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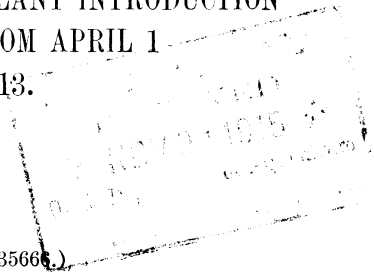
Issued November 9, 1915.

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

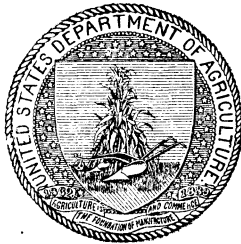
INVENTORY
OF
SEEDS AND PLANTS IMPORTED

BY THE

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION
DURING THE PERIOD FROM APRIL 1
TO JUNE 30, 1913.



(No. 35; Nos. 35136 to 35666.)



WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1915.

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BUREAU OF PLANT INDUSTRY.

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INVENTORY OF SEEDS AND PLANTS IMPORTED BY THE OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION DURING THE PERIOD FROM APRIL 1 TO JUNE 30, 1913 (NO. 35; NOS. 35136 TO 35666).

INTRODUCTORY STATEMENT.

It has been customary ever since these inventories were first begun in 1898 to review briefly the field work accomplished by explorers of the office during the period covered by the inventory and to point out some of the more interesting new plants which are described in it.

Any system, even a bad one, comes to have a certain historical value if it is maintained through a period of years. This one, which has as its object the recording of all department introductions of foreign plants, has now been in operation for 17 years, and to-day it will be an easy matter to trace any one of the new plants brought in either to its early death or to its success in some part of the country. The discovery of one of the department introductions as a large tree, for example, in some out-of-the-way part of the country can easily be traced back to the card record, which will show when it was sent out for trial and to what experimenter, and the printed note about it in one of these inventories will give the clue to its foreign origin. The constant use of these inventories by field experimenters has fully justified the expenditure necessary in order to bring about their publication, and while in the multigraphed advance sheets, called "Plant Immigrants," there appears from time to time mention of the apparently most important plant collections received, the presence of these printed inventories in the libraries of the country makes it possible to look up and find out the origin of any new plant introduced by the Government from any part of the world.

With the growing vigilance to prevent the introduction of new plant parasites, this system has appeared to be distinctly advantageous and can be safely recommended as a continuing policy. Should a parasite slip in through quarantine and be later discovered, practically every plant of that introduction could be located. Previous to its adoption many interesting new plants were brought in whose

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

early history, so to speak, is shrouded in mystery, because nowhere was there recorded in any permanent form the historical account of their first introduction into the country. This system of printed inventories is therefore intended to be an orderly and clear method of making permanently available to the public the record of the introduction of thousands of new and more or less valuable plants which it is hoped will increase the welfare of the country in one way or another.

In the early days of plant exploration, particularly in Europe, the danger of introducing new parasites with new seeds and plants was not realized, and private firms and wealthy amateurs did a great deal of the work of plant introduction, either as public-spirited men or for profit. To-day, with the rapid increase in our knowledge of the diseases of plants, has come a new responsibility—that of making sure that no dangerous insect parasites or parasitic fungi are introduced with the plants. Furthermore, the work of securing new plants has proved on the whole a very unprofitable business to such private firms as have engaged in it, because of the great expense of maintaining explorers in the field and the difficulty of retaining control of a new plant long enough to make much out of it.

As the researches of the Government experts result in new methods for the disinfection of large quantities of plant material, this commerce is bound to grow, and it is even conceivable that general inexpensive methods will be discovered by which all kinds of parasitic diseases of plants can be killed on imported material as soon as it arrives in this country, so that only disease-free plant material will leave the quarantine stations of our ports.

The fragmentary nature of many of the notes in the inventory is to be regretted, but in general it must be said that this is the result of a failure on the part of many who send in material to grasp the plan of plant introduction as a whole; and since fresh field observations, even though they are incomplete, are more valuable than book knowledge, it has been deemed better to print these impressions fresh from the field than to give abstracts from books on horticulture and botany describing the plants.

There are a number of very interesting new introductions in this inventory, for it covers collections which Mr. Frank N. Meyer, agricultural explorer of the Bureau of Plant Industry, made in the Shantung Province of China, and some remarkable new potato varieties secured by Mr. W. F. Wight during his trip through southern Chile and Peru.

Mr. Meyer's collections enumerated in this inventory include a cultivated large-fruited variety of the Chinese haw (*Crataegus pinnatifida*), No. 35456, which in Mr. Meyer's opinion deserves the serious consideration of American horticulturists. It is a hardy tree, remarkably drought resistant. The fruit is of good flavor, and from

it is made a unique preserve. The vigor and productiveness of our native hawthorn, the delicious character of the fruit of the Palestine species (*Crataegus azarolus*), and the hardiness and drought resistance of this cultivated Chinese species should suggest experiments in domestication and selection for the production of a fruit adapted to conditions other than those ideal for the apple and the pear.

The so-called wild pear (*Pyrus ussuriensis*), No. 35304, is perhaps the hardiest species of the genus to which the pear belongs, and, coming from Harbin, it will doubtless stand the cold of our extreme Northwest and prove of value to pear breeders there. Even as an ornamental it should be worth planting on the northwestern Great Plains.

Grape breeders seem to have done much in the crossing of our native species of *Vitis*, but it has remained for the Russian plant breeder Mijurin to make the cross between *Vitis riparia* and the wild grape of the Amur Valley, *Vitis amurensis*. This hybrid, No. 35306, Mr. Meyer reports, produces a small berry of good flavor. As to its hardiness, little seems yet to be known.

A sweet-fruited mountain ash, or rowan, another of Mijurin's productions, No. 35305, according to Mr. Meyer, ought to do well in Oregon.

Two new red currants, Nos. 35308 and 35309, one from the Amur region and one from the northern Altai Mountains, should possess unusual hardiness and be of interest to breeders.

The culture of the hazelnut or cobnut has made but little progress as yet in America, although it is an important industry in England and along the Mediterranean. *Corylus mandshurica*, from Harbin, No. 35288, a small, hard-shelled species, may bring increased hardiness and disease resistance into hybrids between it and the European species.

The growing interest of amateurs in the jujube, or Chinese tsao, makes the collection secured by Mr. Meyer in Shantung a matter of special importance. The trees of the seedless form, No. 35253, are ringed or girdled, in order to induce them to bear larger crops of fruit, sometimes doubling the crop. The scarlet jujube, Nos. 35255 and 35601, the fruits of which are as large as a small egg, and 10 of the best market varieties planted in large orchards in the Shantung Province, Nos. 35257 and 35601 to 35609, add 11 important numbers to our collection of this hardy drought-resistant new tree crop. *Ziziphus trinervia*, No. 35416, has been introduced as a possible tropical stock for the Chinese jujube.

The North China varieties of walnut (*Juglans regia sinensis*) have not been tested in America sufficiently, and Mr. Meyer thinks in the warmer valleys of the southern Rocky Mountain region they may

do well. He has sent in four varieties, Nos. 35610 to 35613, one from Shantung Province and three from Peking.

The interest in muskmelons appears to be perpetual, notwithstanding the susceptibility which the plant shows to a change in its environment—a change, by the way, which the Chinese growers have recognized for many years. Thirteen varieties of seed (Nos. 35645 to 35657) from Shantung Province can hardly fail to be of interest to melon breeders.

Mr. Meyer discovered in use as a hedge plant *Cudrania tricuspidata*, No. 35258, the near relative of our ordinary Osage orange (*Toxylon pomiferum*), and the literature records the making in France of a true hybrid between these two species.

One of the results of Mr. W. F. Wight's trip over the Andes into Chile and Peru, on his return from employment for several months by the Government of Argentina, was the introduction of a collection of varieties of potato and wild forms of *Solanum* more or less nearly related to the potato. This collection, consisting of 79 numbers, 35491 to 35569, can scarcely fail to yield material of value for the breeders who are working with this staple crop. It includes the remarkable yellow potato with yellow flesh of excellent quality, a form distinct from anything we have.

Among the fine varieties of tropical papayas, Nos. 35582 to 35586, which were presented to this Government by the Belgian minister of colonies, from the Belgian Kongo, one at least shows unusual promise because of its small size, compact shape, and good quality. Nos. 35142 and 35143, the mountain papaya (*Carica candamarcensis*), have acid fruits and may be valuable for breeding purposes.

The Bogorodsky Experiment Field, in the Government of Kursk, and the Charkof Agricultural Selection Station, in Russia, have furnished 15 selected strains of clover which will interest the breeders of this forage crop, Nos. 35265 to 35279.

Five species of *Hedysarum*, Nos. 35444 to 35448, from Albano, Stockholm, have been sent by the director of the station there for use in the breeding of new forms of this forage plant, one species of which, sulla (*H. coronarium*), is an important forage crop in many Mediterranean countries.

Mr. C. F. Baker calls attention through his introduction of a truly edible tropical fig (*Ficus ulmifolia*), No. 35449, to the possibility of producing good figs for the Tropics.

A named collection of Javanese mangos, Nos. 35403 to 35412, presented by the Botanic Gardens of Buitenzorg, Java, including the wild species *Mangifera foetida* var. *mollis*, may assist in the solution of the mango problems of southern Florida.

Through the kindness of Dr. Bailey Willis, formerly of the United States Geological Survey, a collection of seeds of grasses has arrived

from the Argentine Andes, south of Lago Nahuel Huapi. According to Dr. Willis these are mostly pasture grasses of which stock are fond, and as they come from regions where heavy summer frosts occur they may fit into northwestern conditions.

The quandong-nut tree of Australia, No. 35323; the evergreen oak tree (*Pasania cornea*) of Hongkong, having edible acorns, No. 35320; local Nigeria varieties of cotton, Nos. 35315 to 35317; a western Siberian form of sainfoin which has promise as a late fodder crop in dry regions with a short growing season, No. 35313; a strain of the yellow-flowered alfalfa (*Medicago falcata*), peculiar to the region about Omsk, Siberia, No. 35312; a low-spreading hardy juniper from Transbaikalia, Siberia, No. 35310; the Berna Late orange, exported in quantity from Murcia, Spain, No. 35247; the Medjoul, or Tafilet, date from Morocco, No. 35161; a new species of raspberry from western Szechwan, China, with golden-yellow fruit of good flavor and stems of unusual vigor, No. 35197; a tropical melon (*Sicana odorifera*) with scented flesh which makes excellent preserves, No. 35136; and a honeysuckle from Tibet which has proved hardy in the Arnold Arboretum, No. 35188, are additions to the experimental plant material which this inventory records as now being ready or soon to be at the disposal of the plant specialists of the country.

As heretofore, the inventory has been prepared by Miss May Riley, the botanical determinations of seeds introduced have been made and the notes on geographic distribution compiled by Mr. H. C. Skeels, and the descriptive 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., June 15, 1915.

INVENTORY.

35136. SICANA ODORIFERA (Vell.) Naudin. Melocoton.

From Tampico, Mexico. Presented by Mr. Clarence A. Miller, American consul.
Received April 2, 1913.

"*Calabaza melon*. There is only a small production of this fruit in this district. Excellent preserves are made from this fruit by the residents of this section." (*Miller*.)

"This large and beautiful cucurbit seems to belong to all the hot regions of South America. It is there regarded almost as an economic plant, and according to Triana is even cultivated in some regions. The traveler Piso, as early as 1658, mentioned its principal uses, among others that which was made and which is still made of the remarkably odorous fruits for perfuming linen and clothing and perhaps for driving away moths. He tells us also that the fruits are edible, but are rarely eaten raw. According to Hasskarl, the Spanish of Peru give it the name *Olorero* because of its penetrating odor. In another locality in the same country it is known under the name of *Sicana*, which I have used as a generic name. It is therefore probably cultivated, since three varieties are distinguished under the name *Sicana colorado*, *S. amarilla*, and *S. negra*, according as the fruit is red, yellow, or greenish black, which would surely not be the case if the plant were left entirely to the wild state. In New Grenada it bears the name of *Melocoton*, which is that of the peach in Spanish, without doubt as an allusion to the odor of the fruit, which has been compared to that of the peach.

