From Aggeler & Musser Seed Co., through Dr. D. N. Shoemaker, of the Bureau of Plant Industry. Received March 4, 1914.



FRUITS OF THE PERA DO CAMPO OF BRAZIL (EUGENIA KLOTZSCHIANA), S. P. I. No. 37392.

A wild bush, not over 5 feet high, bearing on second-year shoots not 2 feet from the ground several large russet-brown fruits which so scent the air that their presence can be detected many yards away. The melting acid pulp is aromatic and agreeable, and more or less purgative. The bush will probably stand light frosts. (Photographed (P15465FS) by Dorsett and Popenoe, Sitio, Minas Geraes, Brazil, January 20, 1914. Natural size.)



AN ORCHARD OF CHINESE PERSIMMONS (DIOSPYROS KAKI).

The trees are all grafted or patch-budded on *Diospyros lotus*, which seems to thrive particularly well in such situations as this, at the foot of the spurs of the Tsin Mountains at Nantotchu, south of Sianfu, Shensi, China. See S. P. I. Nos. 37465 to 37473 and 37525 to 37540. (Photographed (P13059FS) by Frank N. Meyer, January 22, 1914.)

37393 and 37394—Continued.

37393. COLOCASIA ESCULENTA (L.) Schott. **Taro.**

"(No 143 in their Chinese catalog of 1913.) *Banlung* taro. This taro or dasheen is of the type which produces comparatively few tubers. The corm is elongated and full of tender purple fibers. The variety is apparently identical with one obtained from several different sources, under different names. The quality is excellent, though the corms and tubers are acrid when raw." (*R. A. Young.*)

Corms.

37394. AMORPHOPHALLUS sp.

"(No. 126 in their Chinese catalog of 1913.) *Claw spud.* One of the varieties grown by Chinese gardeners in southern California." (*R. A. Young.*)

Tubers.

37395 to 37404.

From Kongju, Chosen (Korea). Presented by Rev. Wilbur C. Swearer, Methodist Episcopal Church. Received February 26, 1914.

Quoted notes by Mr. Swearer.

37395. PHASEOLUS ANGULARIS (Willd.) W. F. Wight. **Adzuki bean.**

"No. 1. *Cherry* pea. I should say not properly a pea but a bean. Red, white eyed; small variety. Sow in April in soil about an inch deep, in little hills about 6 or 7 inches apart, two or three beans in a hill, weed and hoe three times during the season. The plants grow 1½ feet high without any support and are harvested in the early part of October after the leaves are dried and fallen off, or have been gathered before frost to feed to cattle. These beans and all others I am sending are much smaller than usual, owing to the fact that last summer there was very little rain."

37396 to 37404. SOJA MAX (L.) Piper. **Soy bean.**
(*Glycine hispida* Maxim.)

37396. "No. 2. *Date* bean. Round brown bean. Sown during the first part of April and reaped at the end of August or the first part of September. Cultivated about the same as the *cherry pea* [S. P. I. No. 37395], only in hills about a foot apart. None of these beans do well if planted too close together. This bean fertilizes the ground well; grows to a height of 2 feet. Pods are short and rough and contain 3 or 4 beans each. None of the soy beans are pole beans. This bean is much smaller than usual, owing to the fact that last summer there was very little rain."

37397. "No. 3. *White Chestnut* bean. Round yellowish white bean. A favorite with the Koreans. Cultivated the same as the *Date* bean [S. P. I. No. 37396]. Used as food for animals and people. Appearance of vines similar to the *Date* bean."

37398. "No. 4. *Big Green* bean. Round, flat, yellowish green. Sown in June and harvested in October, they grow 2 feet high. Cultivation similar to that of the *Date* bean [S. P. I. No. 37396]; pods also similar."

37395 to 37404—Contd. (Quoted notes by Rev. W. C. Swearer.)

37399. "No. 5. *Black-Eyed* bean. Small, yellowish, green bean, with black eye. Can be sown in drills; beans 2 or 3 inches apart. The Koreans take these beans after they are dried and place them in water in the house and eat them after they have sprouted, sprout and all, as a vegetable."

37400. "No. 6. *Rat's-Eye* bean. Small, round, black bean. Sown the last part of April, in hills several inches apart, they grow 1 foot high. There are four or five beans in a pod. The people sometimes eat them raw, claiming that they have medicinal properties. Usually they are sprouted and eaten as a vegetable."

37401. "No. 7. *Black Chestnut* bean. Round, flat, black bean. Sown either in April or in June, they are fed to animals or are eaten. This bean is much smaller than usual, owing to the fact that last summer there was very little rain."

37402. "No. 8. *Castor-Oil* bean. So named because the Koreans think it resembles the bean of that plant. Black, with the skin cracked and white streaks showing through. This is also a favorite with the Koreans, both for animal food and for man. This bean is much smaller than usual, owing to the fact that last summer there was very little rain."

37403. "No. 9. *Large Black-Green* bean. Round, dark-green and black. Sown in the middle of May. Cultivation similar to that of the *Date bean* [S. P. I. No. 37396]. This bean is much smaller than usual, on account of lack of rain the past summer."

37404. "No. 10. *Pheasant-Leg* bean. So named because the marking on it resembles those on the leg of a Mongolian pheasant. Small, round, brown bean. Sown the last part of May, not too close together. People eat them usually after they have sprouted them in the house."

37405. AVENA STERILIS L. **Oat.**

From Algiers, Algeria. Presented by Dr. L. Trabut, Government Botanic Service. Received March 5, 1914, as *A. sterilis segetalis* forma *nigra* Trabut.

For a full discussion of these interesting Algerian oats, see L. Trabut, The Origin of Cultivated Oats, Journal of Heredity, vol. 5, p. 74–85, 1914.

37406 to 37420. TRIFOLIUM PRATENSE L. **Red clover.**

Seed from individual selections grown at the Indiana Agricultural Experiment Station, La Fayette, Ind., in the clover nursery; seeded in the spring of 1912, the seed being gathered in the fall of 1913. Selections were made for hardiness, drought resistance, and desirable forage and seed habits.

37406. Riga, Russia, red clover grown from S. P. I. No. 18394, plant 5; total seed yield of plant, 1.75 grams.

37407. Riga, Russia, *Jeletz* red clover, grown from S. P. I. No. 18511, plant 12; total seed yield of plant, 1.5 grams.

37408. Old Swedish red clover, grown from S. P. I. No. 20468, plant 7; total seed yield of plant, 1 gram.

37406 to 37420—Continued.

37409. Wild red clover from Chile, grown from S. P. I. No. 25487, plant 1; total seed yield of plant, 2.5 grams.

37410. North Dakota red clover; total seed yield of plant, 0.04 gram.

37411. Indiana mammoth red clover; total seed yield of plant, 2 grams.

37412. Indiana mammoth red clover; total seed yield of plant, 0.2 gram.

37413. *Perm*, Russia, red clover, grown from S. P. I. No. 30910, plant 2; total seed yield of plant, 0.9 gram.

37414. Missouri red clover; total seed yield of plant, 0.08 gram.

37415. Missouri red clover; total seed yield of plant, 0.32 gram.

37416. North Dakota red clover; total seed yield of plant, 1.2 grams.

37417. North Dakota red clover; total seed yield of plant, 0.8 gram.

37418. Individual selections from unnumbered Indiana plant; total seed yield of plant, 2.1 grams.

37419. Individual selections from unnumbered Indiana plant; total seed yield of plant, 1.8 grams.

37420. Individual selections from unnumbered Indiana plant; total seed yield of plant, 1.55 grams.

37421 to 37444. TRIFOLIUM PRATENSE L. **Red clover.**

Seed from individual selections grown at the Iowa Agricultural Experiment Station, Ames, Iowa, in the clover nursery; seeded in the spring of 1912; seed gathered in the fall of 1913. The selections were made for hardiness, drought resistance, and desirable forage and seed habits.

37421. Perennial Swiss red clover, grown from seed produced in North Dakota; total seed yield of plant, 6.9 grams.

37422. Orel, Russia, red clover, grown from S. P. I. No. 28036, plant 4; total seed yield of plant, 7.6 grams.

37423. New York red clover; total seed yield of plant, 8.4 grams.

37424. New York red clover; total seed yield of plant, 9.8 grams.

37425. Indiana mammoth red clover; total seed yield of plant, 14.3 grams.

37426. Indiana mammoth red clover; total seed yield of plant, 13.9 grams.

37427. Ohio red clover; total yield of plant, 3.6 grams.

37428. Ohio red clover; total seed yield of plant, 6.4 grams.

37429. Missouri red clover; total seed yield of plant, 9.4 grams.

37430. Siberian drought-resistant red clover, grown from S. P. I. No. 32222, plant 1; total seed yield of plant, 2.1 grams.

37431. Siberian drought-resistant red clover, grown from S. P. I. No. 32222, plant 14; total seed yield of plant, 6.9 grams.

37432. Individual selection; total seed yield of plant, 0.55 gram.

37433. Individual selection of red clover; total seed yield of plant, 8 grams.

37434. Individual selections of red clover, grown from Iowa No. 1; total seed yield of plant 6.1 grams.

37435. Individual selection of red clover, grown from Iowa No. 2; total seed yield of plant, 7.7 grams.

37421 to 37444—Continued.

37436. Individual selection of red clover, grown from Iowa No. 3; total seed yield of plant, 4.8 grams.

37437. Individual selection of red clover, grown from Iowa No. 4; total seed yield of plant, 6.1 grams.

37438. Individual selection of red clover, grown from Iowa No. 5; total seed yield of plant, 3.5 grams.

37439. Individual selection of red clover, grown from Iowa No. 6; total seed yield of plant, 3.9 grams.

37440. Individual selection of red clover, grown from Iowa No. 7; total seed yield of plant, 5.5 grams.

37441. Individual selection of red clover, grown from Iowa No. 8; total seed yield of plant, 4.2 grams.

37442. Individual selection of red clover, grown from Iowa No. 9; tota. seed yield of plant, 8.7 grams.

37443. Individual selection of red clover, grown from Iowa No. 10; total seed yield of plant, 3.4 grams.

37444. Individual selection of red clover, grown from Iowa No. 11; total seed yield of plant, 7.4 grams.

37445 to 37460. TRIFOLIUM PRATENSE L. Red clover.

Seed from individual selections grown at the North Dakota Agricultural Experiment Station, Agricultural College, Fargo, N. Dak., in the clover nursery; seeded in the spring of 1912, the seed being gathered in the fall of 1913. The selections were made for hardiness, drought resistance, and desirable forage and seed habits.

37445. Chile red clover, grown from S. P. I. No. 13515, plant 7; total seed yield of plant, 13 grams.

37446. North Dakota red clover; total seed yield of plant, 12 grams.

37447. North Dakota grown *Sutton's perennial* red clover from England; total seed yield of plant, 6.1 grams.

37448. North Dakota grown from South Dakota red clover; total seed yield of plant, 9 grams.

37449. North Dakota grown perennial Swiss red clover; total seed yield of plant, 6 grams.

37450. North Dakota grown *Orel* red clover; total seed yield of plant, 8 grams.

37451. *Toten,* Norway, red clover, grown from S. P. I. No. 27601, plant 9; total seed yield of plant, 2 grams.

37452. *Hvinden's,* Norway red clover, grown from S. P. I. No. 27602, plant 4; total seed yield of plant, 4 grams.

37453. South Dakota grown *Orel* red clover, grown from S. P. I. No. 27465, plant 6; total seed yield of plant, 14 grams.

37454. *Orel,* Russia, red clover, grown from S. P. I. No. 28036, plant 5; total seed yield of plant, 7 grams.

37455. New York red clover; total seed yield of plant, 11 grams.

37456. Indiana mammoth red clover; total seed yield of plant, 50 grams.

37457. Ohio red clover; total seed yield of plant, 25 grams.

37458. Ohio red clover; total seed yield of plant, 16 grams.

37445 to 37460—Continued.

37459. Missouri red clover; total seed yield of plant, 7.1 grams.

37460. Delaware red clover; total seed yield of plant, 27 grams.

37461. CITRUS SINENSIS (L.) Osbeck. **Jaffa orange.**

Seeds from selected fruits of the Jaffa orange. Purchased in London, England. Received March, 1914.

37462. LYCHNIS CORONATA Thunberg. **Wild pink.**

From Shanghai, China. Presented by Rev. J. M. W. Farnham.

37463 and 37464. PRUNUS CERASIFERA DIVARICATA (Ledeb.) Schneider.

From Jamaica Plain, Mass. Presented by the Arnold Arboretum. Received March 4, 1914.

"Seed from Botanic Gardens, Tiflis, February, 1914."

"A deciduous tree with the same habit and general aspect as *P. cerasifera;* neither does it appear to differ in the flowers or foliage. The fruit, however, is smaller (about three-fourths of an inch across), yellow, and not indented at the junction with the stalk. Probably this tree and *P. cerasifera* are only varieties of one species. They flower at the same time and are not distinguishable then. There is an old specimen near the cactus house at Kew which is probably one of the largest in the country. It is 25 feet high, 27 feet through, and its trunk is 3 feet 8 inches in girth. Quite possibly trees may be growing in various gardens as *P. cerasifera.* The trees at Kew have rarely borne fruits, but these are quite distinct from cherry plums (*P. cerasifera*). The species is said to be a native of the Caucasus, Persia, Macedonia, etc., and to have been introduced in 1822." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 235,* under *P. divaricata.*)

37465 to 37490.

From China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received March 6, 1914.

Cuttings of the following; quoted notes by Mr. Meyer.

37465 to 37473. DIOSPYROS KAKI L. f. **Persimmon.**

37465. "(No. 1047. Near Lingpao, Honan, China, December 23, 1913.) A local variety of persimmon, being of small size, somewhat angular in shape, of orange-red color; meat firm; can be dried for winter uses. Chinese name *Ssŭ fang shih tzŭ,* meaning 'square persimmon.'"

37466. "(No. 1048. Near Lingpao, Honan, China, December 23, 1913.) A variety of persimmon said to be of large size, of flat shape, but not having a circular incision; color orange-red; meat soft and juicy; not a keeper; seedless. Chinese name *Ta hung pao shih tzŭ,* meaning 'large red persimmon.'"

37467. "(No. 1049. Near Lingpao, Honan, China, December 23, 1913.) A variety of persimmon said to be of very large size; fruits round and slightly tapering toward the apex; meat juicy and sweet; seedless. Chinese name *Ou hsin shih tzŭ,* meaning 'quince-heart persimmon.'"

37465 to 37490—Continued. (Quoted notes by Mr. F. N. Meyer.)

37468. "(No. 1050. Near Lingpao, Honan, China, December 23, 1913.) A variety of persimmon, said to be small, oblong in form, of reddish color, seedless; can be kept for a long time. Chinese name *Chu kuan shih tzŭ*, meaning 'bamboo-cup persimmon.'"

37469. "(No. 1051. Near Lingpao, Honan, December 23, 1913.) A variety of persimmon small to medium in size, round and flattened in shape; bears two furrows on top, which cross each other; color orange-red, of sweet taste, seedless; can be dried. Chinese name *Kuo kai shih tzŭ*, meaning 'pan-covered persimmon.'"

37470. "(No. 1052. Near Lingpao, Honan, December 23, 1913.) A variety of persimmon said be of round-oblong shape, of medium size; meat juicy, color orange red, seedless. Chinese name *Shui ching shih tzŭ*, meaning 'water-well persimmon.'"

37471. "(No. 1053. Near Lingpao, Honan, December 23, 1913.) A variety of persimmon of round-oblong shape, medium in size, color orange reddish, seedless; meat sweet and firm; can be dried. Chinese name *Lien hsin shih tzŭ*, meaning 'lotus-heart persimmon.'"

37472. "(No. 1054. Near Lingpao, Honan, December 23, 1913.) A variety of persimmon of round, flat shape, of medium size, color reddish, seedless; meat not very juicy; can be dried for winter uses. Chinese name *Ching mien shih tzŭ*, meaning 'mirror-face persimmon.'"

37473. "(No. 1055. Near Lingpao, Honan, December 23, 1913.) A variety of persimmon said to bear small fruits, color red, shape round oblong. The tree is a seedling and of tall, vigorous growth; it is said to bear but sparingly. May possibly have an abundance of staminate flowers and be of value as a pollen bearer. Chinese name *Huo ching shih tzŭ*, meaning 'fiery spectacle persimmon.'"

37474. PRUNUS ARMENIACA L. **Apricot.**

"(No. 1056. Near Lingpao, Honan, December 23, 1913.) An apricot said to bear large fruits, which are red cheeked on the side facing the sun, while being of whitish color on the shaded side. The tree grows to a large size. Chinese name *Ta hsing*, meaning 'big apricot.'"

37475 and 37476. ZIZIPHUS JUJUBA Miller. **Jujube.**
(*Ziziphus sativa* Gaertn.)

37475. "(No. 1057. Near Lingpao, Honan, December 23, 1913.) A variety of jujube said to bear large fruits of dark brown-red color. Chinese name *Ta tsao*, meaning 'big jujube.'"

37476. "(No. 1058. Lingpao, Honan, December 24, 1913.) A variety of jujube bearing very large fruits of dark brown-red color; the meat is quite sweet, but of a loose structure. These jujubes often are as big as small hens' eggs and are locally much used baked in bread. The trees are grown in large groves, and the total acreage of them around Lingpao must run well into the hundreds. Chinese name *Ta hung tsao*, meaning 'large red jujube.'"

37477. FORSYTHIA SUSPENSA (Thunb.) Vahl.

"(No. 1059. Tahuashan, Shensi, China, December 29, 1913.) A variety of golden bell, collected in dry, rocky places at an altitude higher than 5,000 feet. Local name *Lien ch'iao*. Of value especially for the drier sections of the United States."

37465 to 37490—Continued. (Quoted notes by Mr. F. N. Meyer.)

37478. ABELIA TRIFLORA R. Brown (?).

"(No. 1060. Tahuashan, Shensi, December 29, 1913.) A shrub, growing from 4 to 10 feet in height, mostly found on shady places; the old wood becomes curiously grooved, bearing six longitudinal furrows. Of value as an under shrub in large parks and grounds. Local name *Liu t'ung mu.* Collected at an altitude higher than 5,000 feet."

37479. EUONYMUS ALATUS (Thunb.) Rupr.

"(No. 1061. Tahuashan, Shensi, December 29, 1913.) A cardinal's-cap, found in stony places, usually in semishady situations. The young shoots are ornamented with four large corky wings. Collected at an altitude higher than 5,000 feet."

37480. KOLKWITZIA AMABILIS Graebner.

"(No. 1062. Tahuashan, Shensi, December 29, 1913.) A shrub, growing from 4 to 6 feet in height, found in rocky places. Has the look of a Spiraea, but the small fruits are spiny. Collected at an altitude higher than 5,000 feet."

37481. RUBUS sp.

"(No. 1063. Tahuashan, Shensi, December 29, 1913.) An erect-growing Rubus, having the looks of a vigorous raspberry. Collected at an altitude higher than 5,000 feet."

37482. POPULUS sp. **Poplar.**

" (No. 1064. Sianfu, Shensi, January 4, 1914.) A variety of poplar of fastigiate growth with a whitish bark and having apparently large leaves. Of special value as a quick-growing tree for windbreaks. Seems to withstand alkali to a considerable degree, but apparently prefers a moist soil. Local name *Pai yang shu.*"

37483. TAMARIX sp. **Tamarisk.**

"(No. 1065. Sianfu, Shensi, January 6, 1914.) A tamarisk of large growth, able to withstand drought and alkali to a great degree. Of value especially for those semiarid sections of the United States where the winters are not too severe. Chinese name *Shan ch'un liu,* meaning 'mountain spring willow.'"

37484. ZIZIPHUS JUJUBA Miller. **Jujube.**
(*Ziziphus sativa* Gaertn.)

"(No. 1066. Sianfu, Shensi, January 6, 1914.) A variety of jujube of very gnarled and zigzag growth. The fruits are said to be round, medium size, shining brown-red and of sweet taste. Chinese name *So tsao,* meaning 'tasteful jujube.' Obtained from Mr. J. A. Ross, postmaster at Sianfu."

37485. MAGNOLIA DENUDATA Desr. **Magnolia.**
(*Magnolia yulan* Desf.)

" (No. 1067. Sianfu, Shensi, January 6, 1914.) A magnolia said to bear very large white flowers; this variety grows to large size and is grafted on a wild stock. Chinese name *Pai yü lan.*"

37486. MALUS sp. **Crab apple.**

"(No. 1068. Sianfu, Shensi, January 6, 1914.) A variety of ornamental crab apple, growing to be a large tree. Flowers said to be single, of reddish pink color, and individually of large size. Chinese name *Hai t'ang,* meaning 'sea pear.'"

37465 to 37490—Continued. (Quoted notes by Mr. F. N. Meyer.)

37487 and 37488. MERATIA PRAECOX (L.) Rehd. and Wilson. (*Chimonanthus fragrans* Lindl.) **Winter-sweet.**

37487. "(No. 1069. Sianfu, Shensi, January 8, 1914.) A variety of Chinese allspice, bearing large dark-yellow, waxy flowers of a remarkably strong sweet scent. Much used for forcing as dwarfed pot plants. Of value as a winter flowering shrub for the mild-wintered sections of the United States. Chinese name *Su hsin la mei*, meaning 'pure-heart allspice." (See also S. P. I. Nos. 37522 to 37524.)

37488. "(No. 1070. Sianfu, Shensi, January 8, 1914.) A variety of Chinese allspice, bearing large pale, waxy yellow flowers, less strongly scented than the preceding, No. 1069 [S. P. I. 37487], but used for similar purposes. Chinese name *Pai yü wan la mei*, meaning 'white jade cup allspice.' Could be very well utilized by American florists as a finely perfumed forcing flower for the winter holidays for the milder sections of the United States." (See also S. P. I. Nos. 37522 to 37524.)

37489. ZIZIPHUS JUJUBA Miller. (*Ziziphus sativa* Gaertn.) **Jujube.**

"(No. 1071. Sianfu, Shensi, January 8, 1914.) *Tortuosissima.* A variety of jujube, grown as an ornamental tree of medium dimensions in Chinese gardens, having most remarkably gnarled, twisted, and crooked branches. The fruits are said to be of good flavor, though not large. Chinese name *Lung chao tz'ŭ shu*, meaning 'dragon's-claw thorn tree.' Obtained from Mrs. A. G. Shorrock, English Baptist Mission at Sianfu."

37490. ROSA sp. **Rose.**

"(No. 1072. Sianfu, Shensi, January 8, 1914.) A local Chinese variety of rose, bearing very large flowers of an old-fashioned real rose color and possessing a faint fragrance. Belongs probably to the group of perpetual bloomers and retains its large and handsome foliage until very late in winter. Chinese name *Yüeh chi mu tan*, meaning 'monthly peony rose.' Obtained from Mrs. A. G. Shorrock, English Baptist Mission at Sianfu. Of special value for the drier sections of the United States where the summers are hot and the winters mild."

37491 and 37492.

From Brazil. Collected by Messrs. P. H. Dorsett, A. D. Shamel, and Wilson Popenoe, of the Bureau of Plant Industry. Received March 10, 1914.

Quoted notes by Messrs. Dorsett, Shamel, and Popenoe.

37491. CAMPOMANESIA GUAVIROBA (DC.) Benth. and Hook. f. **Guabiroba.**

"(No. 92a. Sitio, Minas Geraes. January 28, 1914.) A wild myrtaceous fruit called *guabiroba* by the natives. The plant is 10 to 12 feet high, upright in growth. The fruits are oblate in form, an inch in diameter, orange yellow when ripe, containing one or two perfect seeds and several abortive ones, surrounded by white, melting pulp, of rather acid and guavalike flavor. For trial in California and Florida."

37492. EUGENIA KLOTZSCHIANA Berg. **Pera do campo.**

"(No. 97a. Sitio, Minas Geraes, January 28, 1914.) *Pera do campo*, or *cabacinha do campo.* Seeds obtained from plants on the campo, 5 kilometers below town." See S. P. I. No. 37392 for description.

37493 and 37494.

From Sao Paulo, Brazil. Presented by Mr. George C. Gemmell. Received March 3, 1914.

37493. BRADBURYA sp.

"A vine found running over the ground bearing lavender-colored flowers with a violet center. Flowers the shape of a sweet pea, about 2 to 3 inches across, flowering in July. Has a small pod similar to a bean. Collected at Agua Kente, about the center of the State of Goyaz." (*Gemmell.*)

37494. (Undetermined.)

"An ornamental vine found growing on a tree to a height of 20 feet, bearing large, scarlet flowers the shape of a sweet pea, about 5 inches across. Flowering in July. Pod about 5 inches long, 1 inch wide, containing from three to five seeds. One flower on a stem. Collected at Agua Kente, about the center of the State of Goyaz." (*Gemmell.*)

37495 to 37499. BERBERIS spp. Barberry.

From Dublin, Ireland. Presented by the director, Royal Botanic Gardens, Glasnevin. Received March 7, 1914.

37495. BERBERIS GAGNEPAINI Schneider.

See S. P. I. No. 32701 for previous introduction.

"An evergreen shrub with clustered stems, free from down in all its parts, at present 2 to 3 feet high (perhaps ultimately 4 or 5 feet), the branches set with 3-parted spines one-half to three-fourths inch long. Leaves of firm texture, 1½ to 3 inches long, one-fourth to one-third inch wide, linear lanceolate, tapering to a fine point, dark dull green, the margins undulated and set with slender forward-pointing teeth. Flowers in clusters of about six (sometimes 10 or 12) at each tuft of leaves, each flower on a slender stalk one-half to three-fourths inch long, bright yellow, one-half inch across. Berry black, covered with blue bloom, oval, one-third to five-eighths inch long, one-fourth inch wide.

"Native of Szechwan, China, introduced for Messrs. Veitch by Wilson about 1904. This barberry is one of the most promising of Wilson's introductions from China, being evergreen, of compact, neat habit, and flowering abundantly. Allied to *Berberis hookeri*, it is of more graceful habit. It is quite hardy at Kew, and free growing. It flowers in late May." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 241.*)

37496. BERBERIS PRATTII Schneider.

A barberry, allied to *Berberis polyantha*, with salmon-red, globose berries, oblong obovate, reticulate, thinner leaves, entire or with few spiny teeth, and narrow panicles, up to 6 inches long. Differs from *polyantha*, which has much thicker leaves with a very fine and narrow reticulation, broader, looser inflorescences, shorter bracts, and rather long-styled fruits, swollen and elliptical when dry. (Adapted from *Schneider, in Plantae Wilsonianae*, and *Rehder, in Bailey's Standard Cyclopedia of Horticulture.*)

37495 to 37499—Continued.

37497. BERBERIS SUBCAULIALATA Schneider.

"Very similar in general aspect to *B. stapfiana*, but distinguished by its distinctly angled branchlets, larger leaves, and translucent yellowish green fruits, suffused with red. Native of Tibet and western China." (*New Garden Plants of 1913, Kew Bulletin.*)

37498. BERBERIS HOOKERI Lemaire.

"This Berberis from the mountains of tropical Asia is a hardy, evergreen bush, which attains a height of 10 feet. It is an evergreen of most beautiful aspect, with brown branches, a very dark green, dense foliage, and long, slender, 3-parted spines. The leaves grow in clusters and are about 3 or 4 inches long, with sharp, prickly points and numerous fine serratures, ending in a straight point on each side. On the upper side they are rich, bright green, turning to a claret color in the autumn, and are remarkably netted. On the under side they are pale green and shining. The flowers are large and deep yellow in color." (*Paxton, Flower Garden, vol. 1, p. 12 and 79.*)

37499. BERBERIS WILSONAE Hemsley.

See S. P. I. No. 29959 for previous introduction.

"An elegant deciduous (sometimes partly evergreen) shrub, 2 to 4 feet high, of spreading habit, and usually more in diameter. Branches comparatively thin, reddish brown, slightly downy, armed with slender, 3-parted spines, one-half to three-fourths of an inch long, and red when young. Leaves as a rule less than 1 inch long, mostly oblanceolate, and either rounded or sharply pointed at the apex; otherwise entire, or occasionally three lobed at the apex; smooth, conspicuously veined, gray-green above, somewhat glaucous beneath. Flowers small, pale yellow, borne 2 to 6 together in fascicles or short racemes. Berries roundish, coral or salmon red, somewhat translucent, borne very abundantly.