"The genus *Sicana* is very near *Cucurbita*, to which Velloso and Hasskarl have joined it. In *Sicana* the anthers are as wide or wider than long, besides they are entirely free, while their filaments are connected, which is precisely the opposite of what one sees in *Cucurbita*. If to this first difference one adds the peculiar direction of the calyx teeth, which are turned outward even in very young buds, the shortly campanulate form of the corolla, the total absence of the hairs which make all the species of gourds rough to the touch, the pronounced and most unconquerable tendency of the stem and branches to grow vertically, and finally the particular arrangement of the extremities of the tendrils, which attach themselves like cupping glasses to the most polished solid bodies, to which they adhere with force, one admits with me that *Sicana* could not be confounded with *Cucurbita*." (*Naudin, Annales des Sciences Naturelles, ser. 4, vol. 18, p. 181-184, 1862.*)

For an illustration of the melonlike fruit of the Mexican melocoton, see Plate I.

35137. PERSEA MEYENIANA Nees.

From central Chile. Presented by Sr. Salvador Izquierdo, who procured it through Sr. José D. Husbands, Limavida, Chile. Received March 29, 1913.

For previous introduction, see S. P. I. No. 28636.

35138. PERSEA MEYENIANA Nees.

From central Chile. Presented by Sr. José D. Husbands, Limavida, Chile. Received March 31, 1913.

"This is a rounder, more compact tree than the *Persea lingue*, grows in dryer, poorer soils. It is far better as a stock for *Persea gratissima*. The leaves are dark green on top, with a white, silken finish underneath." (*Husbands*.)

For previous introduction, see S. P. I. No. 28636.

35139 to 35141.

From Charlotte Amalie, St. Thomas, Danish West Indies. Presented by Dr. J. N. Rose, U. S. National Museum. Received March 17, 1913.

Quoted notes by Dr. Rose, except as otherwise specified.

35139. ABRUS PRAECATORIUS L.**Jequirity.**

"Normal form."

"A twining vine with alternate, abruptly pinnate leaves; leaflets small, linear oval, obtuse at apex and base, in 8 to 20 pairs; flowers pale purple to white, in axillary racemes; legumes oblong, compressed, containing 4 to 6 hard, glossy, scarlet seeds marked with a little black spot. Like many other leguminous plants, it is very sensitive to changes in the intensity of light, the leaflets hanging down vertically at night, as though asleep, and rising with the dawn. These movements are also caused in a measure by the overclouding and clearing of the sky. When ripe the pods burst open, displaying the pretty, bright-colored seeds, which are very conspicuous in the tangled undergrowth of the forest. The plant is of wide distribution in the Tropics.

"In India the seeds are used by the jewelers and druggists as weights, each seed weighing almost exactly 1 grain. The plant derived its specific name 'praecatorius' from the fact that rosaries are made of the seeds. The Germans call them 'Paternosterebse.' In many tropical countries they are made into necklaces, bracelets, and other ornaments.

"The seeds, known in pharmacy as jequirity beans, contain two proteid poisons, which are almost identical in their physiological and toxic properties with those found in snakes' venom, though less powerful in their effects. In India the seeds are ground to a powder in a mortar, into which the natives dip the points of their daggers and the wounds inflicted by daggers thus prepared cause death. When a small quantity of the powdered seeds is introduced beneath the skin fatal results follow; less than 2 grains of the powder administered in this way to cattle causes death within 48 hours. One of these poisons, called 'abrin,' is a toxalbumin. It is easily decomposed by heat, and in Egypt the seeds are sometimes cooked and eaten when food is scarce, though they are very hard and indigestible. The root has been used as a substitute for licorice." (*Safford, Useful Plants of Guam.*)

35140. ANNONA SQUAMOSA L.**Anona.**

"Only one tree said to grow on the island and that owned by Mr. Zadray Keating. Supposed African origin."

35141. COCCOTHRINAX GARBERI (Chapm.) Sarg.**Palm.**

(*Thrinax garberi* Chapm.)

"Teyer tree. A beautiful fan-leaved palm common in the Virgin Islands and much prized as an ornamental tree. I have never seen it in the States, although, of course, it may be quite common in the South or in California."

35142 and 35143. CARICA CANDAMARCENSIS Hooker f.**Mountain papaya.**

From Nice, Alpes-Maritimes, France. Presented by Dr. A. Robertson Proschowsky. Received February 17, 1913.

"Mountain pawpaw. A small semiherbaceous tree with a crown of large, coarse, palmate leaves, native of Colombia and Ecuador, similar to the pawpaw of the low country, but with fruit only about one-fourth or one-sixth the size of that of the latter. It has been introduced at Hakgala Gardens, Ceylon, in 1880, and is now commonly grown in hill gardens for the sake of its fruit, being often found in a seminaturalized



THE CURUBA MELOCOTON (*SICANA ODORIFERA* (VELL.) NAUD.) (S. P. I. No. 35136.)

The fragrant odor of this melonlike fruit, reminding one faintly of the peach, is so remarkable that it is used for perfuming linen and clothing in South America and Central America. The inner portion is a deep orange color and is keenly relished by some in the raw state. When cooked, however, it makes a delicious preserve with a character quite its own. The plant is recommended for arbors, as it is a rank climber, often growing stems 50 feet long. Photograph (P10742FS), April 4, 1913.



A WILD ROSE OF WESTERN CHINA (*ROSA SOULIEANA* CREPIN). (S. P. I. No. 35200.)

This species forms a large bush 12 feet high and 18 feet across in its native habitat, western Szechwan. Its stems are light colored, its foliage delicate, even scanty, and it produces in abundance clusters of small white single flowers, which are followed by bunches of decorative orange-colored fruits. At Washington it has proved hardy in sheltered situations. It is a new species for the use of the rose breeders. Photograph (P7139FS) taken at Kuan Chai, near Monkong Ting, western Szechwan, June 27, 1908, by E. H. Wilson, of the Arnold Arboretum.

state about upcountry bungalows. The ovoid angular fruit is in season all the year; though too acid to be used for dessert, it is very agreeable when stewed, and it can also be made into jam and preserves. When ripe the fruit has a pleasant applelike odor. Propagated by seed." (*H. F. Macmillan, Handbook of Tropical Gardening and Planting.*)

35142. "Larger than ordinary fruits."

35143. "Fruits varying in size but of excellent quality." (*Proschowsky.*)

35144. THEOBROMA CACAO L.

Cacao.

From La Guaira, Venezuela. Presented by Mr. Thomas Voetter, American consul. Received April 5, 1913.

Secured for the experimenters of the Philippine Bureau of Agriculture.

35145 and 35146. KERSTINGIELLA GEOCARPA Harms. Kandela.

From Togoland, Africa. Presented by Mr. G. Hofflerner, Imperial Station, Sokode, Bassari, at the request of the director, Botanische Zentralstelle für die Kolonien, Dahlem post Steglitz, Germany. Received April 7, 1913.

35145. Black.

35146. Reddish.

See S. P. I. No. 34916 for previous introduction and description.

35147 to 35160.

From Paris, France. Presented by the director, Museum of Natural History. Received March 28, 1913.

Seeds of the following:

35147. × *ACER BOSCHII* Spach.

Maple.

See S. P. I. No. 33138 for previous introduction.

35148. *ARALIA CHINENSIS MANDSHURICA* Rupr.

"This species is perfectly hardy and will thrive anywhere in England, producing large and elegant foliage, which, however, falls at the first touch of frost. The stems, which are prickly, are quite hardy, and attain a height of 10 feet or so. When once established, this plant can be easily propagated by suckers which rise from the base. During the summer its appearance is considerably enhanced by the large trusses of flowers which, if not individually beautiful, give the plant a further subtropical appearance. As the leaves have a great spread when fully matured, an abundance of room must be allotted to the shrubs when planted, a matter which might be easily overlooked, as when denuded of their foliage one can hardly imagine them to be the same plant." (*The Garden, March 1, 1913.*)

35149. *CORNUS BRETSCHNEIDERI* L. Henry.

"The value of this *Cornus* consists in the color of its stems, which are pale yellowish green or even sometimes lemon yellow with reddish tips, which in winter produce a striking effect, seen against a background of dark evergreens." (*Journal de la Société Nationale de Horticulture de France, ser. 4, vol. 11, p. 123, 1910.*)

35150. *ELAEIS GUINEENSIS* Jacq.

African oil palm.

"The bright-yellow drupe, with shiny black-purple point, though nauseous to the taste, is eaten by the people. The *mawezi*, or palm oil, of the consistency of honey, is rudely extracted, and forms an article of considerable traffic in the region around Lake Tanganyika. Despite its sickening flavor, it is universally

35147 to 35160—Continued.

used in cooking, and it forms the only unguent and lamp oil in the country. This fine palm is also tapped, as is the date in western India, for toddy, and the cheapness of this *tempo* (the *sura* of West Africa) accounts for the prevalence of intoxication and the consequent demoralization of the Lakist tribes. This is the celebrated palm oil, whose various official uses in Europe have already begun to work a social reformation in West Africa. The people of Ujiji separate by pounding the oily sarcocarpium from the one seed of the drupe, boil it for some hours, allow the floating substance to coagulate, and collect it in large earthen pots." (*Burton, Journal Royal Geographical Society, vol. 29, p. 219, 1859.*)

"To-day the exports of palm olive to Europe are among the largest of exports of any kind, requiring special steamer service. The oil is used extensively in the manufacture of soap and many other manufactured products. The palm has borne at Miami, Fla., but is not quite hardy there. See No. 35581." (*David Fairchild.*)

35151 to 35154. LYCOPERSICON ESCULENTUM Mill.

Tomato.

These varieties of the tomato were received under the specific names given, two of which, *L. pyriforme* and *L. racemigerum*, are recognized in the Index Kewensis as good species, although in cultivation, according to Dr. D. N. Shoemaker, who has grown the plants, no specific differences from *L. esculentum* are evident.

35151. Received without variety name.

35152. "*L. cerasiforme* Dunal."

35153. "*L. pyriforme* Dunal."

35154. "*L. racemigerum* Lange."

35155. MALUS CERASIFERA Spach.

Apple.

35156. MEDICAGO CARSTIENSIS Wulfen.

"A yellow-flowered Medicago from the Karst Mountains of Carniola. Perennial, with shiny-black depressed pod, and oblong-reniform yellowish seeds. Whole plant glabrous." (*Jacquin, Observationes.*)

35157 to 35160. SOLANUM NIGRUM L.

Nightshade.

These varieties of nightshade were received in response to requests for all varieties obtainable of *S. nigrum*. They were received under the specific names given, although these are generally recognized as synonyms of *S. nigrum* or varieties thereof.

35157. *S. guineense* Lam.

35159. *S. oleraceum* Dunal.

35158. *S. miniatum* Bernh.

35160. *S. villosum* Mill.

35161. PHOENIX DACTYLIFERA L.

Date.

From Algiers, Algeria. Secured through Dr. L. Trabut, Government Botanist of Algeria. Received April 5, 1913.

"This date, known to the Arabs as *El Medjoul*, but sold in the markets of Europe under the name *Tafilet*, comes from the Tafilet (also written Tafielt and Tafiulet) region in southeastern Morocco. It is the finest variety in the Tafilet country, the fruits being 2 to 2½ inches long and three-fourths to 1 inch thick. They are semi-translucent, dark brown in color, and the flesh is rather firm in texture and of a most delicious flavor." (*Swingle.*)

35162 to 35171.

From Albano, Stockholm, Sweden. Presented by the director of the Botanic Gardens. Received March 31, 1913.