"Native of western China; discovered and introduced about 1904 by Mr. E. H. Wilson, after whose wife it is named. This is one of the most charming new introductions from western China, of neat yet elegant habit, and most noteworthy for its prettily colored, abundant berries. The leaves are said by Wilson to assume brilliant tints in autumn." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 252-253.*)

37500. PYRUS CALLERYANA Decaisne. Pear.

From Hongkong, China. Presented by Mr. W. J. Tutcher, superintendent, Botanical and Forestry Department. Received February 28, 1914.

"*Pyrus calleryana* is a widely distributed species [in China] and seems not uncommon on the mountains at an altitude of 1,000 to 1,500 meters. It is easily recognizable by its comparatively small crenate leaves, like the inflorescence glabrous or nearly glabrous, and by its small flowers with 2, rarely 3, styles. When unfolding, most specimens show a loose and thin tomentum on the under side of the leaves, which usually soon disappears. . . . The species was introduced by E. H. Wilson to the Arnold Arboretum in 1908 and the young plants seem to be hardy here." (*Alfred Rehder, Proceedings of the American Academy, vol. 50, no. 10, p. 237, 1915.*)

Distribution.—**The Provinces of Shantung, Kwangtung, and Kiangsu, in China.**

37501. LANSIUM DOMESTICUM Jack. **Duku.**

From Buitenzorg, Java. Presented by the director of the Botanical Garden, Received March 6, 1914.

See S. P. I. No. 24431 for previous introduction and description.

37502. MEIBOMIA GYROIDES (DC.) Kuntze.

(*Desmodium gyroides* DC.)

From Buitenzorg, Java. Presented by Dr. C. J. J. Van Hall, Department of Agriculture. Received March 6, 1914.

"This is the most valuable of the many species of Desmodium known to us at present. It grows in bushy form and produces many leaves; it can also be cut to any height, and lives a long time. *Desmodium gyroides* is to be found in the neighborhood of Plaboeanratoe, up to 2,500 feet. It produces a quantity of seed which is very small, and it is therefore advisable to sow it in lines. The seed will germinate in about a fortnight. One drawback to the use of this plant, however, is that often many of the young plants die shortly after they appear above the ground for some reason which has not yet been satisfactorily explained.

"This Desmodium is considered to be a very good manurial plant for coffee and hevea plantations, since it produces numerous leaves which form a fairly thick humus layer. It does not suffer from any disease; the only fault to be found with it is that some of the plants, after being pruned a couple of times, may be attacked by *Corticium salmonicolor*. If the injured plants be removed immediately, however, there is no fear of any harm being done to the cultivated plants." (*Kew Bulletin, 1914, p. 24.*)

37503. HOLCUS SORGHUM L. **Sorghum.**

(*Sorghum vulgare* Pers.)

From Northern Nigeria, West Africa. Presented by Mr. J. Shelley, London, England. Received March 7, 1914.

"*Guinea corn* or *dower*. This corn forms the staple article of diet of millions of African negroes. It is very prolific and seems to thrive best in the Tropics, though it is possible that it may be acclimated to grow in the Temperate Zone. The stalks sometimes attain a height of 20 feet. These stalks can be used for forage and basket making." (*Shelley.*)

37504 to 37507.

From Pago Pago, American Samoa. Presented by Commander C. D. Stearns, Governor of American Samoa. Received March 3, 1914.

Quoted notes by Commander Stearns.

37504. (Undetermined.)

"*Magugu.* A small size tree; grows very thick."

37505. BIXA ORELLANA L. **Arnotto.**

"*Loa.* Useful for red dye from the seeds."

37506. AGLAIA EDULIS (Roxb.) A. Gray.

"*Lagaali.*"

37507. GYNOPOGON BRACTEOLOSA (Rich.) Schumann.

(*Alyxia bracteolosa* Rich.)

"*Gau.* A vine suitable for hedge."

37508. CAPRIOLA DACTYLON (L.) Kuntze. **Giant Bermuda grass.**
(*Cynodon dactylon* Pers.)

Grown at Arlington, Va., and Biloxi, Miss.

"*Giant Bermuda* grass. A very large, vigorous form of Bermuda grass, which at Biloxi, Miss., grows to a height of 20 inches and in a single season produces superficial stolons 15 feet long. The original of this variety has been lost. It was sent to Arlington from the greenhouse under S. P. I. No. 24434, but its association with that number was probably entirely accidental." (*C. V. Piper.*)

37509 to 37516. COLOCASIA ESCULENTA (L.) Schott. **Dasheen.**

Grown at the Plant Introduction Field Station, Brooksville, Fla., season of 1913.

Quoted notes by R. A. Young.

37509 to 37512.

"The propagating material of these strains consists of tubers from a single plant of S. P. I. No. 15395."

37509. "A selected Trinidad dasheen in which the flesh of the corm when cooked is mealy, of good flavor, and yellowish in color, not becoming darker on exposure to the air."

37510. "A selected strain of the Trinidad dasheen in which the flesh of the corm when cooked is mealy, of good flavor, and creamy white in color."

37511. "A selected strain of the Trinidad dasheen in which the flesh of the corm when cooked is mealy, slightly nutty, and almost white in color."

37512. "A selected strain of the Trinidad dasheen in which the flesh of the corm when cooked is mealy, slightly nutty, and grayish white in color."

37513. "A selected strain of the Trinidad dasheen in which the flesh of the corm when cooked is fairly mealy, of good flavor, and grayish white to light violet in color. (Propagating material of this strain was selected from S. P. I. Nos. 15382, 15395, and 19224.)"

37514. "A selected strain of dasheen in which the flesh of the corm when cooked is mealy, slightly nutty, and violet-colored. (Propagating material for this strain was taken from several selected hills of S. P. I. No. 19224)."

37515 and 37516.

"Propagating material for these strains was selected from several hills of S. P. I. No. 15382."

37515. "A selected strain of the Trinidad dasheen in which the flesh of the corm when cooked is mealy, of good flavor, and cream white in color."

37516. "A selected strain of the Trinidad dasheen in which the flesh of the corm when cooked is mealy, slightly nutty, and grayish white in color."

37517 to 37521. Oryza sativa L. Rice.

From Vercelli, Italy. Presented by the director, Rice Experiment Station. Received March 4, 1914.

37517. "Common native variety. Source, Santhia (Novara). Very fertile soils, highest production, matures first decade in October."

37518. "Var. *sekiyama*. Source, Vercelli. In most fertile soils, highest production, matures at the end of September."

37519. "Variety native early No. 2. Source, Santhia (Novara). Fertile soils, medium production, matures at the end of September."

37520. "Native early No. 3. Source, Santhia (Novara). Soils of medium fertility, production medium, matures second decade in September."

37521. "Variety *Sancino*. Source, Vercelli. Fertile soils, good production, matures second decade in September."

37522 to 37548.

From Sianfu, Shensi, China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received March 14, 1914.

Cuttings of the following; quoted notes by Mr. Meyer.

37522 to 37524. Meratia praecox (L.) Rehd. and Wilson. (*Chimonanthus fragrans* Lindl.) Winter-sweet.

37522. "(No. 1076. January 13, 1914.) A variety of the Chinese allspice, having large flowers, the outer petals of which are broad and dark waxy yellow, while the inner ones are brownish red striped, very fragrant. Chinese name *Hu t'i la mei*, meaning 'fox-paw allspice.' Of value as a flowering shrub for the mild-wintered sections of the United States." See also S. P. I. Nos. 37487 and 37488.

37523. "(No. 1077. January 13, 1914.) A variety of the Chinese allspice, being a variety of the preceding number [S. P. I. 37522], flowers smaller, petals less broad and more pointed, inner petals darker colored, possesses a very agreeable, hyacinthlike fragrance. Chinese name *Chien pan hu t'i la mei*, meaning 'narrow-petaled fox-paw allspice.' Of value as a flowering shrub for the mild-wintered sections of the United States."

37524. "(No. 1078. January 13, 1914.) A variety of Chinese allspice, having small flowers of rather dark yellow color, strongly scented; apparently the wild type. Chinese name *Kou ying la mei*, meaning 'dog-fly allspice.' Of value as a garden shrub in mild-wintered climates."

37525 to 37539. Diospyros kaki L. f. Persimmon.

37525. "(No. 1081. Village of Nantotchu, south of Sianfu. January 20, 1914.) A local variety of persimmon, said to be of medium size, round shape, orange-yellow color, and seedless; can be either dried or kept fresh for a long time. Chinese name *Fên niu hsin shih tzŭ*, meaning 'rosy oxheart persimmon.'"

37526. "(No. 1082. Village of Nantotchu, south of Sianfu. January 20, 1914.) A local variety of persimmon, said to be much like the preceding [No. 37525], but somewhat smaller and of brighter color. Chinese name *Fên shih tzŭ*, meaning 'rosy persimmon.'"

37522 to 37548—Continued. (Quoted notes by Mr. F. N. Meyer.)

37527. "(No. 1083. Village of Nantotchu, south of Sianfu. January 20, 1914.) A local variety of persimmon, said to be of medium size, somewhat square at base, but rounded off at the top, of yellowish color, seedless, not a good keeper. Chinese name *I shêng shih tzŭ*, meaning 'early persimmon.'"

37528. "(No. 1084. Village of Nantotchu, south of Sianfu. January 20, 1914.) A local variety of persimmon, said to be of medium size, square at base, but tapering toward the top; of yellowish color, seedless; can be either dried or kept fresh for a considerable time. The trees generally are heavy bearers. Chinese name *Ch'in shih tzŭ*, meaning 'Chin persimmon.'"

37529. "(No. 1085. Village of Nantotchu, south of Sianfu. January 20, 1914.) A local variety of persimmon, said to be of small size, round shape with rounded-off top, of reddish color and seedless; can be either dried or kept fresh for a long time. Chinese name *Mien tan shih tzŭ*, meaning 'ball-of-flour persimmon.'"

37530. "(No. 1086. Village of Nantotchu, south of Sianfu. January 20, 1914.) A local variety of persimmon, said to be rather small, square at base but tapering toward top, of red color, and seedless; can be either dried or kept fresh for several months. Chinese name *Hung shih tzŭ*, meaning 'red persimmon.' The bark of an old tree of this variety is characteristically smooth and of an ashy white color."

37531. "(No. 1087. Village of Nantotchu, south of Sianfu. January 20, 1914.) A local variety of persimmon, said to be of elongated shape, square at base, of reddish color, seedless; can be either dried or kept fresh for a long time. Chinese name *Ch'iu chien ting shih tzŭ*, meaning 'autumn-ripening persimmon.'"

37532. "(No. 1088. Village of Nantotchu, south of Sianfu. January 20, 1914.) A local variety of persimmon, said to be of medium size, of angular shape, and yellowish color; calyx very large. The trees are of spreading growth and are prolific bearers. Chinese name *Kou pu ch'ih shih tzŭ*, meaning 'no-dog-can-eat-them-all persimmon.'"

37533. "(No. 1089. Village of Nantotchu, south of Sianfu. January 20, 1914.) A local variety of persimmon, said to be of small to medium size, round shape, yellow color, and seedless; can be either dried or kept fresh for a long time. When not picked, many of the fruits dry on the tree. Chinese name *Kua kan shih tzŭ*, meaning 'persistent persimmon.'"

37534. "(No. 1090. Village of Nantotchu, south of Sianfu. January 20, 1914.) A variety of Chinese persimmon, said to be of large size, of flat shape, with an incision running horizontally around, of orange-yellow color, and seedless. Chinese name *Chung t'ai shih tzŭ*, meaning 'double-stage persimmon.' This variety is apparently identical with *Tamopan*."

37535. "(No. 1091. Village of Nantotchu, south of Sianfu. January 20, 1914.) A Chinese variety of persimmon, said to be of large size, round-oblong shape, and yellowish color; contains but few seeds, and possesses a very agreeable sweet flavor. A superior

37522 to 37548—Continued. (Quoted notes by Mr. F. N. Meyer.)

quality of dried persimmon can be made from it. Chinese name *Niu hsin shih tzŭ*, meaning 'oxheart persimmon.'"

37536. "(No. 1092. Village of Nantotchu, south of Sianfu. January 20, 1914.) A local variety of persimmon, said to be medium to large in size, round-oblong in shape, with four vertically running furrows, of orange color, and seedless; can be dried. Chinese name *Chien ting shih tzŭ*, meaning 'pointed-top persimmon.'"

37537. "(No. 1093. Village of Nantotchu, south of Sianfu. January 20, 1914.) A local variety of persimmon, said to be large, of tapering form, but square at base, of red color, seedless; can be either dried or kept fresh for a long time. Chinese name *Shao shih tzŭ*, meaning 'fire-red persimmon.'"

37538. "(No. 1094. Village of Nantotchu, south of Sianfu. January 20, 1914.) A local variety of persimmon, said to be of medium size, of somewhat square, flattened shape, yellow, seedless; can be dried. Chinese name *Man êrh shih tzŭ*, meaning 'meaty' or 'solid persimmon.'"

37539. "(No. 1095. Village of Nantotchu, south of Sianfu. January 20, 1914.) A Chinese variety of persimmon, said to be small, of round-oblong shape, color quite red, seedless; can be kept fresh almost throughout the winter. Chinese name *Huo kuan shih tzŭ*, meaning 'fire-pot persimmon.'"

37540. DIOSPYROS LOTUS L.

"(No. 1096. Village of Nantotchu, south of Sianfu. January 20, 1914.) The original wild form of the North Asiatic persimmon, from which probably nearly all cultivated varieties of so-called oriental persimmons have been developed. The fruits are small, of globular shape and yellowish green color; taste sour and astringent; full of seeds. The tree occurs on gently sloping mountain sides and on the edges of loess ravines; it is able apparently to stand a great amount of drought. Of medium dimensions, inclined to be low branched, bark fairly smooth and scaly, of an ashy color. Locally it is sparingly used as a stock for cultivated varieties. Chinese name *Yeh shih tzŭ*, meaning 'wild persimmon.'"

For an illustration of a Chinese persimmon orchard, see Plate X.

37541. EUONYMUS RADICANS ACUTUS Rehder.

"(No. 1097. Village of Nantotchu, south of Sianfu. January 20, 1914.) A variety of cardinal's-cap, the nonfruiting branches of which climb up against walls and tree trunks. Leaves of glossy green and bronze-red color, persistent throughout the winter. Thrives best in full sun. Chinese name *Tung ch'ing*, meaning 'winter green.' Of value as a wall cover plant for mild-wintered regions."

37542. POPULUS TOMENTOSA Carr. Poplar.

"(No. 1098. Village of Nantotchu, south of Sianfu. January 20, 1914.) The white poplar of North China, growing to large size and to old age on congenial spots. Loves somewhat sheltered locations on loess lands or along rivulets on rich but well-drained soil. Of special value as an avenue tree for the milder parts of the semiarid belt in the United States. Chinese name *Ta pai yang shu*, meaning 'big white poplar tree.'"

37522 to 37548—Continued. (Quoted notes by Mr. F. N. Meyer.)

37543. DIOSPYROS KAKI L. f. **Persimmon.**

"(No. 1099. Village of Nantotchu, south of Sianfu. January 20, 1914.) A variety of Chinese persimmon, said to be square at base, with rounded-off top, has vertically running grooves, color orange-red, seedless; can be kept fresh for some time, but is not fit to be dried. Chinese name *Man t'ien hung shih tzŭ*, meaning 'fleshy sky-red persimmon.'"

37544. SYRINGA sp. **Lilac.**

"(No. 1100. From mountains near Nantotchu, south of Sianfu. January 21, 1914.) A lilac of small slender growth, found on a stony mountain slope at an elevation of about 3,000 feet; apparently rare."

37545. LONICERA sp. **Honeysuckle.**

"(No. 1101. From mountains near Nantotchu, south of Sianfu. January 21, 1914.) A bush honeysuckle of open growth, having hairy leaves and flowering apparently very early. Found on dry, shady places at altitudes between 2,000 and 4,000 feet."

37546. EUONYMUS RADICANS ACUTUS Rehder.

"(No. 1102. Village of Yatzeko, south of Sianfu. January 22, 1914.) Collected from a specimen having a trunk as thick as a man's arm. These fruiting branches may perhaps supply very shapely bushes when rooted and kept free from climbing shoots. Of special value for the mild-wintered sections of the United States. See also remarks under No. 1097 [S. P. I. 37541]."

37547 and 37548. CASTANEA MOLLISSIMA Blume. **Chestnut.**

37547. "(No. 1103. Village of Yatzeko, south of Sianfu. January 22, 1914.) A variety of Chinese chestnut, said to have large fruits; is locally being propagated by top grafting. Apparently very resistant to the bark fungus. This variety might be tested in experiments to see whether it retains its resistance to the disease after having been grafted on American stock."

37548. "(No. 2005a. January 14, 1914.) A remarkable large variety of Chinese chestnut, coming from a mountainous district one day's journey to the south of Sianfu. The trees are said to be low branched and not at all of tall growth. Chinese name *K'uei li tzŭ*, meaning 'superior' or 'first-class chestnut seeds.'"

37549 to 37553. HOLCUS SORGHUM L. **Sorghum.**
(*Sorghum vulgare* Pers.)

From German East Africa. Presented by Usumbwa Co., Nyembe Bulungwa, Tabora. Received March 5, 1914.

37549. *Kalundi–1*
37550. *Utembe.*
37551. *Holongo waza.*
37552. *Kalundi–2.*
37553. *M.*

37554. PRINGLEA ANTISCORBUTICA Brown. **Kerguelen cabbage.**

From Havre, France. Presented by Mr. René E. Bossière. Received February 27, 1914.

From Kerguelen Island.

"This species of Pringlea is exceedingly abundant over all of the Falkland Islands, ascending the hills up to 1,400 feet, but only attaining its usual large size close to the sea, where it is invariably the first plant to greet the voyager. Its rhizomata, often 3 or 4 feet long, lie along the ground; they are sometimes 2 inches in diameter, full of spongy and fibrous substances intermixed, of a half-woody texture, with the flavor of horse-radish, and bear at the extremity large heads of leaves, sometimes 18 inches across, so like those of the common cabbage that if growing in a garden with their namesake they would not excite any particular attention. The outer leaves are coarse, loosely placed, and spreading; the inner form a dense white heart that tastes like mustard and cress, but much coarser. The whole foliage abounds with essential oil of pale-yellow color, highly pungent, confined in vessels that run parallel with the veins of the leaf, and which are very conspicuous on making a transverse section of the head." (*Hooker, Flora Antarctica, p. 240.*)

37555 and 37556.

From Sianfu, Shensi, China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received at the Plant Introduction Field Station, Chico, Cal., March 4, 1914.

Rooted cuttings; quoted notes by Mr. Meyer.

37555. PHYLLOSTACHYS PUBERULA NIGRA (Lodd.) Houzeau. **Bamboo.**
(*Phyllostachys nigra* Munro.)

"(No. 1073. January 10, 1914.) A bamboo having black canes, growing from 15 to 20 feet high. Of very pleasing appearance when planted against a wall and care is taken that the plantation does not become too dense. Chinese name *Mei chu chih.*"

37556. BAMBOS sp. **Bamboo.**

"(No. 1074. January 10, 1914.) A bamboo, growing only 1 to 3 feet high, having fairly broad leaves and but thin stems. It seems to like a situation where the soil does not become too dry. Of special value as a bank binder and a ground cover plant for the mild-wintered sections of the United States. Chinese name *Lo han chu chih.*"

37557. OPHIOPOGON JAPONICUS (L. f.) Ker-Gawler.

From Rome, Italy. Presented by Dr. Gustav Eisen. Received March 16, 1914.

"Seeds of a liliaceous plant, used extensively to form carpets or lawns under the trees or in the open; requires no cutting, as it never grows higher than 4 or 5 inches. If planted closely it makes a very fine lawn, which requires little watering and which does well in the shade. The berries resemble those of Convallaria and are of a splendid sky blue, looking like beads made of lapis luzuli." (*Eisen.*)

37558. CHAENOMELES LAGENARIA CATHAYENSIS (Hemsl.) Rehder. **Quince.**

(*Cydonia cathayensis* Hemsl.)

From Peking, China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received March 13, 1914.

Seeds taken from a sample fruit sent in by Mr. Meyer, November 1, 1913.

37559. AMYGDALUS PEDUNCULATA Pallas.

(*Prunus pedunculata* Maxim.)

From Chita, Transbaikal, Siberia. Presented by Mr. M. M. Timogowitsch. Received March 14, 1914.

Distribution.—A shrub found in the region around Lake Baikal in southeastern Siberia and in northeastern Mongolia.

37560 to 37562. BERBERIS spp. **Barberry.**

From Madrid, Spain. Presented by the curator, Botanic Garden, Madrid. Received March 19, 1914.

37560. BERBERIS MACRACANTHA Schrader.

37561. × BERBERIS NEUBERTI Lemaire.

"This species of Berberis is a hybrid between *Berberis aquifolium* and *B. vulgaris*. The branches are grayish brown, without spines, and upright. The leaves are simple, oval or ovate, sometimes with one or two smaller leaflets. They are 1½ inches to 3 inches in length, spiny or setulose dentate, and dark grayish green above. The flowers are borne in racemes. This species of Berberis is hardy in the north, but the leaves are not persistent." (*Bailey, Cyclopedia of American Horticulture.*)

"The older leaves are alternate, solitary, evergreen, and in form, color, and substance like those of the common holly. In the axils of some of these are borne tufts of leaves resembling those of the common Berberis, not only in their tufted arrangement, but also in their form, texture, serration, and deciduous character. The leaves of the common Berberis, however, are all simple, while many of these are ternate, some palmately, others pinnately so (i. e., the three leaflets are either stalked or sessile). The hollylike leaves we take to be exaggerated representatives of the palmately divided spines that are commonly met with in the barberry. A similar exaggeration of development is manifested in the ternate leaves. We are indebted to Mr. Nicholson for the identification of this Berberis with that called in German nurseries *B. neuberti* ×, which originated in A. N. Baumann's nursery at Bollweiler, in Alsace, as an accidental cross between the purple-leaved variety of *B. vulgaris* and the common Mahonia (*B. aquifolium*). The explanation of the singular conformation of the plant, with some of the leaves evergreen, others deciduous, is thus furnished by its mixed parentage." (*Gardeners' Chronicle, June 26, 1886.*)

37562. BERBERIS sp.

37563. SOJA MAX (L.) Piper. **Soy bean.**

(*Glycine hispida* Maxim.)

From Songdo, Chosen (Korea). Presented by Rev. W. G. Cram, the Anglo-Korean School. Received March 19, 1914.

White Manchurian soy bean.

37564 and 37565. VIGNA spp.

From Paris, France. Procured from Vilmorin-Andrieux & Co. Received February 21, 1914.

37564. VIGNA CYLINDRICA (Stickman) Skeels. **Cowpea.**

Received as *Dolichos*, long Tonkin bean.

37565. VIGNA SESQUIPEDALIS (L.) Fruwirth. **Asparagus bean.**

"Received as extra long-podded *Dolichos*. This is a buff-seeded variety of the asparagus or yard-long bean." (*W. J. Morse.*)

37566. SOLANUM QUITOENSE Lam.

From Guayaquil, Ecuador. Presented by Mr. Frederic W. Goding, American consul general. Received March 23, 1914.

"*Naranjilla.* A native fruit of Ecuador. Seeds obtained from a small fruit resembling an orange, with a diameter of a trifle more than an inch, very sour, but used locally for salads and refreshing drinks. Also delicious ices are prepared with its juice. The tree grows to a height of 4 or 5 feet in a moderately warm climate, a few hundred feet above the sea level." (*Goding.*)

37567. CHRYSOPOGON ACICULATUS (Retz.) Trinius.

From Honolulu, Hawaii. Presented by Dr. E. V. Wilcox, Hawaii Agricultural Experiment Station. Received March 12, 1914.

Native *Pilipiliula.*

"This grass is almost exclusively used for lawns at Hongkong, where it is known as *lovilovi* grass. Although rather coarse, it is the most satisfactory grass yet found on the thin soil at Hongkong. When the grass is ready to go to seed, however, it is very objectionable on account of the sharp-pointed fruits, which stick to the clothing wherever they touch it. The grass is also abundant in the Philippines and in India. It makes excellent pasturage, but the objectionable features are such that it is doubtful whether it should be introduced in this country. The present supply of seed has been secured for the purpose of testing in Florida under conditions which will not permit of its spreading until opportunity has been given to determine whether its good qualities will outweigh its bad." (*C. V Piper.*)

Distribution.—Generally distributed throughout tropical Asia, the Polynesian islands, and in Australia.

37568 and 37569. SECALE CEREALE L. Rye.

From Chita, Transbaikal, Siberia. Presented by Mr. A. Savary, director, Central Experiment Station, Transbaikal. Received March 14, 1914.

"Spring rye from the neighborhood of the county seat, Verkhne Udinsk, harvested in the year 1913." (*Savary.*)

37570 to 37576.

From Vladivostok, Siberia. Presented by Mr. John F. Jewell, American consul. Received March 16, 1914.

Seeds grown in the Ussuri district along the Ussuri Railroad; quoted notes by Mr. Jewell.

37570 to 37574. SOJA MAX (L.) Piper. (*Glycine hispida* Maxim.) **Soy bean.**

37570. "No. 1. Chinese bean, grown in the village of Chernigovka by P. J. Monostirniy."

37571. "No. 2. Chinese bean, grown in the village of Petrovka."

37572. "No. 3. Chinese bean, grown by St. Troitzky monastery at Shmakovka."

37573. "No. 4. Yellow bean, *Ko-yi.*"

37574. "No. 5. *Khei.*"

37570 to 37576—Continued. (Quoted notes by Mr. J. F. Jewell.)

37575. PHASEOLUS ANGULARIS (Willd.) W. F. Wight. **Adzuki bean.**

"No. 6. No special name for these beans."

37576. PHASEOLUS AUREUS Roxb. **Mung bean.**

"No. 7. *Nogti.*"

37577. CARICA PAPAYA L. **Papaya.**

From Manila, Philippine Islands. Presented by Mr. William S. Lyon. Received March 11, 1914.

"One of these 'seedless' fruits has now perfected 26 and the other 35 seeds and at the same time we are still getting plenty of entirely vacant fruits. After all, seedlessness is no especial virtue in a papaya, even though the normal fruit found here bears always a double handful, several hundred at least, but has the undoubted value of decreasing the size of the placental cavity and greatly increasing the thickness of the flesh. Most of our seedless plants have had a rind of 30 to 32 millimeters in thickness as against an average of 12 to 15 millimeters of the unimproved kinds. These figures are by measurement and not by guess. If prolificacy be a trait worth cultivating, then this variety has it in a superlative degree. Only about 16 months from the seed, we are now eating the last of the third crop, aggregating (for the three) about 100 fruits, and a fourth crop is due to begin to ripen in about one month. The greater part of the first crop I have sold at the rate of $15 per hundred, although, as I indicated to you before, the greatly reduced size of the subsequent crops would depreciate their market value. Still another freak development I notice, that would make the fixation of the variety even by vegetative means a matter of doubt, is a sudden variation in form, the present crop showing a preponderance of oblong fruits, while a few are as round as a pomelo. This is a feature, however, that I surmise may lie much within the control of the cultivator. The immense size of the fruits and their position, one bearing down upon the other, has an undoubted tendency to elongate them. Careful thinning, I am of the opinion, would modify this to the extent of producing fruits more nearly round; that is a desideratum." (*Lyon.*)

37578 to 37600.

From Edinburgh, Scotland. Presented by the Royal Botanic Garden. Received February 25, 1914.

37578 to 37581. ASPARAGUS spp. **Asparagus.**

37578. ASPARAGUS GONOCLADUS Baker.

37579. ASPARAGUS GRACILIS Royle.

37580. ASPARAGUS PLUMOSUS Baker.

37581. ASPARAGUS SCANDENS Thunberg.

37582 and 37583. SORBUS spp.