Seeds of the following:

35162. BERBERIS CRETICA L.**Barberry.**

"The flower raceme of this species is usually rather shorter than the leaves, the racemes generally being 3 to 8 flowered, and flower in spring. The leaves are oblong, reticulated, and the spines 3 to 5 parted. The species attains a height of 4 to 5 feet. Propagation may be effected by suckers or layers put down in the fall; by ripened cuttings, taken at the same time and planted in shady soil, in a cold frame; or by seed sown in the spring or preferably in the autumn when it is fresh from the pulp. They will germinate in the open in the following spring. The last-named method is generally adopted." (*Nicholson, Dictionary of Gardening.*)

35163. BERBERIS THUNBERGII MAXIMOWICZI Regel.**Barberry.**

"This plant is chiefly used as a hedge plant, and surely no worthier one for the purpose could be named, combining as it does a partly defensive character earned by its prickles, its close, neat growth, pretty leaves, and lovely scarlet berries. This *Berberis* is particularly effective when planted at an elevation where its scarlet berries can be seen to the best advantage. At Christmas time and throughout the winter, sprays of these berries interspersed with hardy and other graceful fern fronds arranged in a lily bowl make a graceful table centerpiece; this combination has the added value of remaining in good condition for several days." (*Florists' Exchange, December 10, 1910.*)

35164. CARAGANA ARBORESCENS CUNEIFOLIA (Dipp.) Schneid.**Siberian pea tree.**

"By this is understood a form which has more or less conspicuously wedge-shaped leaflets, short petioled leaves, and smaller fruit with seeds more or less spotted, which forms a shrub only 2 meters high. The formation of stipule thorns is greater, so that this form approaches *C. boissii* in many respects. However, more definite delimitation of the variety is at present questionable, inasmuch as the spontaneous forms are not cleared up. The leaf texture in degree of firmness and the more or less variable sharp relief of the veins apparently vary according to the nature of the location." (*Schneider, Laubholzkunde, vol. 2, p. 95.*)

35165. EREMURUS ROBUSTUS Regel.

"The finest *Eremurus* so far introduced, and an exceedingly vigorous plant, surpassed in stately magnificence only by its variety *elwesianus*. It is a plant one can not grow too well, for it prefers a deep, sandy loam, and appears to resent soils containing any quantity of chalk or lime, such as would grow *E. bungei* well. The rootstock has a conical crown (differing in this respect from *elwesianus*) set in a depression of the roots, which ascend abruptly as they leave the rootstock, the thongs being rigid and fleshy, not more than a dozen around each crown. The leaves are deeply channeled, pale green, 2 feet long or more, ascending for half their length, the tips always drooping when fully grown. The flower spikes are 8 to 10 feet high, stouter than a man's wrist when fully developed, bearing on the upper third a dense array of soft, pale-pink flowers, 1½ inches across each, the petals of which are broad and rounded, the anthers reddish, and the ovaries orange tinted. It is a splendid species, succeeding admirably in a shrubby clearing and other sheltered place, where its growing

35162 to 35171—Continued.

spikes would receive some protection. The flowering spikes of *E. robustus* are among the first to appear, and they grow very quickly when once started; hence, it is not improbable that they may suffer from late frosts in the open border. For such open spaces the variety *elwesianus* is the better plant—it is later in pushing spikes, and slower in developing its spikes than *E. robustus*." (*G. B. Mallett, in Gardeners' Chronicle, March 4, 1905.*)

Distribution.—An herbaceous perennial with rose-colored flowers, found on the slopes of the Ala Tau Mountains at an elevation of 10,000 feet, in northern Turkestan.

35166. EREMURUS TURKESTANICUS Regel.

"It is not handsome; it has a loose spike with white flowers (greenish on the outside), short purple-black filaments, long red anthers; the pedicels are erect and very stout at the top; the capsule is glabrous, pyriform; the seeds gray, and larger than the brown seeds of *E. altaicus*." (*Madam Olga Fedtschenko, in Gardeners' Chronicle, June 10, 1905.*)

See S. P. I. No. 35130 for previous introduction.

35167. FAGOPYRUM TATARICUM (L.) Gaertn.**Buckwheat.****35168. IRIS SPURIA** L.**Iris.**

Forma albiflora.

No plant under this name is listed in W. R. Dykes's folio monograph, *The Genus Iris*, 1913, which see for discussion of the *spuria* question.

35169. IRIS SPURIA DESERTORUM Gawl.**Iris.**

"This is one of the most vigorous of all the forms of *Iris spuria*. The plants quickly grow into close masses of foliage from which emerge numerous stems. The individual flowers are small, but they are produced so freely that the whole effect is ornamental. The cultivation is extremely easy, for the plants seem to succeed in any soil. Moreover, the flowers are self-fertilizing and the seeds are produced in abundance." (*W. R. Dykes, The Genus Iris, p. 62, 1913.*)

35170. IRIS SPURIA × **MONNIERI.****Iris.**

"The supposition that *I. monnieri* is only a form of *I. spuria* is supported by the fact that it is readily fertile to the pollen of the latter. The plants thus raised by Foster are known as *I. monspur* and are merely fine forms of *I. spuria* with flowers of some shade of blue-purple." (*W. R. Dykes, op. cit., p. 64.*)

"The culture of all the members of the *spuria* group is very simple. They will grow in almost any soil from the heaviest clay to the lightest sand, but seem to prefer a sunny position in a rather stiff loam well enriched with humus. When growth becomes active in the spring, the plants absorb a large amount of water, but seem to flower all the better the following year if the rhizomes are well roasted by the sun in the late summer after the flowering season. The seeds germinate fairly readily, but the growth of the young plants is comparatively slow, and though some may flower in their season (in two years, that is, from the time the seed germinated) yet the majority of them grow on for at least another year before the flowers appear." (*W. R. Dykes, op. cit., p. 58.*)

35171. LARIX KURILENSIS Mayr.**Kurile larch.**

"A tree up to 70 feet high, forming a stout trunk 2 to 2½ feet in diameter, young shoots very downy and dark brown, the down persisting the second season. Leaves one-half to 1 inch long, rounded at the end, very broad in proportion to their length, of a glaucous green, and with two conspicuous stomatic bands beneath. Cones about three-fourths inch long, oval-cylindrical, the scales with thin, slightly beveled, not reflexed, margins indented about

35162 to 35171—Continued.

the middle. Native of the Kurile Islands, especially on the main island (Iturup). It was at first regarded as a variety of *L. dahurica*, from which its broader leaves and persistently downy and much darker colored young shoots well distinguish it. It was introduced to Kew in 1897, from Japan. It is at present remarkable there chiefly for its curious, thin, lanky aspect, due to the scarcity of the elongated branches as compared with the short spurlike ones. This is probably due to want of vigor, but it is still one of the least promising of larches, probably needing colder winters and later springs than obtain in southern England." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 8.*)

35172. PHOENIX DACTYLIFERA L.**Date.**

Purchased from Barrow, Lane, & Ballard (Ltd.), London, England. Received April 19, 1913.

"*Tafilet.*"

See S. P. I. Nos. 34213 and 35161 for previous introductions and descriptions.

35173 to 35200.

From Paris, France. Presented by Mr. Maurice L. de Vilmorin. Received April 14, 1913.

One plant of each of the following:

35173. × ABIES VILMORINII Masters.**Spruce.**

"A remarkable hybrid (*A. pinsapo* × *cephalonica*), very beautiful, hardy, growing well in the same soils in which the parent species grow." (*Vilmorin-Andrieux & Cie., Catalogue, 1913-1914.*)

"*Vilmorin's fir.* A hybrid between *A. cephalonica* and *A. pinsapo*, the latter the seed bearer. Only one fertile seed was produced, but from it was developed the fine tree at Verrières, near Paris, now about 50 feet high. Its leaves are intermediate, but more like those of *A. pinsapo*; they resemble those of *A. cephalonica* in having stomata on the lower surface only. The cross was made by the late Henri de Vilmorin in 1867. Many seedlings, mostly intermediate between it and one or other of the parents, have been raised at Verrières." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 120.*)

35174. ACER STERCULIACEUM Wallich.**Maple.**

(*Acer villosum* Wall.)

Distribution.—A large, handsome tree, found on the temperate slopes of the Himalayas at an elevation of 7,000 to 9,000 feet, from Kashmir to Nepal, in India.

35175. BETULA sp.**Birch.**

"From seed 4088 Wilson, collected near Tachienlu, western Szechwan, at about 11,500 feet altitude."

"A tree 30 to 75 feet tall, with a trunk 5 to 8 feet in girth, and gray bark." (*Wilson.*)

35176. BERBERIS CAROLI HOANGHENSIS Schneider.**Barberry.**

"From seed 4022 Wilson."

"From upper Min Valley, Sungpan, western Szechwan, at an altitude of 9,300 feet, a salmon-red berried bush 4½ to 6½ feet tall." (*Plantae Wilsonianae, vol. 1, p. 368, 1913.*)

35173 to 35200—Continued.

35177. BUDDLEIA LINDLEYANA SINUATO-DENTATA Hemsl.

“From seed 1375 Wilson.”

“From thickets, Yachou, western Szechwan, at an altitude of 2,000 to 4,000 feet, July and November, 1908. A tall bush 3 to 5 feet high, with very dark-red flowers and very large leaves, nearly 4 inches long and 2 inches wide.” (*Plantae Wilsonianae*, vol. 1, p. 564, 1913.)

35178. CLEMATIS MONTANA WILSONII Sprague.

Forma *platysepala* Rehder and Wilson.

“From seed 1003 Wilson.”

“From west of and near Wen-chuan Hsien, Szechwan, at altitudes of 5,200 to 9,000 feet. A white-flowered climber up to 16 feet.” (*Plantae Wilsonianae*, vol. 1, p. 334, 1913.)

“*Clematis montana* Buch. is a somewhat polymorphic species widely spread in the Himalaya Mountains and in the mountains of western and central China. Var. *wilsonii* appears to be most nearly allied to a variety of *C. montana* from Hupeh with pink flowers, but, in addition to having white in place of pink sepals, the variety *wilsonii* differs from the variety *rubens* of our gardens in having less deeply cut leaflets. Like other members of the genus, *C. montana* var. *wilsonii* thrives in a rich, loamy soil which is all the better if of a calcareous nature. At Kew, where no lime is actually present in the soil, it is found very advantageous to many species of *Clematis* if slaked lime be added. Like the other varieties of *C. montana*, our plant produces its flowers from the nodes of the previous season's growth; it should therefore only be pruned after the flowers are past, and the shortening back of the shoots during the winter, so useful in the case of most *Clematis*, must here be avoided. Propagation can be readily effected by means of cuttings. The garden value of this variety is enhanced by the fact that it flowers at least two months later than the typical *C. montana* and about six weeks later than the variety *rubens*. The form is distinguished from the variety by its broadly obovate, rounded, or truncate sepals; the flowers are very round in shape and produced at the same time as the leaves.” (*Botanical Magazine*, pl. 3365, and *Plantae Wilsonianae*, loc. cit.)

35179. COTONEASTER SALICIFOLIA Franchet.

“From seed 1133 Wilson.”

“From thickets, Mupin, western Szechwan, at altitudes of 1,300 to 2,500 meters. A white-flowered, half-evergreen shrub 15 feet high with subglobose bright-red fruit with 2 or 3 stems, about 1½ to 3 inches long, one-fourth inch broad. Flowers in dense corymbs 1 to 2 inches across.” (*Plantae Wilsonianae*, vol. 1, p. 172, 1912.)

35180. COTONEASTER sp.

“From seed 3444 M. Vilmorin.”

35181. COTONEASTER sp.

“From seed 4294 M. Vilmorin.”

35182. COTONEASTER sp.

“From seed 4619 M. Vilmorin.”

35183. COTONEASTER sp.

“From seed 5916 M. Vilmorin.”

35184. DEUTZIA VILMORINAE Lemoine and Bois.

Deutzia.

“This species of *Deutzia* was found in western Hupeh by Mr. E. H. Wilson in June, 1900. The shrub has actually attained a height of 1½ meters and will

35173 to 35200—Continued.

probably reach a greater height before its full growing season is over. The leaves are long, petioles short, blades lanceolate, 8 centimeters in length, very finely dentate, with whitish teeth, velvety to the touch, very green on the upper surface, and pale greenish beneath." (*Fruticetum Vilmorinianum Catalogue*, p. 125, 1904.)

35185. DEUTZIA sp.

Deutzia.

"From seed 6706 M. Vilmorin."

35186. JASMINUM sp.

Jasmine.

"From seed 4716 M. Vilmorin."

35187. LONICERA SIMILIS DELAVAYI (Franch.) Rehder.

Honeysuckle.

(*Lonicera delavayi* Franch.)

"A glabrous shrub with branches climbing to a considerable height. The leaves are broadly lanceolate, cordiform at the base, obtuse, pointed, or acuminate, ciliate, glabrous above, covered with a grayish tomentum below, measuring 4 inches long by 1½ inches broad above the base. The floral leaves are one-fifth as large. The flowers are yellowish white and have an agreeable odor. They are glabrous, with very slender cylindrical tubes 2 to 2½ inches long, with a bilobed limb three-fourths inch long. The fruit is bluish black, glaucous." (*Jour. Soc. Hort. France, ser. 4, vol. 1, p. 208, 1900.*)

See S. P. I. No. 34570 for previous introduction.

35188. LONICERA THIBETICA Bur. and Franch.

Honeysuckle.

"A shrub from 0.5 to 1.5 meters in height, with slender spreading and recurving, often procumbent branches, forming a dense, intricate bush much broader than high; young branchlets villose-puberulous or tomentulose; older branches clothed with grayish-brown shedding bark. Flowers appear in May and June and sparingly during the whole summer and autumn. Fruit ripens in August and September. This *Lonicera* in the Arnold Arboretum proved hardy with slight protection during the winter and seems well suited for planting on rocky slopes and banks. The flowers are very fragrant, and the bright color of the berries makes the shrub ornamental in the autumn." (*Charles Sprague Sargent, Trees and Shrubs, vol. 1, p. 89, 1905.*)

35189. LONICERA sp.

Honeysuckle.