37582. SORBUS ALNIFOLIA (Sieb. and Zucc.) Koch.
(*Crataegus alnifolia* Sieb. and Zucc.)

"A deciduous tree of rather slender, erect habit, ultimately 40 to 50 feet high; branchlets furnished with short silky hairs when quite young. Leaves of thin texture; 1½ to 3 inches long, three-fourths of an inch to 1½ inches wide; the apex pointed, the base rounded, margins double toothed; nerves parallel in 7 to 12 pairs; silky hairy

37578 to 37600—Continued.

beneath when young, becoming smooth later; stalk one-half to three-fourths inch long. Flowers white, one-half inch in diameter, produced during May in corymbs 2 to 3 inches across; calyx and flower stalks silky. Fruit one-third to one-half inch long, oval, bright red, no calyx adhering at the top.

"Native of Japan and Chosen (Korea); put in cultivation by Mr. Späth of Berlin about 1892, but may have been known before. It is one of the neatest and most pleasing of the *Micromeles* group, and is very appropriately named. The leaves are bright green beneath, and bear a close resemblance to those of an alder. Fine crops of fruits ripen, and they become very brightly colored, and remain long on the tree, but only a small proportion contain good seeds. Very deserving of cultivation." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 272*, under *Pyrus alnifolia.*)

37583. SORBUS ARIA SALICIFOLIA Myrin. **Whitebeam.**

"A tree usually 30 to 45 feet high in gardens, but occasionally met with 60 to 80 feet high; main branches more or less erect; young branchlets clothed with loose white down, becoming nearly smooth and lustrous dark brown by winter, and furnished with pale, wartlike excrescences. Leaves with 8 to 13 pairs of parallel ribs, oval or obovate; 2 to 4 inches long, half to two-thirds as wide; usually tapering, but sometimes rounded at the base, pointed or rounded at the apex; margins doubly toothed; upper surface bright green, smooth except when quite young; always covered with a close white felt beneath; stalk one-half to 1 inch long. Flowers dull white, heavy scented, about one-half inch across, and produced toward the end of May in corymbs 2 to 3 inches across; stalks and calyx covered with white down. Fruit oval or roundish, one-third to one-half inch long, scarlet-red, specked with brownish dots.

"Native of the British Isles and pretty general over Europe; also found in some of its forms in Asia Minor and North Africa. There is no tree more characteristic of the chalk hills of Britain or more beautiful in regard to foliage and fruit, but it is often reduced to a mere shrub. It is very effective in the breeze when the wind, by lifting the leaves, reveals the pure white under surface to the observer in kaleidoscopic glimpses. Although apparently preferring the limestone in a state of nature, it thrives quite well under cultivation in almost any well-drained soil. A tree well laden with the bright red fruits is also one of the most beautiful of autumn pictures; only, owing to the depredations of birds, often of short duration. It is best propagated by seeds, but the young plants grow very slowly at first. The timber is hard and heavy, but it is too scarce to count for much in the timber trade. The largest tree recorded by Elwes is at Camp Wood, near Henley-on-Thames, which in 1905 was 75 feet high by 4 feet 9 inches in girth of trunk.

"Var. *salicifolia.* Leaves narrower than in the type, but not so narrow as in var. *angustifolia;* stalks longer, as a rule." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 274–276*, under *Pyrus aria salicifolia.*)

37584 to 37586. MALUS spp.

37578 to 37600—Continued.

37584. MALUS BACCATA (L.) Moench. **Siberian crab apple.**
(*Pyrus baccata* L.)

See S. P. I. No. 37008 for description.

37585. MALUS CERASIFERA Spach.

"A cross between *Pyrus prunifolia* and *P. baccata* and a very beautiful crab. Flowers white, fruit about the size of a cherry, colored purplish red. The calyx teeth sometimes remain on the fruit, as in *P. prunifolia*, sometimes fall away." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 291*, under *Pyrus cerasifera.*)

37586. MALUS BACCATA (L.) Moench. **Siberian crab apple.**
Var. *maxima.*

37587. PYRUS CANESCENS Spach.

"Probably a hybrid between *Pyrus nivalis* and *P. salicifolia.* In regard to it Decaisne wrote that 'it is intermediate between *P. nivalis* and *P. salicifolia;* its leaves are of the same size as those of *nivalis*, and often twisted as in *salicifolia.*' They are lanceolate or narrowly oval, finely round toothed, very white when young, shining dark green above when mature. Fruit pale green, much shorter stalked than *P. nivalis.* A handsome tree in spring." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 289.*)

37588. × SORBUS HOSTII (Jacq. f.) Heynh.

"*Pyrus hostii* (*Sorbus hostii* Hedlund) is a hybrid between the above [*P. chamaemespilus* Ehrhart] and some form or ally of *P. intermedia.* The foliage is much larger than of *P. chamaemespilus*, and more resembles that of *P. intermedia* in size and in the presence of down on the lower surface; the toothing is sharp and jagged. In the dense, compact inflorescence and in the upright, pinkish petals the influence of *P. chamaemespilus* is apparent. *P. hostii* is found wild on the Alps of Austria." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 280.*)

37589. × SORBUS LATIFOLIA (Lam.) Pers.
(*Pyrus rotundifolia* Moench.)

"A tree 30 to 45 feet, sometimes over 60 feet high; branchlets downy when young, becoming by winter shining and quite smooth. Leaves roundish ovate, 2 to 4 inches long, often nearly as wide at the base as they are long; the apex pointed, the base either truncate or broadly wedge shaped; margin either cut into triangular, pointed lobes which are sharply toothed, or simply jaggedly toothed; smooth, dark lustrous green above, covered beneath with a grayish felt; ribs 6 to 10 on each side; stalk downy, one-half to 1 inch long. Flowers white, five-eighths inch across, borne in corymbs 3 inches wide during May; stalks and calyx very woolly. Fruits globular, one-half inch in diameter, dull brownish red.

"This interesting tree was first discovered in the forest of Fontainebleau early in the 18th century. Its origin has given rise to considerable difference of opinion, but it is generally believed to be a hybrid between *Pyrus aria* and *Pyrus torminalis.* In many respects, notably in shape and woolliness of leaf, and in colour of fruit, it is certainly intermediate between them. Whether the Fontainebleau tree be a hybrid or not (and it is said to come true from seed), very similar ones found in middle

37578 to 37600—Continued.

Europe are almost certainly hybrids. The tree in various forms is found in the west of England. It has been much confused with *P. intermedia*, and in some of its forms approaches that tree in form of leaf. But it is usually much less downy on the lower surface by the end of the summer, the winter buds are paler, and the angle between the marginal lobes of the leaf is wider, often 90° in *P. latifolia*, whereas in *P. intermedia* it is frequently a mere slit at the base. There is a very fine old specimen in the Earl of Bathurst's woods at Cirencester, between 70 and 80 feet high and 11 feet in girth of trunk." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 286.*)

37590 to 37592. MALUS spp.

37590. MALUS PRUNIFOLIA (Willd.) Borkh. **Siberian crab apple.**
(*Pyrus prunifolia* Willd.)

"A small tree with downy young shoots and ovate or broadly oval leaves, 2 to 4 inches long, half or more than half as wide, unequally round toothed, downy beneath. Flowers white, 1½ inches across, produced in April in umbels of 6 to 10 blossoms; calyx with long, narrow, always woolly lobes. Fruit round or slightly ovoid and elongated, 1 inch in diameter, yellowish or red, crowned with the persistent calyx.

"There is some doubt as to the origin of this crab. Aiton gives the date of its introduction to England as 1758, and its native country as Siberia, to which other authors have added North China. But there appears to be no genuine proof of its existence in either country. It has been suggested that it is a hybrid between *P. baccata* and *P. malus*. It is distinguishable from *P. baccata* in fruit by having the calyx lobes nearly always adhering at the top, although not invariably. Although longer cultivated in Britain than *P. baccata*, it does not appear to have reached so large a size." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 290–291.*)

"This species, which is commonly known as the *Siberian crab*, is a tree native to Siberia and usually attains a height of 20 to 30 feet; the flowers greatly resemble those of the common pear, and the fruit when ripe is of a yellowish color with a slight tinge of red on the side exposed to the sun. The fruit is like that of the medlar; has an austere taste and is more palatable when decay has begun." (*Nicholson, Dictionary of Gardening.*)

37591. MALUS PRUNIFOLIA RINKI (Koidy.) Rehder.
(*Pyrus ringo* Wenzig.)

Var. *fastigiata bifera.*

"A small tree, usually under 20 feet in height, of graceful habit; young branches covered with grayish down. Leaves ovate or oval, 2 to 4 inches long; two-thirds as wide, downy above when young, permanently so beneath, sharply toothed; stalk one-half to three-fourths inch long, downy. Flowers in applelike clusters, each on a woolly stalk 1 to 1½ inches long, rosy red in bud, paler when open, becoming almost white; calyx lobes narrowly lanceolate, hairy on both sides. Fruit pendulous, 1¼ inches long, 1 inch wide, roundish, egg shaped, bright yellow, crowned by persistent calyx lobes.

"This tree appears to have been originally introduced to Europe by Siebold from Japan about the middle of last century, but it is

37578 to 37600—Continued.

not known to be anywhere wild in Japan. It is surmised to be a hybrid between *P. spectabilis* and some form of *P. malus*. As a tree for the garden its great attraction is its abundant, gracefully pendent, bright yellow fruits, which hang from the lower side of the branches in long, crowded rows and make it probably the handsomest of our yellow-fruited hardy trees. They have an applelike flavour and are quite pleasant eating.

"Var. *fastigiata bifera*. A tree of pyramidal habit, probably a hybrid between some form of *P. malus* and *P. ringo*. Fruit abundant, yellow, stained with red, about the size of a pigeon's egg." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 292.*)

37592. MALUS FUSCA (Raf.) Schneider.
(*Pyrus rivularis* Dougl.)

"A tree 20 to 30 feet high, often a shrub; branchlets slender, more or less downy. Leaves variously shaped, from broadly ovate to oblong lanceolate, often 3-lobed; the largest 4 inches long and 2½ inches wide, more often 1 to 3 inches long and half as wide; the base tapering, rounded, or slightly heart shaped, pointed at the apex, sharply toothed; downy on both sides; stalk downy, 1 to 1½ inches long. Flowers white or rose tinted, three-fourths inch across, produced in clusters of 6 to 12. Fruit egg shaped, one-half to three-fourths inch long, red, yellow, or greenish yellow, the calyx teeth fallen away from the top.

"Native of western North America; introduced in 1836, according to Loudon, but little known in cultivation now, although it is offered sometimes in tree catalogues of continental firms. It belongs to the *Toringo* group of crabs, but appears to have no special value for the garden. The fruit has an agreeable subacid taste, and the wood, being close and hard, is valued in the Western States for uses similar to those of apple and pear wood in this country." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 292.*)

37593. × SORBUS ALPINA (Willd.) Heynh.

"This species is commonly known as the *bastard* quince, and is a native of the mountainous parts of Europe. It is a shrub which attains a height of 5 to 6 feet. The flowers, which are of a reddish color, make their appearance in May and June. The leaves are ovate, serrate, glabrous, clothed when young with a deciduous down. The fruit is round and of a reddish color." (*Nicholson, Dictionary of Gardening.*)

"*Pyrus alpina*, Willdenow (*Sorbus alpina* Heynhold), is very nearly allied [to *dippelii*], having *P. aria* and *P. arbutifolia* as its parents. It differs from *P. dippelii* most markedly in having clear red fruits and in the leaves (upper surface especially) being less downy." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 282.*)

37594. ARONIA MELANOCARPA (Michx.) Elliott. **Black chokeberry.**
(*Pyrus melanocarpa* Willd.)

"This is a pretty native shrub which is found in the damp woods throughout the country, north and south. When in the woods it is often 8 to 10 feet high, but to be fully appreciated it must be seen as a bushy shrub. It has clusters of white flowers, usually on every branch, and

37578 to 37600—Continued.

later on the clusters change to berries, which become very black and handsome, especially in the late autumn, when the leaves have fallen. The foliage of this bush is of a shining green, changing in autumn to bright yellow, orange, and red." (*Florists' Exchange, August 23, 1913.*)

37595. SORBUS HYBRIDA L. Bastard service tree.
(*Pyrus pinnatifida* Ehrh.)

"A deciduous tree, 20 to 40, occasionally over 50 feet high, with ascending branches; twigs covered with loose grayish floss when young, becoming smooth and of a dark lustrous brown by winter. Leaves 3 to 5 inches long, 1 to 2 inches wide; narrowly oblong ovate in main outline, but usually pinnate or cut nearly to the midrib at the base, the upper portion lobed and toothed, but less deeply so toward the apex, which is merely coarsely toothed; the lower surface is covered with a dull gray, persistent down; leaf stalk one-half to 1¼ inches long, downy. Flowers white, about one-half inch wide, produced in May in corymbs 3 to 5 inches across. Fruit bright red, round oval, two-fifths inch long.

"This tree, especially handsome in foliage and fruit, is found wild in north and central Europe, and is generally believed to be a natural hybrid between *Pyrus intermedia* and *P. aucuparia.* The influence of the latter is seen in the larger leaves, especially of the sterile shoots, having usually from 1 to 3 pairs of leaflets at the base. On the flowering twigs many of the leaves are simple. It is found wild in the Isle of Arran, rarely in England. It is connected with both *intermedia* and *aucuparia* by intermediate forms, but as a rule reproduces itself true from seed. The habit generally is erect, but a form sent out by Messrs. Backhouse of York with more than usually erect branches is called var. *fastigiata.*" (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 289–290.*)

37596 to 37598. COTONEASTER spp.

37596. COTONEASTER DIVARICATA Rehd. and Wilson.

"This species of Cotoneaster, which is valued chiefly for its dark red, often long-persistent fruit, is a native of western China and was introduced into this country in 1909 by Mr. E. H. Wilson. It has been grown successfully in the gardens of the Arnold Arboretum, where it has stood the winters without severe injury. It promises to become a valuable garden plant in this country." (*Arnold Arboretum, Bulletin of Popular Information, No. 19, April 25, 1912.*)

"A deciduous shrub up to 6 feet high, of spreading habit; young shoots clothed with grayish hairs, becoming the second year smooth and reddish brown. Leaves roundish oval, sometimes ovate or obovate, tapered abruptly toward both ends, the apex mucronate; one-third to 1 inch long, one-fourth to five-eighths inch wide (smaller on the flowering shoots); dark glossy green, and soon smooth above, sparsely hairy beneath; veins in three or four pairs; leaf stalk one-twelfth inch or less long. Flowers usually in threes at the end of short twigs, often supplemented by solitary ones in the axils of the terminal leaves, rosy white; calyx lobes triangular, they and the tube loosely woolly. Fruit red, egg shaped, one-third inch long, carrying two stones.