"From seed 5032 M. Vilmorin."

35190. LONICERA sp.

Honeysuckle.

"From seed 6872 M. Vilmorin."

35191. MALUS sp.

Apple.

"From Yunnan."

35192. PINUS sp.

Pine.

"From seeds 6393 and 6610 M. Vilmorin, from Szechwan."

35193. PYRUS sp.

Pear.

"From seed 6866 M. Vilmorin."

35194. RIBES HIMALAYENSE URCEOLATUM Jancsewski.

"This black-fruited shrub, from 2 to 3 meters high, is from Fang Hsien, western Hupeh. Was found growing in thickets at an altitude of 2,250 meters, September, 1907 and 1910." (*Plantae Wilsonianae, vol. 1, p. 44, 1911.*)

35195. RIBES sp.

"With large fruits."

35173 to 35200—Continued.

35196. ROSA MULTIBRACTEATA Hemsley and Wilson.

Rose.

“From seed 1053 E. H. Wilson.”

“A hardy species with pretty pink flowers from the valley of the Min River, western Szechwan.” (*Wilson.*)

“A bush rose about 6 feet high, closely related to *R. webbiana*, but differs in its more crowded inflorescences, more numerous lanceolate bracts, fewer carpels, and longer styles. Flowers pink, one-half to three-fourths inch across in narrow terminal thyrsoid panicles. Fruit red, globose.” (*Hemsley and Wilson, Kew Bull. Misc. Inf., 1906, p. 157.*)

35197. RUBUS BIFLORUS QUINQUEFLORUS Focke.

Raspberry.

“This is one of the most striking of all the brambles introduced by Mr. Wilson. He collected seeds in west Szechwan, southeast of Tachien-lu, at an altitude of 5,000 to 6,000 feet. The growths are particularly strong, being 12 feet in height, and the stems $4\frac{1}{2}$ inches in circumference at the base. The waxy white bloom on the stems is a particularly striking feature. They are armed with large, stiff spines, one-half inch in length. The leaves are pinnate, about 1 foot in length, and generally consist of five leaflets, which are white beneath and green above. The flowers are white, three-fourths inch in diameter, being borne in terminal and axillary panicles of about five flowers. The fruit is a rich, golden-yellow color, equal in size to those of most of our cultivated raspberries, and of a good flavor. This species, so far as I am able to judge, is likely to prove the most useful of the Chinese raspberries to the hybridist for raising new fruits.” (*Gardeners' Chronicle, March 9, 1912.*)

35198. SPIRAEA HENRYI Hemsl.

“From seed 4327 E. H. Wilson. From Pan-lan-shan, west of Kuan Hsien, Szechwan, at altitudes of 9,000 to 10,000 feet. A bush $7\frac{1}{2}$ to 11 feet high.” (*Plantae Wilsonianae, vol. 1, p. 447, 1913.*)

“Shrub, of lax, spreading habit, 7 to 8 (perhaps more) feet high; branches sparsely pilose the first season, glabrous or nearly so the second. Leaves on the barren shoots $2\frac{1}{2}$ to $3\frac{1}{2}$ inches long, oblanceolate, glabrous or slightly pilose above, tomentose beneath, coarsely dentate near the apex; those of the flower shoots smaller, three-fourths to $1\frac{1}{2}$ inches long, obovate or oblong, usually with three to seven teeth at the apex, but occasionally entire. Flowers one-fourth inch in diameter, produced in compound corymbs 2 inches across, which are terminal on short twigs springing from the branches of the previous year; peduncles and pedicels pilose. Petals white, orbicular. Calyx with five triangular lobes. Ovary pilose, 2 ovuled. Fruit in corymbs; carpels 5, one-eighth inch long when mature, membranaceous, dehiscent ventrally.” (*Botanical Magazine, pl. 3270.*)

35199. VIBURNUM BETULIFOLIUM Batalin.

“From seed 5924.”

“A deciduous shrub with glabrous branches and branchlets purple or purplish brown during their first and second years, later becoming marked by longitudinal fissures. Apparently most closely related to *V. wrightii* Miquel, but differs chiefly in the presence of stipules, in the more coarsely serrate-ovate or rhombic-ovate leaves, with fewer veins, and in the glandular and hairy ovary. As an ornamental shrub will probably be as valuable as *V. wrightii*, and will doubtless be a handsome object in flower and in fruit.” (*Rehder, Trees and Shrubs, vol. 2, p. 99, 1908.*)

35173 to 35200—Continued.

35200. *ROSA SOULIEANA* Crepin.

Rose.

"*Rosa soulieana* is one of the most desirable of the single white roses, both in flower and fruit. It differs from *R. moschata* in the smaller leaves, usually oval leaflets rounded at both ends, shortly stalked glands on the peduncles, and in the shorter tails of the sepals. It is a very robust species of suberect habit, forming bushes at least 8 feet high and as much through, armed with curved prickles or with straight ones on the barren branches. Leaves pale green, usually with seven leaflets, the largest 4 inches long, usually $2\frac{1}{2}$ to 3 inches long. Leaflets oval, ovate or ovate-oblong, rarely more than 1 inch long, minutely serrate, axis usually furnished with a few small prickles. Stipules adnate, acute, with marginal glands. Flowers ivory white, about $1\frac{1}{2}$ inches across, very numerous, in compound, dense, terminal corymbs, or sometimes solitary on short lateral branches. Peduncles slender, slightly glandular. Calyx lobes shortly tailed, entire or furnished with a few small teeth. Petals emarginate. Ovaries plose; styles connate. Fruit orange-vermillion, ovoid, or nearly globose, a little over one-half inch in its greatest diameter." (*Hemsley.*)

"One of the most vigorous of all roses, this new Chinese species is, in consequence, better adapted for semiwild places than it is for the trimly kept parts of the garden. On young plants the growths of a single year are sometimes 10 to 12 feet long. In June, when its numerous clusters of white flowers are open, it is very beautiful, as it is again in the autumn, when the clusters of small fruits have turned a soft red. But apart from these, the luxuriant mass of smooth gray foliage out of which are thrust the long arching shoots of the year is in itself attractive. Roses are notoriously gross feeders, and *R. soulieana* is not one of the exceptions. It should be planted in good, rather heavy loam, in a position fully exposed to the sun, with abundant space to grow in." (*W. J. Bean, Botanical Magazine, pl. 8158.*)

For an illustration of this rose bush in bloom, showing its habitat in China, see Plate II.

35201. *AMYGDALUS PERSICA* L.

Peach.

(*Prunus persica* Stokes.)

From Mengtsh, Yunnan, China. Presented by the Commissioner of Customs. Received June 2, 1913.

"Seeds of Mengtsh white peach and yellow free peach. This fruit is grown all over this province and occasionally attains an enormous size, and in that respect could easily compete with the best French peaches. The quality is somewhat inferior, but no care is taken of the trees as is done at home, and I am sure if one could graft good species one should obtain better results. Mengtsh is about 4,500 feet above sea level." (*Extract from the Commissioner's letter dated April 17, 1913.*)

These were received without labels, and one number was assigned to the lot.

35202. *BRASSICA BALEARICA* Persoon.

From Dublin, Ireland. Presented by the Royal Botanic Garden, Glasnevin. Received March 24, 1913.

Introduced for the work of Dr. D. N. Shoemaker in breeding experiments with various species of Brassica.

Distribution.—A wild mustard found in the Balearic Islands, east of Spain.

35203 and 35204.

From Tangent, Oreg. Purchased from Mr. J. E. Jenks. Received April 11, 1913.

35203. LATHYRUS TINGITANUS L.

Tangier pea.

35204. VICIA ATROPURPUREA Desfontaine.

Vetch.

"Purple."

Distribution.—The countries of northern Africa and southern Europe bordering on the Mediterranean Sea.

35205 to 35209.

From Tiflis, Caucasus, Russia. Presented by the director, Botanic Gardens. Received April 7, 1913.

35205. AMYGDALUS FENZLIANA (Fritsch) Korsh.

(*Prunus fenzliana* Fritsch.)

See S. P. I. No. 27302 for previous introduction and description.

35206. AMYGDALUS NANA L.

(*Prunus nana* Stokes.)

"A low, deciduous shrub of bushy form, 2 to 5 feet high; twigs smooth. Leaves obovate or oblong, $1\frac{1}{2}$ to $3\frac{1}{2}$ inches long, one-half to 1 inch wide, saw toothed, dark glossy green above, pale beneath, smooth on both surfaces. Flowers one to three on each bud of the previous year's shoots, rosy red, one-half inch long, one-half inch or more in diameter. Fruit like a small almond, 1 inch long, covered with velvety down; not often produced in England. Native of southern Russia and the other parts of southeast Europe; long cultivated in England (Aiton says since 1683). It is a very pretty shrub, flowering abundantly in April, growing well on its own roots, and easily increased by layering. In spite of this, it is frequently grafted on plum, and is short lived in consequence." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 245.*)

35207. MEDICAGO SATIVA GLUTINOSA (Bieb.) Urban.

"The leaflets of this species of *Medicago* vary from 8 to 12 millimeters in length and 5 to 7 millimeters in width. They are obovate, irregularly toothed at the apex, base entire and wedge shaped, pubescent beneath. The calyx and flower stalks are glandular and hairy. The flowers, mostly 8 to 11 millimeters long, are golden yellow in color and sometimes change to a bluish tint. The pod consists of 1 to $2\frac{1}{2}$ windings and is $4\frac{1}{2}$ to 6 millimeters in diameter." (*P. L. Ricker.*)

35208. PINUS ELДАРICA Medv.

Pine.

"An erect pine 40 to 50 feet high from central Transcaucasia near the Eldar desert, in the Eilaroogi cliffs on the right bank of the River Jora. Near to Caucasian species, but distinguished by the shorter leaves and an apophysis of greater convexity. Differs from *P. brutia* Ten. in its shorter leaves and in having its strobiles solitary or verticillate in clusters of two to four; from *P. halepensis* Mill. in its more thick and rigid leaves and in having the peduncles of the strobiles erect spreading, not reflexed." (*Medvedev, Trudii Tiflis Botanic Garden, vol. 6, pt. 2, p. 21, 1902.*)

35209. SOLANUM NIGRUM L.

Nightshade.

"*S. chlorocarpum* Spenn."

For previous introductions, see S. P. I. Nos. 35157 to 35160.

35210. ALEURITES FORDII Hemsley. Chinese wood-oil tree.

From Hankow, China. Purchased through L. C. Gillespie & Sons, New York City. Received at the Plant Introduction Field Station, Chico, Cal., April 9, 1913.

35211. CUCUMIS MELO L. Muskmelon.

From Callao, Peru. Presented by Mr. Luther K. Zabriskie, deputy consul. Received April 14, 1913.

"Grown in the valley of Ica, in the south-central part of Peru. Is oblong and about the size of the ordinary watermelon, measures about 14 by 8 inches. Has a yellow smooth skin, thin rind, and possesses a rich flavor." (*Zabriskie.*)

35212. MELICocca BIJUGA L. Honeyberry.

From Caracas, Venezuela. Presented by Mr. H. Pittier, of the Bureau of Plant Industry. Received April 18, 1913.

"The tree grows here from sea level to an altitude of about 1,000 meters. The fruit is called *mañon*, and there are at least two varieties." (*Pittier.*)

"A large tree, native of Trinidad and tropical South America, 40 to 50 feet high; leaves pinnate; flowers very numerous, small, fragrant; fruit green, size of pigeon's egg; pulp edible, of a sweet, subacid, slightly astringent taste. Nuts in Caracas are roasted and eaten like chestnuts." (*Fawcett, Economic Plants.*)

35213. HOLCUS SORGHUM L. Sorghum.

(*Sorghum vulgare* Pers.)

From Cedar Falls, Iowa. Purchased from Morgan Brothers. Received April 14, 1913.

"*Early amber.*"

35214 and 35215. PASSIFLORA sp. Passion fruit.

From Rio de Janeiro, Brazil. Presented by Dr. J. C. Willis, director, Botanic Garden. Received April 15, 1913.

35214.

35215.

"They say that this is the species which occurs in two varieties." (*Willis.*)

35216 to 35221. PHASEOLUS ANGULARIS (Willd.) W. F. Wight.

Adzuki bean.

From Morioka, Japan. Presented by Rev. Henry Topping, American Baptist Foreign Mission Society. Received March 15, 1913.

35216. *Chu nagon adzuki.* Dark red.

35219. *Kuro adzuki.* Black.

35217. *Dai nagon adzuki.* Large dark red.

35220. *Murasaki adzuki.* Purple.

35218. *Goinojo adzuki.* Gray.

35221. *Shiro adzuki.* Green.

35222. VICIA FABA L. Broad bean.

From Callao, Peru. Presented by Mr. Luther K. Zabriskie, deputy consul. Received April 14, 1913.

"*Havas.* A bean that is grown in the southern part of Peru along the coast. It is used by the Peruvians in soup, etc. After the bean has been boiled, the outside skin has to be removed before eating. Has a slight bitter taste. Greatly relished by most people." (*Zabriskie.*)

35223. DIOSPYROS KAKI L. f. Persimmon.

From Seoul, Chosen (Korea). Presented by Mr. George H. Scidmore, American consul general. Received April 23, 1913.

"Scions cut from a persimmon tree of the 'sheep-nose' variety on the compound of this consulate general." (*Scidmore.*)

For previous introduction, see S. P. I. No. 34697.

35224 to 35226. PHASEOLUS spp. Bean.

From San Salvador, Salvador. Presented by Mr. Thomas Hinckley, American consul general, who procured them through the Sociedad Nacional de Agricultura, Ganadería, é Industrias, of Salvador. Received March 17, 1913.

"The red and black *Sinete* beans were grown at an altitude of 2,200 feet, where the average rainfall is between 50 and 60 inches and where the temperature during the year ranges from 33° to 15° C. I was further informed that these beans are produced with the best results at an altitude of 1,000 to 3,000 feet, where the rainfall is between 36 and 72 inches. These beans are planted in the month of May and ripen the following November. They are sown at the same time as Indian corn, the proportion being about 1 pound of beans to 8 pounds of corn. Two or three seeds are sown in the same hill with the corn, every other furrow being left fallow. They grow rapidly and mature before the corn.

"The *Ayeco* beans were grown at an altitude of somewhat over 3,000 feet, where the rainfall is heavier and the temperature lower than that above mentioned. They should be grown at an altitude of above 3,000 feet, where the rainfall is heavy, and should be planted in very rich soil, preferably on land that has been recently cleared and burned, where there would be an excess of potash. This bean is also planted in May, but does not ripen until the following December. They are planted in the same manner as the *Sinete*, except that four or five seeds are sown and two intervening furrows are left fallow. This species matures later than the corn." (*Hinckley.*)

35224. PHASEOLUS COCCINEUS L.

"*Ayeco*. A very interesting type of scarlet runner, probably of little economic importance for this country." (*D. N. Shoemaker.*)

35225. PHASEOLUS VULGARIS L. 35226. PHASEOLUS VULGARIS L.

"*Black Sinete.*"

"*Red Sinete.*"

35227. MISCANTHUS JAPONICUS (Thunb.) Oersted. Zebra grass.

From San Giovanni a Teduccio, Naples, Italy. Purchased from Dammann & Co. Received April 25, 1913.

"This grass, which is a very common ornamental growing on some of the poorest soils in the District of Columbia and Maryland, produces very fine paper fiber when cooked by the soda process. It resembles esparto fairly closely and is regarded as a promising source of paper fiber." (*C. J. Brand.*)

Procured for paper-plant investigations.

35228 and 35229.

From San Salvador, Salvador. Presented by Mr. Thomas Hinckley, American consul general. This material was procured at the request of Mr. R. T. Ruiz. Received April 24, 1913.

35228. PHASEOLUS VULGARIS L.

Bean.

"Little white bean of Salvador that is so vastly superior to all the white beans in cultivation in this country for several reasons, the most remarkable being

35228 and 35229—Continued.

the almost entire absence of the hull or pellicle so disgusting in the navy bean and in the black-eye pea, the tenderness of the bean, which is more tender than the black-eye pea, and the flavor, entirely distinct from any other bean that I have seen in the world, a flavor that is never forgotten once you taste it." (*R. T. Ruiz.*)

35229. ZEA MAYS L.

Corn.

"The black Indian corn which is so extensively used in Salvador for making a refreshing beverage and is claimed to be medicinal for bladder troubles. It is surely a most pleasing corn, and the natives often roast it and use it in place of coffee." (*R. T. Ruiz.*)

35230. CERATONIA SILIQUA L.

Carob.

From Valencia, Spain. Presented by Mr. Claude I. Dawson, American consul. Received April 28, 1913.

"Red-flowered male."

Cuttings.

See S. P. I. No. 30916 for previous introduction and description.

35231. PERSEA PUBESCENS (Pursh) Sarg.(*Persea carolinensis* Nees.)

From Newbern, N. C. Presented by Dr. C. A. Schenck, director, Biltmore Forest School, Biltmore, N. C. Received April 28, 1913.

"North Carolinian *Persea* from the swamps near Newbern." (*Schenck.*)

Plants.

35232. BLIGHIA SAPIDA Koenig.

Akee.

From Jamaica, British West Indies. Presented by Mr. W. Harris, superintendent of Public Gardens, Hope Gardens, Kingston, Jamaica. Received April 26, 1913.

See S. P. I. Nos. 24592 and 32351 for previous introductions and descriptions.

35233. (Undetermined.)

From Berlin, Germany. Presented by the Berlin Botanic Gardens. Received April 25, 1913.

35234. CARAGANA ARBORESCENS Lamarck. Siberian pea tree.

From Indian Head, Saskatchewan, Canada. Purchased from Mr. Norman M. Ross, Chief of Tree Planting Division, Forestry Branch, Department of the Interior. Received April 30, 1913.

Numbered for convenience in handling, and sent to the Mandan Field Station for trial.

35235. LAPAGERIA ROSEA Ruiz and Pavon.

Copigué.

From Chelsea, London, England. Purchased from James Veitch & Sons (Ltd.), at the request of Mr. Frederick V. Coville, of the Bureau of Plant Industry. Received April 30, 1913.

"The plants of *Lapageria rosea* were requested in order that they might be tested with reference to their ability to thrive in the same acid, peaty soil that has been found so successful for the culture of the blueberry and various plants in other families which do not thrive in ordinary potting soils and which, therefore, have the reputation

of being difficult to grow. It has been found that these plants, although they were seriously injured during inspection, revived when planted in the blueberry soil, made good growth, and later developed their remarkably beautiful cherry-red, silver-spotted, lilylike flowers, 3 inches in length." (*Coville*.)

35236. MUSA ENSETE Gmelin. Wild banana.

From M'Caie Sana, Lumbwa, British East Africa. Presented by Mrs. Ernest Smith. Received March 30, 1913.

35237. ASTRAGALUS FALCATUS Lamarck.

From Paris, France. Purchased from Vilmorin-Andrieux & Cie. Received April 29, 1913.

35238 to 35242. CERATONIA SILIQUA L. Carob.

From Valencia, Spain. Presented by Mr. Claude I. Dawson, American consul. Received from April 29 to May 5, 1913.

Cuttings of the following:

35238. "Casuda."

See S. P. I. No. 30915 for previous introduction and description.

35239. "Matlafera."

See S. P. I. No. 30914 for previous introduction and description.

35240. "Vera."

See S. P. I. No. 7060 for previous introduction and description.

For an illustration of the Vera carob tree in full foliage as found growing in Spain, see Plate III.

35241. "Hermaphrodite."

See S. P. I. No. 30919 for previous introduction and description.

35242. "Yellow-flowered male."

See S. P. I. No. 30917 for previous introduction and description.

35243. CANANGIUM ODORATUM (Lam.) Baillon. Ylang-ylang.
(*Cananga odorata* Hook. f. and Thom.)

From Manila, Philippine Islands. Presented by Mr. O. W. Barrett, chief, Division of Horticulture, Bureau of Agriculture. Received April 14, 1913.

"A large evergreen tree of the family of Annonaceae, native of Burma, but extended by culture to Java and the Philippines. An agreeable and highly valuable perfume known as ylang-ylang is distilled from the flowers. Should succeed in southern Florida and the warm portions of the Gulf coast." (*Dr. W. Van Fleet*.)

"The war correspondent Mr. James Creelman called our attention several years ago to the possibility of growing this flower in Florida and shipping it to the northern markets as is now done with the gardenia." (*Fairchild*.)

35244 to 35246. CERATONIA SILIQUA L. Carob.

From Valencia, Spain. Presented by Mr. Claude I. Dawson, American consul. Received April 29 to May 5, 1913.

Cuttings of the following:

35244. "Flor de Altramuz."

35246. "Roja Vera."

35245. "Roja Vera."

See S. P. I. No. 30918 for previous introduction and description.

35247. CITRUS sp.**Orange.**

From Algiers, Algeria. Presented by Dr. L. Trabut, Government Botanist of Algeria. Received May 7, 1913.

"Cuttings of the late Berna orange, which you may name *Berna Late*. This is the object of important export from Murcia, Spain, during the summer. Fruit globular oval, medium in size, skin very solid, assuring its preservation." (*Trabut.*)

35248. THEA SASANQUA (Thunb.) Nois.**Tea oil.**

(*Camellia sasanqua* Thunb.)

From Chenchow, Hunan, China. Presented by Mr. T. W. Mitchell. Received April 30, 1913.

"The trees are very curious in that, just as they are harvesting the nuts, the trees are in full bloom for the following year's crop. It produces a vegetable oil very much used for food by the natives and which we ourselves like very much." (*Mitchell.*)

Distribution.—The vicinity of Nagasaki in Japan, in the Chusan and Luchu Archipelagoes.

35249. GONOLOBUS EDULIS Hemsley.**Cuayote.**

From San Ramon, Costa Rica. Presented by Mr. Ad. Tonduz, botaniste explorador. Received May 9, 1913.

"An asclepiadaceous twiner with yellow flowers in small racemes, and long fruits, pointed at both ends, provided with longitudinal wings. The fruit is eaten while still soft." (*Tonduz.*)

35250. CITRULLUS VULGARIS Schrader.**Watermelon.**

From Argentina. Presented by Mr. T. A. Havemeyer, New York, N. Y. Received April 26, 1913.

"Seeds of a watermelon brought me by a friend from Argentina, said to be very good and to have an orange center. It may be of value." (*Havemeyer.*)

35251. CANNABIS SATIVA L.**Hemp.**

From Hankow, China. Procured through Mr. Roger S. Greene, American consul general. Received April 25, 1913.

"*Ta ma*, the great hemp of China, is cultivated chiefly in central China, in the valley of the Yangtze. It attains a height of 8 to 15 feet, has comparatively large leaves, less crowded than the foliage of the common hemp of Europe, and its seeds are comparatively small, dark, and well mottled.

"Seeds from hemp of this variety have given the best results when cultivated in Kentucky. The seeds should always be acclimated by cultivating the plant one or two generations for seed production before sowing it broadcast in this country for fiber production." (*L. H. Dewey.*)

35252. BRACHYPODIUM PINNATUM (L.) Beauv.

From Paris, France. Purchased from Vilmorin-Andrieux & Cie. Received May 2, 1913.

Distribution.—Throughout Europe and eastward to Siberia and Persia; also in northern Africa.

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

35253 to 35262.

From Laoling, Shantung, China. Secured by Mr. Frank N. Meyer, agricultural explorer. Received at the Plant Introduction Field Station, Chico, Cal., May 9, 1913.

Cuttings or rooted plants of the following:

35253 to 35257. *ZIZIPHUS JUJUBA* Miller.

Jujube.

(*Ziziphus sativa* Gaertn.)