37578 to 37600—Continued.

"Native of west Hupeh and west Szechwan, China; first found by Henry in the latter province about 1887; introduced to the Coombe Wood nursery by Wilson in 1904. It is one of the handsomest in fruit of Chinese Cotoneasters, and was given a first-class certificate by the Royal Horticultural Society in the autumn of 1912. It is allied to the Himalayan *C. simonsii*." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 408–409.*)

37597. COTONEASTER PANNOSA Franchet.

See S. P. I. Nos. 32936, 33043, and 33159 for previous introductions.

"This evergreen Cotoneaster hails from Yunnan, China, and it is one of the finest berried winter shrubs in cultivation. This species makes a splendid specimen for the lawn, as it has a graceful habit with its drooping, slender branches and small, grayish green leaves. This Cotoneaster is quite hardy in England and should do well against a wall, where it would make a good effect." (*Gardeners' Chronicle, March 4, 1913.*)

"An evergreen shrub of free and elegant habit, 10 feet or more high; branches arching and slender, covered with whitish felt when young. Leaves oval, tapering toward both ends, one-half to 1 inch long, about half as wide; always dull green above, covered with whitish felt beneath; stalk up to one-quarter inch long. Flowers one-quarter to three-eighths inch across, borne in corymbs of as many as 15 or 20; petals white, spreading; calyx woolly. Fruits scarcely one-quarter inch long, dull red.

"Native of Yunnan, China, up to 9,000 feet altitude; raised in Paris in 1888 from seed sent there by the Abbé Delavay. Introduced to Kew in 1892. The differences between this species and *Cotoneaster francheti* have already been alluded to under that species. Both are characterized by extreme elegance of habit, and by being very woolly on young bark, flower stalk, calyx, and under surface of leaves; but *C. pannosa* has duller leaves, less hairy when young on the upper surface, more spreading, whiter petals, and shorter, rounder fruits of a deeper red." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 414.*)

37598. COTONEASTER SALICIFLORIA RUGOAS (Pritz.) Rehd. and Wilson.

"I do not know that the typical *C. salicifolia* is in cultivation. It is a species of West Szechwan, China, discovered by the Abbé David nearly thirty years ago. It has white flowers and red, ovoid fruits, one-sixth of an inch long.

"Var. *rugosa*, Rehder and Wilson (*C. rugosa* Pritzel).—In this variety the leaves are larger, up to 3 inches long and 1½ inches wide, the veins numbering six to twelve 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 West Hupeh, where he found it 9 feet high." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 414–415.*)

37599. BERBERIS HOOKERI Lemaire. **Barberry.**

"*Compacta.* A compact form of *Berberis wallichiana* Hort."

See S. P. I. No. 37498 for previous introduction.

37578 to 37600—Continued.

37600. VIBURNUM BUREJAETICUM Regel and Herd.

For previous introduction, see Nos. 20115 and 33776.

"I am doubtful if the true plant to which this name belongs is now in cultivation, although it may be among recent introductions from China. What is usually seen under the name is *V. lantana* or one of its near allies. The true *burejaeticum* is quite distinct. A deciduous shrub whose young shoots are covered at first with a dense, stellate down, becoming almost white and smooth the second year. Leaves ovate, oval or slightly obovate; tapered, rounded, or slightly heart shaped at the base, tapered and often blunt at the apex; 2 to 4 inches long, 1 to 2 inches wide; evenly and angularly toothed, with scattered, mostly simple hairs above, and scattered stellate ones beneath, chiefly on the veins, becoming almost smooth; stalk one-quarter to one-half inch long, scurfy. Flowers white, uniform and perfect, one-quarter inch wide, produced in stalked usually 5-branched cymes, 2 inches across; the stalks covered with stellate scurfy down. Native of Manchuria and China." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 643–644.*)

37601 to 37603. TRITICUM AESTIVUM L. Wheat.

(*Triticum vulgare* Vill.)

From Wageningen, Holland. Presented by Mr. C. J. Hessing, Institute for the Improvement of Agriculture. Received March 27, 1914.

37601. *Wilhelmina.*

37602. *Imperial.*

37603. *Millioen.*

37604 and 37605.

From Victoria, Kamerun, German West Africa. Presented by the Agricultural Experiment Station for Victoria. Received March 27, 1914.

37604. ELEUSINE CORACANA (L.) Gaertn. Ragi.

Native names in the following languages: *Njaderi,* Fulah; *Sigge,* Mbum.

37605. SESAMUM ORIENTALE L. Sesame.

(*Sesamum indicum* L.)

Native names in the following languages: *Sam,* Mbum; *Sidi,* Hausa; *Dam,* Wute; *Manasiri,* Fulah.

37606. × CYDONIA VEITCHII Trabut. Pyronia.

From Algiers, Algeria. Presented by Dr. L. Trabut, director, Service Botanique. Received April 1, 1914.

"I am cultivating three hybrids of Cydonia and Pyrus of Veitch's. These plants here are very vigorous and they seem bound to furnish an excellent stock for pears. I am sending you Pyronia A. [a hybrid between Cydonia (Portugal quince) and Pyrus (Bergamotte Esperen), produced by Mr. John Seden in 1895], which will take the name *Pyronia veitchii* Trabut in my article in the Journal of the Royal Horticultural Society." (*Trabut.*)

37607. PINANGA INSIGNIS Beccari. **Palm.**

From Los Banos, Philippine Islands. Presented by Mr. C. F. Baker, University of the Philippines, College of Agriculture. Received March 2, 1914.

"From high on Mount Maquiling, Province of Laguna. This is a very stately and fine red-fruited palm, said to be near *Areca catechu*, but very different in fruit from that species, although the fruit is sometimes used in the same way." (*Baker.*)

37608. ALLIUM TRIFOLIATUM Cyrillo.

From Algiers, Algeria. Presented by Dr. L. Trabut, director, Service Botanique. Received March 24, 1914.

"This plant forms a turf. The leaf is very good as a condiment, after the fashion of chives." (*Trabut.*)

Distribution.—An herbaceous perennial found in the countries bordering on the Mediterranean Sea from Italy eastward to Syria and Palestine.

Bulbils.

37609. COIX LACRYMA-JOBI L. **Job's-tears.**

From Singapore, Straits Settlements. Presented by Mr. I. H. Burkhill, Singapore Botanic Gardens. Received March 21, 1914.

37610 to 37612.

From Kew, England. Presented by Sir David Prain, director, Royal Botanic Gardens. Received March 23, 1914.

37610 and 37611. SPIRAEA spp.

37610. SPIRAEA VEITCHI Hemsley.

"This is a new species which was discovered in China by Mr. E. H. Wilson and through him it has been introduced into cultivation. The plant forms a neat compact shrub, with thin growths 6 to 8 feet long, of a reddish brown clothed with small glaucous-green, oblong-lanceolate leaves, serrate along their apical portion. The flowers of the short side growths along the whole length of the previous year's shoots are in terminal corymbs, pure white and very showy in mass." (*Hortus Veitchii*, p. 379.)

37611. SPIRAEA WILSONI Duthie.

"This Spiraea, which was introduced a few years ago from China by Mr. E. H. Wilson, has proven to be a most valuable addition to deciduous flowering shrubs. Robust in growth, *Spiraea wilsoni* forms a large spreading bush 5 to 6 feet in height. The inflorescences of white flowers terminate short axillary shoots, which develop from the upper two-thirds of last year's vigorous shoots. As these bend over in a graceful, arching manner, a bush in full flower presents a pleasing picture. The flowers are borne in flattened, rather compact, rounded corymbs, about the middle of June. The corymbs are about 1½ to 2½ inches across, the individual flowers a quarter of an inch in diameter. *S. wilsoni* makes a nice lawn specimen for small or large gardens, while for large clumps and shrubby borders it is well worth consideration." (*The Garden, August 30, 1913.*)

37610 to 37612—Continued.

37612. VIBURNUM SARGENTI Koehne.

"This shrub usually grows from 5 to 8 feet tall, with upright branches which, on adult plants, assume a dark-gray, corky appearance. The leaves are roundish ovate to ovate, usually 3-lobed, rounded to square at the base, 2½ inches long and 2 inches broad, dark yellowish green and smooth above, pale green and somewhat pilose beneath. The flattish corymbose flower cluster, with prominent showy neutral flowers surrounded by the corymbs, and the fertile flowers with purple anthers come in blossom about the first of June. The subglobose or rounded fruit, scarlet or orange-scarlet, ripens in September. This species greatly resembles *Viburnum americana*, but differs from it in its more upright habit, largely ray flowers, and the fruits are not as brilliant and are considerably smaller and less abundant. *Viburnum sargenti* is perfectly hardy at Rochester, N. Y., and there it is a very useful park and garden shrub." (*The Florists' Exchange, May 20, 1911*).

37613 to 37622.

From Cambridge, England. Presented by Mr. R. Irwin Lynch, curator, Botanic Garden. Received March 24, 1914.

37613. AMYGDALUS PERSICA L. **Peach.**
(*Prunus persica* Stokes.)

37614. CYDONIA OBLONGA Miller. **Quince.**
(*Pyrus cydonia* L.)

See S. P. I. No. 30059 for previous introduction and description.

37615. LAUROCERASUS LUSITANICA (L.) Roem.
(*Prunus lusitanica* L.) **Portuguese cherry laurel.**

"An evergreen shrub of wide, bushy form, usually 10 to 20 feet, but occasionally 40 to 50 feet high, more in diameter; young branches quite smooth and very dark. Leaves ovate or oval, 2½ to 5 inches long, 1¼ to 2 inches wide; quite smooth on both surfaces; very dark, glossy green above, paler below; shallowly roundish toothed. Racemes produced in June from the ends of the previous summer's shoots and from the axils of their leaves; 6 to 10 inches long, 1 to 1¼ inches through, more or less erect. Flowers white, one-third to one-half inch across, calyx cup shaped, with shallow, rounded lobes; stalk one-third of an inch long. Fruit dark purple, one-third of an inch long, cone shaped, pointed. 'Native of Spain and Portugal; introduced in 1648' (*Alton*). In all but the coldest parts of Great Britain the Portugal laurel is one of the handsomest and most effective of evergreens. It should be grown as isolated specimens, especially in thinly wooded parts of the grounds. Although it is chiefly valued for the luxuriance of its rich green lustrous foliage, it has some merit as a flowering shrub, for in June it produces an extraordinary profusion of long, slender racemes, whose only defect is that the flowers are rather dull. It is hardier than the cherry laurel, and on warm, well-drained soil withstands 32 degrees of frost without being in the least affected." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 241*).

37616. MALUS BACCATA (L.) Moench. **Siberian crab apple.**
(*Pyrus baccata* L.)

See S. P. I. Nos. 26681 and 31028 for previous introductions.

37613 to 37622—Continued.

37617. MALUS PRUNIFOLIA (Willd.) Borkh. **Siberian crab apple.**
(*Pyrus prunifolia* Willd.)

See S. P. I. Nos. 27124 and 30251 for previous introductions and S. P. I. No. 37590 for description.

37618. MESPILUS GERMANICA L. **Medlar.**

See S. P. I. No. 29197 for previous introduction.

"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 into a long, narrow point standing out beyond the petals. Fruit five 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 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. 81–82.*)

37619. PRUNUS DOMESTICA INSITITIA (Jusl.) Schneider. **Bullace.**
(*Prunus institia* Jusl.)

"This species of Prunus is a tall, much-branched shrub, which sometimes attains a height of 20 feet. The flowers are white and appear on the branches before the leaves. The lateral clusters are only one to two flowered. The fruit of this species is globose, nearly black, and in the wild state about one-half inch in diameter." (*Britton and Brown, Illustrated Flora of the Northern States and Canada.*)

"A small deciduous tree with foliage similar to that of *Prunus communis*, but with some of its branches spiny. Fruit globular, three-fourths inch in diameter, black or yellow; several white-fruited varieties are grown in orchards. The bullace is a native of Britain and other parts of Europe. Being found in many hedgerows, the typical form scarcely deserves a place in the arboretum, but the double-flowered variety is more ornamental. *P. spinosa, insititia,* and *communis* are by some authorities considered as all forms of one species. It is easy enough to distinguish *P. spinosa* by its black bark, its small, sharply toothed

37613 to 37622—Continued.

leaves, and small, round, black fruits. But *P. insititia* and *communis* are more closely allied; they both have brown bark, larger and more bluntly toothed leaves, but the fruit of the bullace is round and often white or yellow, whilst the plum is black and oval. Intermediate forms occur, of which the damson is one, having an oval, purple, sour fruit. (The damsons take their name from Damascus, where they have been cultivated since before the Christian era.) The Mirabelle group of plums, with round, yellow fruits, acid and sweet, belong to *P. insititia*." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 238.*)

37620. PYRUS SALICIFOLIA Pall. **Willow-leaved pear.**

See S. P. I. No. 26764 for previous introduction and description.

"A tree 15 to 25 feet high, branchlets covered with down, which is quite white when young. Leaves 1½ to 3½ inches long, one-third to two-thirds inch wide; narrowly lanceolate, tapering gradually towards both ends, covered when young on both sides with a beautiful silvery gray 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 1¼ inches long and wide.

"Native of southeastern Europe and Asia Minor; introduced in 1780. 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. 292–293.*)

37621 and 37622. RIBES spp.

37621. RIBES ALPINUM L. **Currant.**

"This species of Ribes which is commonly called the *Mountain* currant is a native of the mountains of Europe and the Orient. The branches are whitish and upright and the leaves slightly hairy above. The flowers, which are diœcious, are yellowish green in color and occur in staminate and pistillate clusters, the former having 20 to 30 flowers and the latter 5 to 10 flowers to the cluster. The peduncles are glandular hairy, and the bracts are longer than the pedicel and flower. The fruit of this species is smooth, scarlet colored, and insipid or sweetish to the taste." (*Bailey, Cyclopedia of American Horticulture.*)

37622. RIBES SPECIOSUM Pursh. **Gooseberry.**

This is a hardy shrub which is a native of California and apparently of Mexico. If this species can not be said to be so beautiful a shrub as *Ribes sanguineum*, the *Scarlet* currant, it is at least by far the most elegant of gooseberries and considered by some to be the most showy member of the genus. In brilliancy of color it is perhaps superior to that species, and in the abundance of flowers nearly its equal. With all its beauty, however, this species has the demerit, common to all gooseberries, of hiding its pretty bright red

37613 to 37622—Continued.

flowers with its leaves. The branches are covered with fine reddish prickles and glandular tipped hairs. The thorns are long, slender, and occur commonly in threes. The leaves are small, thick, shining, and partially evergreen. The berries are small, prickly, dry, and few seeded. (Adapted from *Botanical Register, vol. 18, pl. 1557 (1832)*, and *Bailey, Cyclopedia of American Horticulture.*)

37623. CITRUS sp. **Orange.**

From Singapore, Straits Settlements. Presented by Capt. J. Prentice, Corps of Engineers, United States Army. Received March 19, 1914.

"Seeds from Johore oranges. A very fine variety of free peelers, sweet, russet skin. To be tested in Florida." (*Prentice.*)

37624. CUCUMIS MELO L. **Muskmelon.**

From Barcelona, Spain. Presented by Mr. Henry H. Morgan, American consul general. Received March 19, 1914.

"The so-called *Valencia*, which matures in the late fall and keeps in good condition for three or four months, melons of this variety being obtainable throughout Spain as late as the month of February. These melons do not generally ripen on the vine, but are gathered while green and hung in nets from the ceiling and doorways, after they have been gathered and exposed to the air and sun, where the ripening process is completed. The sweetest and most exquisite varieties are grown in warm climates, somewhat tempered by fresh winds. Melons can be grown to perfection with a bottom heat of 75° F., gradually increasing to 80°, and an atmospheric temperature of 75° to 80° when the fruit is swelling, as much sun heat as the plant can bear being allowed at all times. The melon thrives best in rich turfy loam, somewhat heavy, with which a little well-rotted manure has been mixed. In planting, the seeds are almost invariably used. Shoots are also employed, although to a very limited extent. Once the seeds are put in the ground the plant is allowed to thrive and no transplanting takes place. Melons exposed to the south and west always crack, which is remedied somewhat by turning the fruit over and changing its position. The purer the water applied the sweeter the fruit will be. Cold and impure water from wells has a prejudicial effect. When the soil contains too much humidity wooden boards or tiles should be placed under the fruit, thus preventing it from rotting. The melon is ripe when its stem changes color and tends to separate itself from the fruit. The best grades are solid and heavy, with a shiny peel. The winter melons, which are gathered before ripening, will subsequently become completely seasoned. These fruits should be gathered in dry periods and never immediately after a heavy rainfall. The best time to pick melons is at daybreak." (Extract from *Consular report, "Melon Cultivation in Spain."*)

37625 and 37626.

From Zacuapam, Huatusco, Vera Cruz, Mexico. Presented by Dr. C. A. Purpus. Roots received March 30, 1914.

37625. EUCHLAENA MEXICANA Schrad. **Teosinte.**

"From Coscomatepec, Vera Cruz, a railroad station between Cordoba and Huatusco. I saw the grass teosinte in several of the fields near that town. It is raised as a forage plant. This grass seems to be a little tender, because I saw it was damaged some by frost, which is not unusual

37625 and 37626—Continued.

in that place, because it must be 400 to 500 feet high and is situated at the foot of Citlaltepetl, the so-called Peak of Orizaba. This grass is not propagated by seed, but, like sugar cane, by cuttings. The lower parts of the stems are cut like sugar cane and put into the ground. It grows in bundles and stands frost to a certain degree." (*Purpus.*)

37626. POLYGONUM SACHALINENSE F. Schmidt. **Sacaline.**

"Forage plant from Japan."

37627 to 37631.

From Paris, France. Presented by the director, Museum of Natural History. Received March 18, 1914.

37627. DIOSPYROS LOTUS L. **Persimmon.**

For previous introductions, see S. P. I. Nos. 36808 and 37380.

37628. PRUNUS sp.

Received as *Cerasus salicifolia*, but the seeds do not agree with those in the seed collection under this name.

37629. PRUNUS DOMESTICA L.

"Var. *armenioides* Lieg."

For previous introduction, see S. P. I. No. 33170.

37630. PRUNUS CERASIFERA DIVARICATA (Ledeb.) Schneider.

See S. P. I. Nos. 37463 and 37464 for previous introductions.

37631. LAUROCERASUS ILICIFOLIA (Nutt.) Roemer. **Cherry laurel.**
(*Prunus ilicifolia* Walp.)

"This is an evergreen bush or tree commonly known as the *Spanish wild cherry* or the *mountain evergreen cherry*. It is a small tree, rarely becoming 30 feet tall, with a dense crown. The leaves are ovate to ovate-lanceolate and hollylike, acute, or sometimes acuminate, mostly broad and sometimes rounded at the base. The margins are coarsely spiny toothed and the blades thick and shining. The flowers are white and are borne in slender racemes less than 2 inches long in the spring. The fruits are rather large, sometimes two-thirds of an inch long, nearly globose, purple or nearly black. This species is a most worthy garden plant and may be seen growing from San Francisco to Lower California." (*Bailey, Cyclopedia of American Horticulture.*)

37632 to 37637. ORYZA SATIVA L. **Rice.**

From Mandalay, Burma, India. Presented by Mr. E. Thompstone, Deputy Director of Agriculture, Northern Circle. Received March 31, 1914.

Quoted notes by Mr. Thompstone, except as indicated.

"*Rangoon* or *Rangooni Chal.* Certain samples of rice under the vernacular name were collected by this office in Khulna in 1906. This is a kind of *Atap* and is aso sold in Calcutta. The *Rangoon Chal* is cheaper than the *Deshi* variety of *Atap* and is generally consumed by the poorer classes. I am inclined to believe that rice imported from Rangoon is generally called *Rangoon* or *Rangooni Chal.*" (Extract from *Letter, April 9, 1914, Botanical Survey of India.*)

37632. "No. 2. *Ngaseingyi.* This is a *Kauk kyi* or main crop and is transplanted in July or August when the nursery plants are 30 to 45 days old. Longevity is about 125 days from transplanting; good to eat and is in great demand for milling."

37632 to 37637—Contd. (Quoted notes by Mr. E. Thompstone.)

37633. "No. 6. *Taungteik pan.* This is also a main crop, transplanted in July or August when the nursery plants are 30 to 45 days old. Longevity is about 110 days from transplanting. Grains small and soft; consumed largely by well-to-do people."

37634. "No. 55. *Nga cheik.* Main crop, transplanted in July or August when the nursery plants are 30 to 45 days old. Longevity is about 115 days from transplanting. It is a glutinous rice of black color; good to eat."

37635. "No. 157. *Mya wa.* Main crop, transplanted in July or August when the nursery plants are 30 to 45 days old. Longevity is about 115 days from transplanting. Glutinous; fairly good to eat."

37636. "No. 280. *Byat pyu.* Main crop, transplanted in July or August when the nursery plants are 30 to 45 days old. Longevity is about 110 days from transplanting. Good to eat; consumed largely."

37637. "No. 395. *Kyaung byu.* Main crop, transplanted in July or August when the nursery plants are 30 to 45 days old. Longevity is about 95 days. Rice soft, good to eat."

37638 to 37646.

From St. Petersburg, Russia. Presented by the director, Imperial Botanic Gardens. Received March 19, 1914.

37638. CORONILLA SCORPIOIDES (L.) Koch.

See S. P. I. No. 30106 for previous introduction.

37639. MEDICAGO FALCATA × SATIVA.

37640. CLEMATIS FUSCA MANDSHURICA Regel. **Clematis.**

Distribution.—A suberect herbaceous perennial with grayish brown flowers, found in the eastern part of Asia from the Baikal region eastward to Kamchatka and Sakhalin, and in Japan.

"A semiherbaceous climber, 8 or 9 feet high, stems angled, downy when young. Leaves pinnate, 4 to 8 inches long, and composed mostly of five or seven leaflets, which are ovate with a rounded or heart-shaped base, and often long, tapering points, not toothed; smooth or slightly downy beneath. Flowers solitary on stout stalks, which are one-half to 1 inch long, and thickly covered with reddish brown hairs. The flower has the pitcher shape of the Viorna group, the sepals being three-fourths to 1 inch long, the points recurved; outside they are reddish brown, woolly. Seed vessels with tails about 1¼ inches long, plumed with yellowish brown, silky hairs. Native of northeastern Asia, from Asiatic Russia through Manchuria to the Kuril Islands. It is an interesting but not very ornamental plant, distinct in its group because of the very short, hairy flower stalks and the hairiness generally of the flower. It grows very well and produces abundant seed." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 360.*)

37641. CRATAEGUS OXYACANTHA L. **Hawthorn.**

"Var. *incisa.*"

37642. PRUNUS PROSTRATA Labill. **Bush cherry.**

For previous introduction and description, see S. P. I. No. 28945.

"A deciduous shrub, 2 to 3 feet high, of low, spreading habit and measuring much more in width than it does in height. Branches slender,

37638 to 37646—Continued.

arching outwards and downwards, the young ones covered with a minute, dark-colored down. Leaves ovate or obovate, pointed, from 1 to 1½ inches long, sharply toothed, and downy beneath (less markedly so in cultivation). Flowers one-half to three-fourths of an inch across, produced singly or in pairs with the young leaf clusters from the previous season's shoots in April, very short stalked; petals of a lively rose color; calyx tubular. Fruit almost stalkless, red, one-third of an inch long, tapering towards the end.

"Native of the mountains of the Levant, where it usually makes a close, stunted bush, very unlike the rather free-growing plant seen in this country. It needs a sunny position and is admirably suited on some roomy shelf in the rock garden fully exposed to the sun. In such a position, following a hot summer, it flowers profusely enough to almost hide its branches. It is perfectly hardy at Kew, and it is rather remarkable that it remains so rare and little known, seeing that it was introduced (from Mt. Lebanon) in 1802." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 248–249.*)

37643. LONICERA CHRYSANTHA Turcz. **Honeysuckle.**

"This species of Lonicera, which is valued chiefly for its dark red fruits, is one of the most conspicuous of the early-flowering species. It is a native of eastern Siberia, and since its introduction by Mr. E. H. Wilson in 1910 has proven perfectly hardy in the gardens of the Arnold Arboretum." (*Arnold Arboretum Bulletin of Popular Information, Nos. 19 and 23, April 25 and May 22, 1912.*)

37644. LONICERA RUPRECHTIANA Regel. **Honeysuckle.**

"This shrub sometimes attains a height of 12 feet. The leaves are ovate lanceolate, acuminate, usually dark green above, grayish pubescent beneath, 2 to 4 inches long. The flowers are borne on rather long peduncles which are pure white at first and glabrous on the outside. The fruits make their appearance in May or June, and they are usually red but at times yellow. This species of Lonicera is much rarer than its hybrids with *L. tatarica.*" (*Bailey, Cyclopedia of American Horticulture.*)

37645. PRUNUS GRAYANA Maxim. **Bird cherry.**

"This species of Prunus occurs throughout the forest regions of Japan, and it is also frequently seen on the plains of Yezo. The flowers, which occur in racemes, make their appearance in early June and are followed in August by black fruits. In shape this species greatly resembles *P. padus*, the main difference being in the flowers, which are less fragrant." (*Bul. Acad. Imp. Sciences, St. Petersburg, vol. 29 (1884), p. 107.*)

"A native of Japan, where it is a small tree 20 to 30 feet high, with a slender trunk. This species is very closely allied to our common bird cherry (*Prunus padus*), differing chiefly in the leaves, which have no glands on the very short stalks (almost invariably present in *P. padus*), and in the teeth being finer and more hairlike. The white flowers are borne in erect racemes up to 4 inches long. Fruit black, about the size of peas, narrowing toward the apex. The species inhabits the mountain forests of the main island of Japan and the southern parts of Yezo. The true plant is very uncommon in cultivation." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 237.*)

37638 to 37646—Continued.

37646. PRUNUS MAACKII Ruprecht. **Manchurian bird cherry.**

"This species of Prunus, which is a native of the region around the lower Amur River, is a tree which attains a height of 35 feet. The young shoots have a glistening reddish brown bark, greatly resembling that of the ordinary cherry, which breaks and peels away from the branches in leafy flakes. The fruits of this species are black and about half the size of those of *Prunus padus.*" (*Bul. Acad. Imp. Sciences, St. Petersburg, vol. 15 (1857), p. 361.*)

"A Manchurian bird cherry, up to 40 feet or more high in a wild state; very distinct, through the bark of the trunk being smooth and of a striking brownish yellow color and peeling like that of a birch; young wood downy. The leaves are ovate, rounded at the base, pointed, very finely toothed; 3 or 4 inches long, by about half as wide; they are hairy on the midrib and veins, and are rendered very distinct by being covered with glandular dots on the lower surface. Raceme 2 to 3 inches long, springing from the previous season's wood; calyx tube cylindrical, bell shaped, the lobes glandular toothed; petals white, not so long as the stamens.

"Introduced to cultivation by way of St. Petersburg in 1910; the cultivated plants already show the distinct, smooth, yellowish trunk. It is different from ordinary bird cherries in the racemes coming on the year-old wood and from the laurels in being deciduous." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 241–242.*)

INDEX OF COMMON AND SCIENTIFIC NAMES.