35253. From Laoling, Shantung, China. "(No. 1021, March 30, 1913.)

A variety of jujube, called *Wu hu tsao* or *Ya tsao*, bearing fruits which are either perfectly seedless or, if not, having such a soft kernel that one does not notice it when eating the fruit. The trees of this variety do not grow very old or to any large size; they possess but few spines and sucker only moderately. It is the custom in the Laoling district to ring the trees every year, just when the fruit is setting, by means of sawing through the bark of the trunk, starting the first ring a few inches above the ground and leaving a space of about three-fourths of an inch between the successive rings. They start the ringing when the trees are 6 or 7 years old and continue it for 20 to 30 years, after which time the tree generally dies and is removed. The reason for this ringing process is the fact that a tree which is ringed produces almost twice as much fruit as an unringed one, although the fruits of the latter are much sweeter. These seedless jujube fruits are generally steamed shortly after they have been collected; then they are dried again and in this state they are kept throughout the whole winter until the next summer. With the Chinese fruit growers themselves they are not as great favorites as one would suspect. This is accounted for by their lack of sweetness and the steaming process they have to undergo, while the ordinary varieties are much sweeter and can be eaten straightaway. To the western palate, however, they appeal strongly and bear some comparison to an intermediate flavor between raisins and candied citron rind. They can be served as sweetmeats by themselves or mixed with peanuts; they can also be stewed with millet or rice, and compotes and cake fillings can be made from them and in all their various forms they are quite acceptable. When once successfully growing in the United States, attempts should be made to cross this variety with the larger fruited forms, so as to obtain more variation in the size of the fruit." (*Meyer.*)

35254. From Laoling, Shantung, China. "(No. 1022, March 30, 1913.)

A variety of jujube, called *Wu hu tsao*, or *Ta tsao*, coming from a different locality than the preceding number; otherwise the same remarks apply to it." (*Meyer.*)

35255. From Laoling, Shantung, China. "(No. 1023, March 30, 1913.)

A variety of jujube, called *Tze lin tsao*, meaning 'scarlet jujube.' Fruits as large as small eggs. The trees are of rather dense growth, possess many slender branches, and the young wood is quite spiny. These trees are not ringed. This variety is but sparingly cultivated, as it seems to produce very few suckers." (*Meyer.*)

35256. From Laoling, Shantung, China. "(No. 1024, March 30, 1913.)

A variety of jujube, called *Tang tsao*, meaning 'sugar jujube.' The fruits are large, of very elongated shape, and thinner in the middle than at both ends. Trees of vigorous growth, having many branches, which are spiny when young. A rare variety, which is not ringed." (*Meyer.*)

35253 to 35262—Continued.

For an illustration of the jujube tree of the Tang variety, as found growing in China, see Plate IV.

35257. From Laoling, Shantung, China. "(No. 1025, March 30, 1913.) A variety of jujube, called *Hsiao tsao*, meaning 'small jujube.' The trees do not grow large, possess but few spines, and are very productive. When over 40 years old, however, they cease to bear paying crops. The fruits are of a bright brown-red color, are small in size, but they are very sweet and much beloved by the people, who have big orchards of them. This variety is ringed in the same way as the seedless jujube." (*Meyer.*)

35258. CUDRANIA TRICUSPIDATA (Carr.) Bureau.
(*Maclura tricuspidata* Carr.)

Che.

From Laoling, Shantung, China. "(No. 1026, March 30, 1913.) A wild shrub, sometimes growing into a small tree, found in dry places. Called by the Chinese *Tcho sang*, which means 'wild mulberry.' The leaves are used for feeding silkworms in times of scarcity of mulberry leaves. This plant makes an impression similar to the Osage orange, but is of much smaller dimensions. Can be utilized in the drier parts of the United States as a hedge plant around gardens and as fence material on farms, while it also can be employed for bank-binding purposes in the milder, semiarid sections. This shrub is very thorny and can serve therefore very well for hedge purposes." (*Meyer.*)

Rooted plants. "Plants of this same species (S. P. I. No. 34493) introduced by Mr. E. H. Wilson have fruited at Augusta, Ga., in the nurseries of P. J. Berckmans Co., and the fruit is sweet and edible. It is closely related to our native Osage orange, *Toxylon pomiferum* (*Maclura aurantiaca*), and has been hybridized with it. There are other edible-fruited species also, so this introduction opens up a most interesting field for the breeder." (*Fairchild.*)

For an illustration of the edible fruit of the che tree, showing its manner of growth upon the branches, see Plate V.

35259. AILANTHUS CACODENDRON (Ehrh.) Schinz and Thellung.
(*A. glandulosa* Desf.)

Tree of heaven.

From Laoling, Shantung, China. "(No. 1027, March 30, 1913.) Variety *umbraclifera*. A variety of the tree of heaven, which grows much more compactly and bears fewer seeds than the ordinary variety. To be tried especially in the drier parts of the United States." (*Meyer.*)

Rooted plants.

35260. ZIZIPHUS JUJUBA Miller.
(*Ziziphus sativa* Gaertn.)

Jujube.

From Laoling, Shantung, China. "(No. 1028, March 30, 1913.) Coming from the same trees from which the scions under No. 1021 (S. P. I. No. 35253) were taken." (*Meyer.*)

Rooted plants.

35261. TAMARIX sp.

Tamarisk.

From Laoling, Shantung, China. "(No. 1029, March 31, 1913.) A tamarisk occurring on sandy and alkaline lands here and there. The Chinese call it *Hong ching* and cut the twigs every autumn, making baskets from them. This plant possesses considerable bank and sand binding qualities and may be experimented with for these purposes in the drier parts of the United States." (*Meyer.*)

35253 to 35262—Continued.**35262.** SALIX sp.**Willow.**

From Laoling, Shantung, China. "(No. 1030, March 31, 1913.) A tall-growing willow, occurring on rather dry soil, called by the Chinese *Tsuan shin lin*, meaning more or less 'sky-piercing willow.' Of value as an avenue and park tree in the drier parts of the United States." (*Meyer.*)

35263. DIOSPYROS KAKI L. f.**Persimmon.**

From Seoul, Chosen (Korea). Presented by Mr. George H. Scidmore, American consul general. Received May 6, 1913.

"Scions from a hardy persimmon tree of the 'sheep-nose' variety growing on the compound of this consulate general." (*Scidmore.*)

See S. P. I. Nos. 34697 and 35223 for previous introductions.

35264. CARICA PAPAYA L.**Papaya.**

From Gonda, United Provinces, India. Presented by Rev. N. L. Rockey, district superintendent, Methodist Episcopal Church. Received May 5, 1913.

"Seeds of the following-described fruit. I have imported papayas from the Okinawa Islands and have crossed them with the Indian varieties with very fine results. The fruit was 11 inches long and 18 inches in girth, flesh very thick, 1½ inches, sweet, and ate like a food rather than a dessert." (*Rockey.*)

35265 to 35279.

From Russia. Presented by Mr. Alexander Kol, Russian Government Assistant Agricultural Commissioner, St. Louis, Mo., who secured them from Mr. Pullman, of Bogorodsky Experiment Field, Government of Kursk. Also two samples from Charkof Agricultural Selection Station. Received May 8, 1913.

35265. TRIFOLIUM SUAVEOLENS Willdenow.**Persian clover.**

"Russian Agricultural Agency No. 134. Persian clover No. 77 of Charkof Selection Station."

35266. TRIFOLIUM INCARNATUM L.**Crimson clover.**

"Russian Agricultural Agency No. 137. Charkof Selection Station No. 78."

35267. TRIFOLIUM PRATENSE L.**Red clover.**

"Russian Agricultural Agency No. 307. Bogorodsky Experiment Field No. 9, fifth generation."

35268. TRIFOLIUM AGRARIUM L.**Golden clover.**

"Russian Agricultural Agency No. 311. Bogorodsky Experiment Field No. 1."

35269. TRIFOLIUM PRATENSE L.**Red clover.**

"Russian Agricultural Agency No. 312. Bogorodsky Experiment Field No. 6."

35270. TRIFOLIUM PRATENSE L.**Red clover.**

"*Foliosum.* Russian Agricultural Agency No. 313. Bogorodsky Experiment Field No. 13."

35271. TRIFOLIUM ARVENSE L.**Rabbit-foot clover.**

"Russian Agricultural Agency No. 314. Bogorodsky Experiment Field No. 3."

35265 to 35279—Continued.

- 35272.** TRIFOLIUM PRATENSE L. Red clover.
 “*Silvestris*. Russian Agricultural Agency No. 315. Bogorodsky Experiment Field No. 10.”
- 35273.** TRIFOLIUM PRATENSE L. Red clover.
 “Russian Agricultural Agency No. 316. Bogorodsky Experiment Field No. 7, from Perm.”
- 35274.** TRIFOLIUM PRATENSE L. Red clover.
 “Russian Agricultural Agency No. 317. Bogorodsky Experiment Field No. 8, early, wild.”
- 35275.** TRIFOLIUM ELEGANS Savi. Clover.
 “Russian Agricultural Agency No. 318. Bogorodsky Experiment Field No. 4, with a mixture of *Lotus corniculatus*.” (Brown seeds.)
- 35276.** TRIFOLIUM ALPESTRE L. Clover.
 “Russian Agricultural Agency No. 319. Bogorodsky Experiment Field No. 2. Shadow loving.”
- 35277.** TRIFOLIUM PRATENSE L. Red clover.
 “Russian Agricultural Agency No. 320. Bogorodsky Experiment Field No. 11, second generation, No. 65. With white spots near the base of the leaves.”
- 35278.** TRIFOLIUM PRATENSE L. Red clover.
 “*Albiflorum* No. 103, second generation. Russian Agricultural Agency No. 321. Bogorodsky Experiment Field No. 13. According to Mr. Pullman, the pure yellow seeds are pure red clover, those colored are from a hybrid of white and red clover.”
- 35279.** TRIFOLIUM MONTANUM L. Clover.
 “Russian Agricultural Agency No. 322. Bogorodsky Experiment Field No. 5.”

35280 and 35381. IPOMOEA BATATAS (L.) Poir. Sweet potato.

From Callao, Peru. Presented by Mr. Luther K. Zabriskie, deputy consul. Received April 14, 1914.

Tubers of the following; quoted notes by Mr. Zabriskie:

35280.

“Sweet potato from Lurin. Native to the valley of Canete, in the southern part of Peru. Has a white exterior, but is yellow within. Has an especially sweet taste and is generally preferred by the Peruvians to other sweet potatoes.”

35281.

“Purple-skinned sweet potato. Grown in the coastal regions of Peru.”

35282 and 35283.

From Guemes, Argentina. Presented by Mr. H. F. Schultz, director of the Agricultural Experiment Station and Nursery. Received May 9, 1913.

- 35282.** PERSEA AMERICANA Miller. Avocado.
 (*Persea gratissima* Gaertn. f.)

“Seeds from fruits picked from a tree on the property of Srs. Bonino y Segiario, Betania, Province of Salta, belonging to the Mexican type of *Persea*. The fruits are rather small, purple skinned (the progeny occasionally green

35282 and 35283—Continued.

skinned), of good flavor, and very early producers. The above-named gentlemen own some seedlings from fruits of the same tree, which, when 3 years old, carried over 80 fruits, some having dropped off when I observed the tree. The trees are of tall, upright growth, but otherwise present the same appearance as trees of the usual Mexican type. I have a few of the same variety of seedlings in my nurseries here which failed to take in budding and when 18 months old flowered, but did not set fruit; the trees are now 3 meters high. I expect these same seedlings to produce quite a number of fruits this year. It may be of interest to you that I have budded about 50 seedlings to one of the best varieties of Mexican-type avocado found in Campo Santo (Salta), and 20 to the other type (which I will call Peruvian type, because I am informed that the seeds from which the tree furnishing the budwood was grown were imported from Peru) and that the latter buds made as good a union on the Mexican-type stock and are growing just as well as they could be expected to do on the Peruvian stock. In other words, the Peruvian type, of which the *Trapp*, *Pollock*, etc., are representatives, does equally well on the Mexican, fragrant-leaf type of seedlings as when budded on seedlings of its own type.

"Avocados, or *paltas* as they are called here, are grown in limited numbers in Campo Santo and Betania, about 20 kilometers from this place. The trees flower in September and mature their fruit, depending on climatic conditions, in February and March. There are no systematically planted groves here, only a few scattered trees which, however, bring good returns to their owners. The fruits are all pear shaped, 8 to 11 centimeters long, and 4 to 5 centimeters in diameter; the seed is seldom loose. The flavor does not quite reach in nuttiness that of the best Florida-grown avocado, but is very satisfactory. In recent years a few trees of the Peruvian type have been planted in this neighborhood and yield much better returns, not quantitatively, but in quality and size. In Tucuman (Lules, San Pablo, etc.) I have seen trees of the Peruvian large-fruited type which were yielding very satisfactory crops and fruit of very good quality. The latter ones sell in Buenos Aires at \$3.50 and \$3 paper (\$1.54 and \$1.32 United States currency) per dozen, but are not sufficiently well known to the public to have caused a great demand. The Mexican-type fruits sell at from \$2 to \$3 paper locally and in the Salta city market. The manager of an English company in the Province of Jujuy is making great efforts to establish a large avocado grove and has imported, upon my advice, quite a number of *Trapp* and some *Pollock* plants from Florida. Unfortunately the plants generally arrive in pitiful shape." (*Schultz.*)

35283. ANNONA CHERIMOLA L.**Cherimoya.**

"Seeds from some choice fruits presented to me by the late Sr. Delfin Perez, Finca 'El Carmen,' Campo Santo, Province of Salta. The cherimoya was introduced into Campo Santo from Peru about 50 years ago, and while the famous 'oldest residents' who heard the tales of the original importers claim that the fruits have degenerated greatly, it must be admitted that the quality of the present-grown cherimoyas in this region is very fine indeed. I have never eaten as good cherimoyas in Central America or in the United States as are produced here; their flavor and aroma are exquisite and their texture velvety and most delicious. The beautifully fragrant, creamlike pulp melts in the mouth like the best ice cream, and were it not for the somewhat objectionable seeds a finer fruit could not be imagined. After sampling the locally produced cherimoya I feel no hesitancy in withdrawing the statement which I made in the United States before visiting this country that cherimoya culture had no important future in the United States. California can undoubtedly



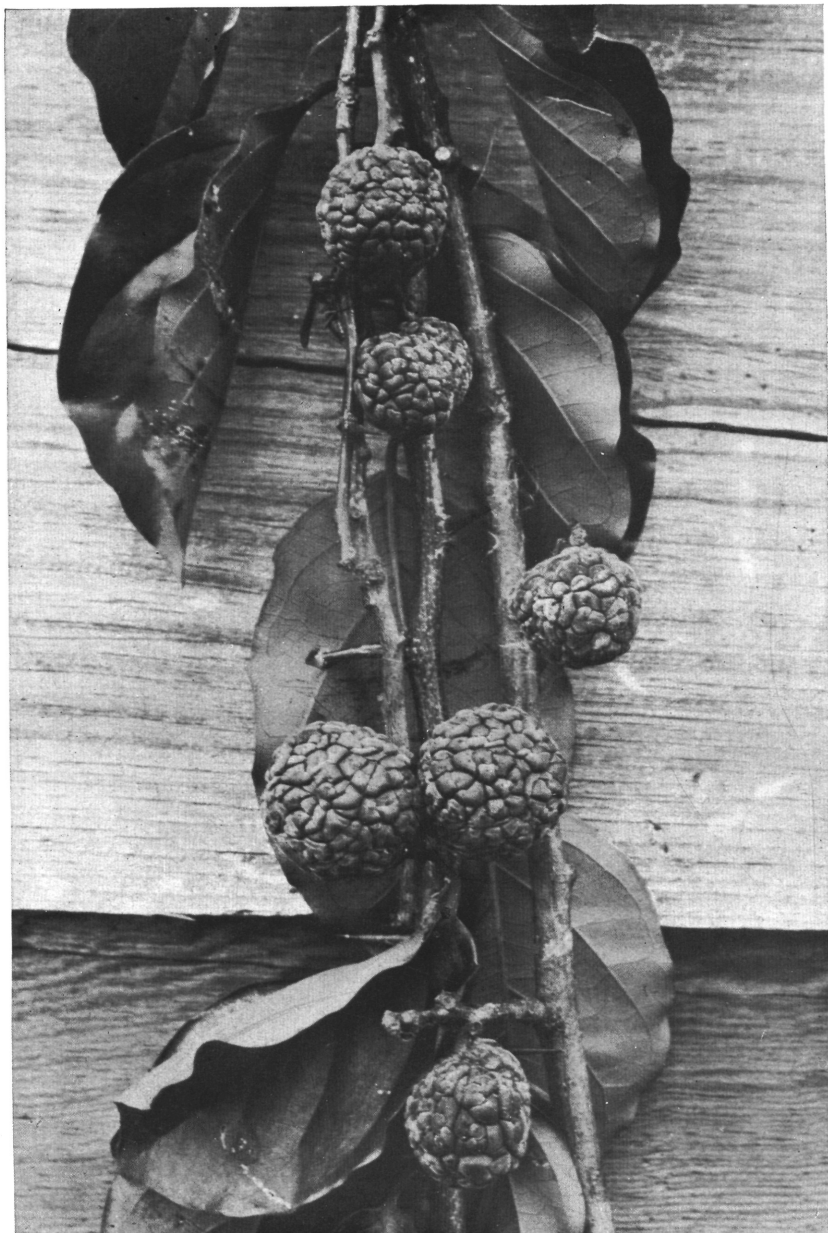
TREE OF THE VERA VARIETY OF CAROB (*CERATONIA SILIQUA* L.). (S. P. I. No. 35240.)

A young grafted tree of one of the best varieties of the carob grown in southeastern Spain. From the base of the tree a male shoot, grafted there when the tree was in the nursery, may be seen extending obliquely upward. The pods of this variety are characterized by having cavities filled with a sweet, honeylike substance, which drips out of them when the pods are broken. Photograph (P6123FS), taken by David Fairchild, July, 1901, in an orchard near Valencia, Spain.



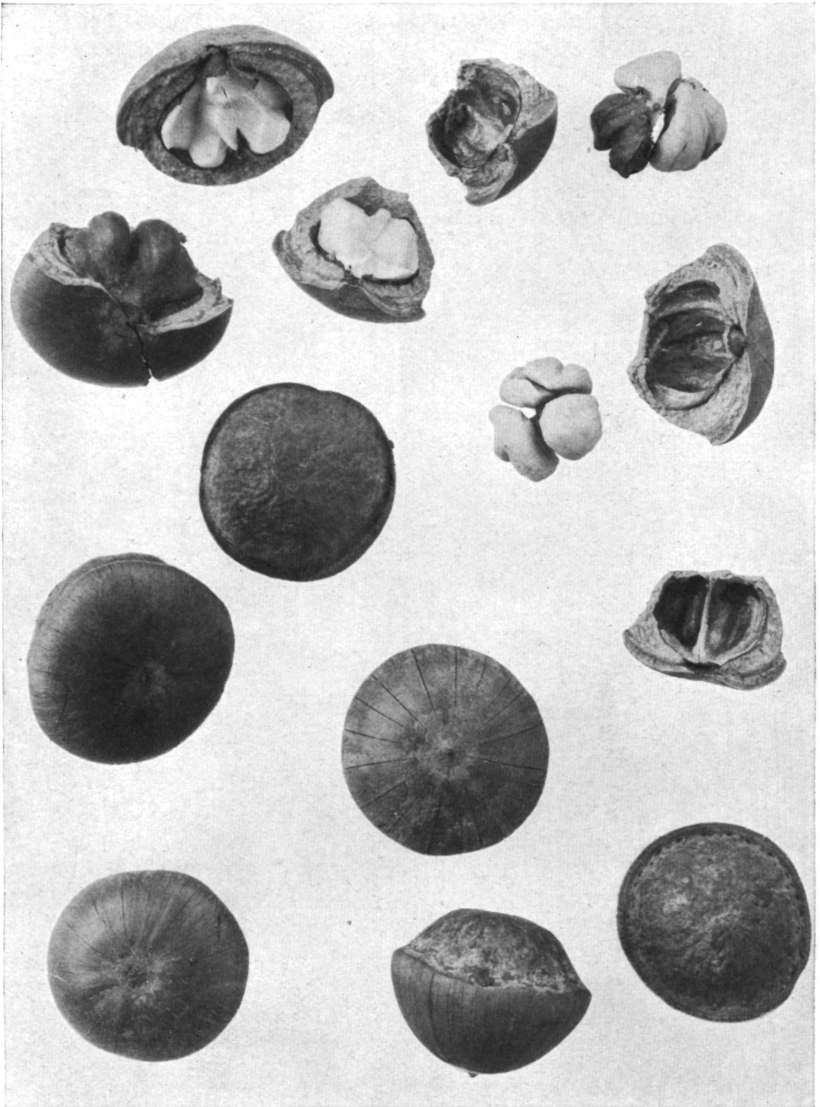
CHINESE JUJUBE TREES OF THE TANG OR SUGAR VARIETY (*ZIZIPHUS JUJUBA* MILLER). (S. P. I. No. 35256.)

In the hard-baked dooryard soil which is packed by the tread of many feet, the Chinese jujube seems to thrive. This variety is a rare one, even in the Shantung Province, and its fruits are large and much elongated. Photograph (P5826FS), taken by Frank N. Meyer, at Laoling, China, March 31, 1913.



FRUITING BRANCHES OF THE CHE TREE (*CUDRANIA TRICUSPIDATA* (CARR.) BUREAU).
(S. P. I. No. 35258.) SLIGHTLY LESS THAN NATURAL SIZE.

Unlike the Osage orange (*Toxylon pomiferum* or *Maclura aurantiaca*), to which this is related, its pink fruits are edible and though not of good quality are keenly relished by stock. The plant is spiny and can be used for hedges, and being smaller may prove to have an advantage over the Osage orange for garden-hedge purposes. A hybrid between it and the Osage orange has already been produced. It appears to be hardy as far north as Washington. Photographed by Bisset, (P10356FS), November 7, 1912, Atlanta, Ga.



EDIBLE ACORNS OF THE CHINESE OAK (*PASANIA CORNEA* (LOUR.) OERSTED). (S. P. I. No. 35320.) NATURAL SIZE.

These hard-shelled acorns of the evergreen oak of South China have brilliant white kernels which are devoid of all astringency and are as sweet as chestnuts, with the firm texture of hazelnuts. They are sold by the bushel in the markets of Hongkong. The tree is evergreen and has shown a surprising degree of hardiness for a subtropical oak. It deserves to be tested in the Gulf States. Photograph (P9595FS), April 11, 1912.

35282 and 35283—Continued.

produce at least as good cherimoyas as are raised in this country and, as soon as people acquire a taste for them and learn to know and appreciate the fruit, cherimoya culture will become quite an important addition to horticulture in that State." (*Schultz.*)

35284. VICIA ATROPURPUREA Desfontaine. Vetch.

From Tangent, Oreg. Purchased from Mr. L. B. Luper. Received May 7, 1913.
"Purple."

35285. ANNONA MURICATA L. Soursop.

From Liberia. Presented by Mr. J. W. T. Duvel, of the Bureau of Plant Industry, who received them from Mr. John D. Shanahan, who collected them on a trip to the west coast of Liberia. Received May 8, 1913.

"The fruit has a delicious but overpowering flavor, and it strikes me that it would make good flavoring for ice-cream soda and other drinks." (*J. D. Shanahan.*)

35286. EREMURUS HIMALAICUS Baker.

From Glasnevin, Dublin, Ireland. Presented by Sir F. W. Moore, director, Royal Botanic Gardens. Received May 9, 1913.

Distribution.—An herbaceous perennial with stout scapes bearing large white flowers, found on the drier slopes of the Himalayas at an elevation of 7,000 to 10,000 feet, in the northwestern part of India and in eastern Turkestan.

35287 to 35314.

Collected by Mr. Frank N. Meyer, agricultural explorer for the Department of Agriculture. Received May 10, 1913. Quoted notes by Mr. Meyer.

35287. ZIZIPHUS JUJUBA Miller. Jujube.
(*Ziziphus sativa* Gaertn.)

"*Spinosa.* (No. 1782a, Peking, China, March 18, 1913.) The wild jujube, a very spiny shrub often growing into a small tree; very drought resistant; sometimes used in China as a stock to graft the larger varieties upon. Has weedy tendencies, but may be given a test as a stock in very dry and alkaline regions. These seeds were collected on the city wall of Peking."

35288. CORYLUS MANDSHURICA Maxim. Hazelnut.

"(No. 1783a, Harbin, Manchuria, March 1, 1913.) A hazelnut found wild in the hilly parts of Manchuria, very resistant to cold and drought. The hulls of this hazelnut are very thick and hard, while the kernels are small. The people, however, collect them and eat them mostly roasted and salted, and in that way they taste very good indeed. To be tested especially in the northwest Plains section of the United States. Obtained on the market in Harbin."

35289. PINUS CEMBRA SIBIRICA Loudon. Siberian stone pine.

"(No. 1784a, Tomsk, Siberia, Feb. 1, 1913.) A native Siberian pine, growing into a stately tree, producing fine white lumber. Bears heavy cones full of edible seeds, which are freely sold in western and central Siberia. The trees naturally prefer a climate with cool nights, and probably will not thrive in the eastern United States. To be tested in the higher elevated regions of North America and in southern Alaska. Native Russian name *Kedr.* Obtained on the market in Tomsk."

35287 to 35314—Continued.

35290. *PINUS CEMBRA SIBIRICA* Loudon. **Siberian stone pine.**

“(No. 1785a, Krasnoyarsk, Siberia, Feb. 6, 1913.) This is apparently a variety with light-colored seeds; otherwise, the same remarks apply to it as to the preceding number.”

35291. *PINUS KORAIENSIS* Sieb. and Zucc. **Korean pine.**

“(No. 1786a, Harbin, Manchuria, Mar. 1, 1913.) A tall-growing pine occurring in large forests in Chosen (Korea), Manchuria, and eastern Siberia. Grows into a large tree and produces valuable lumber. The edible seeds are collected and sold as delicacies on some markets in Manchuria and eastern Siberia. To be tested in the cooler sections of the United States, especially in the Rocky Mountain region.”