Bean, adzuki (*Phaseolus angularis*), 37002, 37003, 37038, 37039, 37057, 37058, 37357–37366, 37395, 37575.
asparagus (*Vigna sesquipedalis*), 37565.
bonavist (*Dolichos lablab*), 37081.
(Brazil), 36970, 37023, 37024, 37220.
(China), 37079.
Climbing mountain (*Phaseolus calcaratus*), 36988.
common (*Phaseolus vulgaris*), 36970, 37023, 37024, 37079, 37220, 37369–37374.
date (*Soja max*), 37396.
gray, 37038.
green pot, 37056.
Hung yün tou, 37079.
Lima (*Phaseolus lunatus*), 37112, 37113.
little devil (*Phaseolus calcaratus*), 36988.
lu tou (*Phaseolus aureus*), 37078.
mambi (*Phaseolus calcaratus*), 36988.
Mauritius (*Stizolobium aterrimum*), 36989.
mulata gorda, 37024.
mulatinha, 37220.
mung (*Phaseolus aureus*), 37056, 37078, 37367, 37368, 37576.
(Nigeria), 37112, 37113.
red pot, 37057.
rice (*Phaseolus calcaratus*), 36988.
Tonkin long (*Vigna cylindrica*), 37564.
white-eye black, 37039.
white pot, 37058.
yard-long (*Vigna sesquipedalis*), 37565.
Begonia sp., 37386.
Berberis sp., 37562.
gagnepaini, 37495.
hookeri, 37498, 37599.
macracantha, 37560.
× *neuberti*, 37561.
prattii, 37496.
subcaulialata, 37497.
wilsonae, 37499.
Bermuda grass (*Capriola dactylon*), 36953, 37508.
Berseem (*Trifolium alexandrinum*), 36966.
Betula fruticosa, 37007.
Bhabar (*Ischaemum binatum*), 37014.
Birch (*Betula fruticosa*), 37007.
Bixa orellana, 37505.
Bonavist bean (*Dolichos lablab*), 37081.
Brachychiton acerifolium, 37136.
Bradburya sp., 37493.
Bromelia sp., 36967.
Buckwheat (*Fagopyrum vulgare*), 37166.
Buhyka (*Betula fruticosa*), 37007.
Bullace (*Prunus domestica insititia*), 37619.

Cabbage, Kerguelen (*Pringlea antiscorbutica*), 37554.
Cabacinha do campo (*Eugenia klotzschiana*), 37392, 37492.
Cacao, criollo (*Theobroma cacao*), 36974.
Cactus. See *Opuntia* spp. and *Pereskia* sp.
Cajú amarella (*Anacardium occidentale*), 37028.
manteiga (*Anacardium occidentale*), 37027.
Cambucá (*Myrciaria edulis*), 37094.
Campomanesia guaviroba, 37491.
obversa, 37064.
Capim gordura (*Melinis minutiflora*), 37388.
Capriola dactylon, 36953, 37508.
Caragana arborescens, 36991.
Cardinal's-cap (*Euonymus alatus*), 37479, 37541.
Carica papaya, 36987, 37118, 37122–37124, 37577.
Caryophyllus jambos, 36978.
Cashew (*Anacardium occidentale*), 37027, 37028.
Cassia brewsteri tomentella, 37137.
Castanea mollissima, 37547, 37548.
Castanospermum australe, 37138.
Casuarina sumatrana, 37119.
Catete (*Zea mays*), 36976.
Cerasus salicifolia. See *Prunus* sp.
Ceropegia thorncroftii, 37217.
Cha tou (*Soja max*), 37075.
Chaenomeles lagenaria cathayensis, 37558.
Chayota edulis, 37126.

Currant, mountain, 37621.
Cydonia cathayensis. See *Chaenomeles lagenaria cathayensis.*
oblonga, 37614.
× *veitchii,* 37606.
Cynodon dactylon. See *Capriola dactylon.*
Cypress (*Cupressus* sp.), 37383.

Dam (*Sesamum orientale*), 37605.
Dariya amariya (*Vigna sinensis*), 37104.
Dasheen (*Colocasia esculenta*):
(Dutch Guiana), 36955–36958.
(Trinidad), 37509–37516.
See also Taro.
Date (*Phoenix dactylifera*), 37060.
(Egypt), 37060.
Saidy, 37060.
Wahi, 37060.
Dendê palm (*Elaeis guineensis*), 36973.
Dendrocalamus strictus, 37223.
Desmodium gyroides. See *Meibomia gyroides.*
Dimorphotheca spectabilis, 37218.
Diospyros kaki, 37168–37213, 37465–37473, 37525–37539, 37543.
lotus, 37380, 37540, 37627.
Dolichos bean (*Vigna cylindrica*), 37564.
long-podded (*Vigna sesquipedalis*), 37505.
Dolichos lablab, 37081.
Dower (*Holcus sorghum*), 37503.
Duku (*Lansium domesticum*), 37501.
Durian (*Durio zibethinus*), 37103.
Durio zibethinus, 37103.

Echium perezii, 37100.
pininana, 37101.
wildpretii, 37102.
Eesun sze ssu (*Diospyros kaki*), 37527.
Elaeis guineensis, 36973.
Eleusine coracana, 37604.
Erythrina sp., 37139.
Euchlaena mexicana, 37625.
Eugenia sp., 37385.
brasiliensis. See *Eugenia dombeyi.*
dombeyi, 36968.
edulis. See *Myrciaria edulis.*
jambos. See *Caryophyllus jambos.*
Eugenia sp.—Continued.
klotzschiana, 37392, 37492.
luschnathiana, 37017.
uniflora, 37026.
Euonymus alatus, 37479.
radicans acutus, 37541, 37546.
Fagopyrum esculentum. See *Fagopyrum vulgare.*
vulgare, 37166.
Fara fara (*Holcus sorghum*), 37115.
Farin wake (*Vigna sinensis*), 37110.
Feijão (*Phascolus vulgaris*), 36970.
fradinho (*Vigna sinensis*), 37022.
preto (*Phaseolus vulgaris*), 37023.
Fên niu hsin shih tzŭ (*Diospyros kaki*), 37525.
Fên shih tzŭ (*Diospyros kaki*), 37526.
Feroniella oblata, 36995.
Ficus macrophylla, 37140.
rubiginosa, 37141.
Fig, Moreton Bay (*Ficus macrophylla*), 37140.
narrow-leaved (*Ficus rubiginosa*), 37141.
Port Jackson (*Ficus rubiginosa*), 37141.
Fire tree (*Stenocarpus sinuatus*), 37144.
Flame tree (*Brachychiton acerifolium*), 37136.
Flax (*Linum usitatissimum*):
(Abyssinia), 37085–37089.
(British India), 37214.
(Egypt), 36937, 36938.
talba, 37085–37089.
Forsythia suspensa, 37004, 37477.
Fortunella hindsii, 36985.
Fructa de sabão (undetermined), 37020.
Furcraea elegans, 37128.

Garcinia sp., 36977, 37092.
multiflora, 37131.
vidalii, 37381.
Gau (*Gynopogon bracteolosa*), 37507.
Glycine hispida. See *Soja max.*
Gold-blossom tree (*Barklya syringifolia*), 37134.
Golden bell (*Forsythia suspensa*), 37004, 37477.
Gooseberry (*Ribes speciosum*), 37622.
Gordura grass (*Melinis minutiflora*), 37388.

Ko-yi (*Soja max*), 37573.
Kou pu ch'ih shih tzŭ (*Diospyros kaki*), 37532.
Kou ying la mei (*Meratia praecox*), 37524.
Kua kan shih tzŭ (*Diospyros kaki*), 37533.
Kuan tung ching (*Dolichos lablab*), 37081.
K'uei li tzŭ (*Castanea mollissima*), 37548.
Kumquat, Hongkong (*Fortunella hindsii*), 36985.
Kuo kai shih tzŭ (*Diospyros kaki*), 37469.

Labelebele (*Pennisetum glaucum*), 36959.
Lacebark tree (*Brachychiton acerifolium*), 37136.
Lagaali (*Aglaia edulis*), 37506.
Lansium domesticum, 37501.
Laranja da terra (*Citrus aurantium*), 36971, 36975.
de umbigo (*Citrus sinensis*). See under 36971.
lima (*Citrus* spp.), 36949–36951.
selecta (*Citrus sinensis*), 36947.
tanja (*Citrus grandis*), 36946.
Laurocerasus ilicifolia, 37631.
lusitanica, 37615.
Lazy-man pea (*Phaseolus calcaratus*), 36988.
Libas (*Garcinia vidalii*), 37381.
Lien ch'iao (*Forsythia suspensa*), 37477.
Lien hsin shih tzŭ (*Diospyros kaki*), 37471.
Lilac (*Syringa* sp.), 37544.
Lima doce (*Citrus* sp.), See under 36949.
Limão do matto (*Rheedia edulis*), 37384.
Lime (*Citrus* sp.), 37084.
(India), 37084.
Rungpur, 37084.
sweet. See under 36949.
Sylhet, 37084.
Lime orange (*Citrus* spp.), 36949–36951.
Linum usitatissimum, 36937, 36938, 37085–37089, 37214.
Little devil bean (*Phaseolus calcaratus*), 36988.
Liu t'ung mu (*Abelia triflora*), 37478.
Loa (*Bixa orellana*), 37505.
Lo han chu chih (*Bambos* sp.), 37556.
Lonicera sp., 37545.
chrysantha, 37643.
ruprechtiana, 37644.
Lovilovi grass (*Chrysopogon aciculatus*), 37567.
Lü tou (*Phaseolus aureus*), 37078.
Lukeriga (*Holcus sorghum*), 36962.
Lung chao tz'ŭ shu (*Ziziphus jujuba*), 37489.
Lychnis coronata, 37462.

Macaúba palm (*Acrocomia sclerocarpa*), 37382.
Magnolia denudata, 37485.
yulan. See *Magnolia denudata*.
Magugu (undetermined), 37504.
Mahango (*Pennisetum glaucum*), 36959.
Mahorka (*Nicotiana rustica*), 36964.
Malus sp., 37486.
baccata, 37008, 37584, 37586, 37616.
cerasifera, 37585.
fusca, 37592.
prunifolia, 37590, 37617.
prunifolia rinki, 37591.
Mambi bean (*Phaseolus calcaratus*), 36988.
Man êrh shih tzŭ (*Diospyros kaki*), 37538.
Man t'ien hung shih tzŭ (*Diospyros kaki*), 37543.
Manasiri (*Sesamum orientale*), 37605.
Mangifera indica, 36965.
Mango (*Mangifera indica*), 36965.
Mangostão da Africa (*Garcinia* sp.), 36977.
Mangosteen, African (*Garcinia* sp.), 36977.
Marak (*Betula fruticosa*), 37007.
Mauritius bean (*Stizolobium aterrimum*), 36989.
Mausa (*Pennisetum glaucum*), 36959.
Mavela amassen (*Holcus sorghum*), 36962.
Mawele (*Holcus sorghum*), 36962.
Medicago falcata × *sativa*, 37639.
Medlar (*Mespilus germanica*), 37618.
Meibomia gyroides, 37502.
Mei chu chih (*Phyllostachys nigra*), 37555.
Melinis minutiflora, 37388.

Sutri (*Phascolus calcaratus*), 36988.
Syringa sp., 37544.

Ta hsing (*Prunus armeniaca*), 37474.
Ta hung pao shih tzŭ (*Diospyros kaki*), 37466.
Ta hung tsao (*Ziziphus jujuba*), 37476.
Ta pai yang shu (*Populus tomentosa*), 37542.
Ta tsao (*Ziziphus jujuba*), 37475.
Takuara (*Bambos guadua*), 37009.
Talauma hodgsoni, 37216.
Talba (*Linum usitatissimum*), 37085–37089.
Tamarisk (*Tamarix* sp.), 37483.
Tamarix sp., 37483.
T'an ch'un (*Viburnum fragrans*), 37005.
Taro (*Colocasia* sp.), 37033.
  banlung, 37393.
  (*Colocasia antiquorum*), 37226.
  (*Colocasia esculenta*), 37393.
  (Syria), 37226.
Taya (*Xanthosoma* spp.), 37098, 37099.
Teosinte (*Euchlaena mexicana*), 37625.
Theobroma cacao, 36974.
Timothy (*Phleum pratense*), 37162.
Tobacco (*Nicotiana rustica*), 36964.
Toxocarpus wightiana. See *Secamone wightiana*.
Trifolium alexandrinum, 36966.
  lupinaster, 37165.
  pratense, 37161, 37406–37460.
Triticum aestivum, 36940, 37154, 37157, 37158, 37160, 37164, 37167, 37601–37603.
  durum, 37159.
  vulgare. See *Triticum aestivum*.
Tsao (*Ziziphus jujuba*):
  K'ang, 37070.
  So, 37484.
  Ta, 37475.
  Ya hu, 37069.
Tsuru adzuki (*Phaseolus calcaratus*), 36988.
Tucum (*Bactris caryotaefolia*), 37095.
Tulip tree (*Stenocarpus sinuatus*), 37144.
Tung ch'ing (*Euonymus radicans acutus*), 37541.
Tung tree (*Aleurites fordii*), 36993.
Tuquerrena (*Solanum tuberosum*), 36941.

Udo (*Aralia cordata*), 37145–37152.
  Kan, 37145.
  Oku red, 37152.
  Oku white, 37148.
  Wase red, 37151.
  Wase white, 37147.
  Yakate red, 37149.
  Yakate white, 37150.
  Yama, 37146.
Umburana (*Amburana claudii*), 37019.
Undetermined, 37020, 37390, 37494, 37504.

Vetch (*Vicia amoena*), 37163.
Viburnum burejaeticum, 37600.
  fragrans, 37005.
  sargenti, 37612.
Vicia amoena, 37163.
Vigna cylindrica, 37564.
  sesquipedalis, 37565.
  sinensis, 36990, 37022, 37076, 37104–37111, 37375.

Walnut (*Juglans regia*), 37225.
Wheat (*Triticum aestivum* and *T. durum*):
  Amerikanka, 37158.
  (Baluchistan), 36940.
  (Holland), 37601–37603.
  Imperial, 37602.
  Millioen, 37603.
  Sandomyrka, 37160.
  (Siberia), 37154, 37157–37160, 37164, 37167.
  Wilhelmina, 37601.
Whitebeam (*Sorbus aria salicifolia*), 37583.
Winter-sweet (*Meratia praecox*), 37487, 37488, 37522–37524.
Wood-oil tree (*Aleurites fordii*), 36993.
  (China), 36993.

Xanthosoma spp., 37098, 37099.

Ya hu tsao (*Ziziphus jujuba*), 37069.
Yama (*Colocasia esculenta*), 37096, 37097.
Yard-long bean (*Vigna sesquipedalis*), 37565.
Yautia (*Colocasia esculenta*), 36955–36958.
Yeh shih tzŭ (*Diospyros lotus*), 37540.