35292. *PINUS KORAIENSIS* Sieb. and Zucc. **Korean pine.**

“(No. 1787a, Mukden, Manchuria, Mar. 11, 1913.) The same remarks apply to this number as to the preceding one. This and the following numbers up to 1798a, inclusive, 12 different species all told, were given to us by Dr. Nishimura, a naturalist connected with the South Manchurian Railway at Mukden, who informed me that the Japanese are trying all these trees and others besides in afforestation and reforestation experiments in Manchuria, so as to alleviate the dearth of lumber under which the southern part of Manchuria suffers now. In some of the more sheltered mountain valleys they are beginning to be quite successful already and are teaching the Chinese that it is better to plant than to cut and burn, as has been the practice heretofore.”

35293. *PINUS DENSIFLORA* Sieb. and Zucc. **Pine.**

“(No. 1788a, Mukden, Manchuria, Mar. 11, 1913.) A hardy pine, occurring in northern and central China, withstanding long droughts and alkali in the soil quite well. Not of very fast growth. The lumber is apparently of no great value, as the stems are often crooked. As an ornamental evergreen in the drier Western States it probably will serve very well, while it also may supply lumber for farm purposes.”

35294. *PINUS THUNBERGHII* Parl. **Pine.**

“(No. 1789a, Mukden, Manchuria, Mar. 11, 1913.) A well-known pine occurring in Japan, Manchuria, and China. Produces fine lumber.”

35295. *LARIX LEPTOLEPIS* (Sieb. and Zucc.) Gordon. **Larch.**

“(No. 1790a, Mukden, Manchuria, Mar. 11, 1913.) A larch common in Japan, now being experimented with by the Japanese in southern Manchuria as a timber tree. Succeeds fairly well in that dry climate, but does not make a quick growth.”

35296. *ABIES FIRMA* Sieb. and Zucc. **Spruce.**

“(No. 1791a, Mukden, Manchuria, Mar. 11, 1913.) A well-known Japanese fir, possessing value as a lumber tree, also used for ornamental purposes, being experimented with by the Japanese in southern Manchuria.”

35297. *CRYPTOMERIA JAPONICA* (L. f.) Don.

“(No. 1792a, Mukden, Manchuria, Mar. 11, 1913.) An important Japanese lumber tree, occurring also in south and central China. It is being tested by the Japanese as a timber tree in sheltered mountain valleys in southern Manchuria. Can be planted denser than perhaps any other evergreen conifer.”

35298. *CHAMAECYPARIS PISIFERA* (Sieb. and Zucc.) Endlicher.

“(No. 1793a, Mukden, Manchuria, Mar. 11, 1913.) A timber tree from Japan, now being experimented with for afforestation purposes in southern Manchuria.”

35287 to 35314—Continued.

35299. CHAMAECYPARIS OBTUSA (Sieb. and Zucc.) Endlicher.

“(No. 1794a, Mukden, Manchuria, Mar. 11, 1913.) A timber tree from Japan, now being experimented with by the Japanese in southern Manchuria for afforestation purposes.”

35300. SCIADOPITYS VERTICILLATA (Thunb.) Sieb. and Zucc.

“(No. 1795a, Mukden, Manchuria, Mar. 11, 1913.) A coniferous tree. A Japanese timber tree, experimented with like preceding number.”

35301. ZELKOVA SERRATA (Thunb.) Makino.

(*Zelkova acuminata* Planch.)

“(No. 1796a, Mukden, Manchuria, Mar. 11, 1913.) A very useful timber tree from Japan, now being experimented with by the Japanese in southern Manchuria to supply strong wood for carpentering purposes.”

35302. RHUS VERNICIFLUA Stokes.

Lacquer tree.

(*Rhus vernicifera* DC.)

“(No. 1797a, Mukden, Manchuria, Mar. 11, 1913.) The well-known lacquer tree from China and Japan, now being experimented with by the Japanese in sheltered mountain localities in southern Manchuria.”

35303. JUGLANS MANDSHURICA Maxim.

Manchurian walnut.

“(No. 1798a, Mukden, Manchuria, Mar. 11, 1913.) The Manchurian walnut, a stately timber tree, occurring in Manchuria and Japan. It is very sensitive to late frosts and on that account has proved to be a tree difficult to grow away from its native countries.”

35304. PYRUS USSURIENSIS Maxim.

Pear.

“(No. 1799a, Harbin, Manchuria, Mar. 1, 1913.) A wild pear occurring in many places in eastern Siberia, Manchuria, and North China. This pear is probably the hardest on the globe, withstanding temperatures where all other pears succumb. In central Siberia and in St. Petersburg this is the only pear that survives the winters unprotected. The fruits are rather small and inedible except after having been frozen or cooked, but the remarkable hardness of this pear puts it in the front rank as a factor in breeding experiments with the aim to create hardier pears. This pear possesses a persistent calyx and has a very short peduncle, while the true *Pyrus sinensis* has a very long peduncle and the calyx drops off perfectly as soon as the fruit is formed. There are also several important differences between the two in so far as characteristics of bark, foliage, and general looks are concerned. See notes under S. P. I. No. 20336.”

35305. SORBUS AUCUPARIA L.

Mountain ash.

(*Pyrus aucuparia* Ehrh.)

“(No. 1800a, Kozlof, Tambof Government, Jan. 21, 1913.) Forma *fructi dulcis*. A few dried fruits of a variety of rowan tree bearing berries of a pleasant, sweet taste; selected and presented to us by Mr. I. V. Mijurin, plant breeder at Kozlof, Russia. These seeds to be planted in a cool locality where the mountain ash thrives well, Portland, Oreg., for instance.”

35306. VITIS AMURENSIS × RIPARIA.

Grape.

“(No. 1801a, Kozlof, Tambof Government, Russia, Jan. 21, 1913.) A few dried fruits of a hybrid grape which is perfectly hardy in central Russia. The berries are small, but possess a good flavor, and they probably can be much improved by further selection. This hybrid was obtained by Mr. I. V. Mijurin, plant breeder at Kozlof, Russia.”

35287 to 35314—Continued.

35307. *AMYGDALUS DAVIDIANA* (Carr.) B. S. and Z. **Chinese wild peach.**
(*Prunus davidiana* Franchet.)

“(No. 1802a, Peking, China, Mar. 20, 1913.) A few seeds of this remarkable wild peach, upon which the Chinese graft practically all sorts of stone fruits. See former notes (S. P. I. No. 22009). Collected in gardens in Peking.”

35308. *RIBES* sp. **Currant.**

“(No. 1803a, Krasnoyarsk, Siberia, Feb. 6, 1913.) A species of currant bearing relatively small berries, coming from the Amur district, proving to be very hardy in the rather uncongenial climate of Krasnoyarsk. Obtained from Dr. V. M. Krutofski, in whose garden this currant bush flourishes. Of value probably in the northwestern Plains section of the United States.”

35309. *RIBES* sp. **Currant.**

“(No. 1804a, Krasnoyarsk, Siberia, Feb. 7, 1913.) A species of currant bearing relatively small berries of a dark-red color and a sourish taste. Preserves made from them have a most excellent taste. Occurs only in damp places in shady situations here and there in the northern Altai Mountains. Obtained from Mr. A. Y. Tugarinoff, curator of the Krasnoyarsk Museum, who collected them in the mountains of the southern part of the Province of Yeniseisk. The local name of this berry is *Kazirkan*; may be expected to thrive in the higher mountain regions of the United States; also in Alaska. Sow in a peaty soil and keep shady and moist.”

35310. *JUNIPERUS DAURICA* Pallas. **Juniper.**

“(No. 1805a, Chita, Transbaikalia, Siberia, Feb. 14, 1913.) A very hardy juniper of low-spreading habits, occurring only in a few localities in Transbaikalia, which possesses an extreme continental climate which is subject to tremendous fluctuations in temperature. This juniper may prove to be of value as an ornamental evergreen around homes in the northwestern Plains of the United States. Obtained from Mr. M. M. Timogovitsch, a plant collector at Chita, Siberia.”

35311. *MEDICAGO FALCATA* L. **Alfalfa.**

“(No. 1806a, St. Petersburg, Russia, Dec. 12, 1912.) Seeds of the *Burkoon*, as this plant is called in southeastern Russia. These seeds were collected in the eastern part of Russia and obtained from Mr. A. D. Woeikoff, a nurseryman and plant collector at Novospassko, Syzran Government, Russia.”

35312. *MEDICAGO FALCATA* L. **Alfalfa.**

“(No. 1807a, Issyl-kul, western Siberia, Jan. 27, 1913.) Seed of the *Sholteek*, as this yellow alfalfa is called in western Siberia. Obtained from Mr. I. M. Karsin, a gentleman much interested in the improvement of local forage plants and grains, living at Issyl-kul, western Siberia. These seeds were collected in the Omsk district, western Siberia, and are a distinct strain, different from the varieties that occur in eastern Russia.”

35313. *ONOBRYCHIS VULGARIS* Hill. **Sainfoin.**
(*Onobrychis viciuefolia* Scop.)

“(No. 1808a, Issyl-kul, western Siberia, January 27, 1913). *Sibirica*. A native west Siberian forage plant obtained from Mr. I. M. Karsin, at Issyl-kul, who believes that this western Siberian form of sainfoin is bound to play a great rôle some of these days as a late fodder crop in dry regions with short growing seasons. This sainfoin thrives best in a soil which contains considerable lime.”

35287 to 35314—Continued.**35314.** TRITICUM DURUM Desf.**Durum wheat.**

“(No. 1809a, Issyl-kul, western Siberia, January 27, 1913.) Var. *melanopus* Körnicke. A few ears of a valuable black-bearded summer durum wheat having the bracts close together. Selected by Mr. I. M. Karsin, at Issyl-kul, who finds that, in dry western Siberia, wheat with short dense ears requires less moisture to mature and is less easily injured by long drought than wheat with long, loose, open ears. This variety, *melanopus*, especially needs but little moisture to ripen fully.”

35315 to 35317. GOSSYPIUM sp.**Cotton.**

From Ibadan, Southern Nigeria. Presented by Mr. Frank Evans, Department of Agriculture. Received May 1, 1913.

35315. “*Agege*.”**35317.** “*Meko*.”**35316.** “*Ishan*.”

“The field characteristics of the *Meko* and *Ishan* varieties of cotton are very much alike, the only obvious differences being in the seed. The *Meko* has a fuzzy seed while the *Ishan* is clean seeded, with the exception of a small tuft at the beak. Although treated as annuals, both varieties are perennial and mature into tall shrubs about 15 feet high, having numerous suberect and sometimes rather drooping branches; the internodes are long, which character combined with the tall habit gives them a straggly appearance. Both varieties appear liable to the same diseases. Two diseases common in this district are confined to them and so far have not attacked the American varieties under trial. One of these diseases is a peculiar leaf-curl which affects the whole plant; the other disease is also of a very marked character and attacks the veins of the leaves, turning them black with formations of a yellow, waxy material. Both diseases are under investigation.” (*Evans.*)

“Local varieties, and have probably been grown in west Africa for 200 to 300 years. They resemble the Peruvian types in seed and lint. There is a recent English work on the agriculture of the British West African colonies which gives a chapter on the cotton of the region.” (*F. L. Lewton.*)

35318. BRASSICA INSULARIS Moris.

From La Mortola, Ventimiglia, Italy. Presented by Prof. Alwin Berger, director, Botanic Gardens. Received April 10, 1913.

“Supposed to be one of the parent forms of the garden cabbages.” (*D. N. Shoemaker.*)

35319. COCOS NUCIFERA L.**Coconut.**

From Cape San Blas. Presented by Mr. Robert Wilcox, Colon, Panama, through Mr. J. C. Kellogg, American consul. Received May 13, 1913.

“A large oval coconut.” (*O. F. Cook.*)

35320. PASANIA CORNEA (Lour.) Oersted.**Evergreen oak.**

(*Quercus cornea* Lour.)

From Hongkong, China. Purchased from Mr. H. Green, superintendent, Botanical and Forestry Department. Received at the Plant Introduction Field Station, Chico, Cal., May 12, 1913.

“An evergreen oak said to be a very showy ornamental, but interesting particularly because it bears acorns as hard shelled as the nuts of the American hickory, which

contain kernels almost as sweet as the Spanish chestnut. These acorns are sold in the markets of Canton and Hongkong in large quantities and are keenly relished, not only by the orientals, but also by Europeans. Although difficult to predict how hardy this species will be in America, it is worthy of trial in all regions where citrus fruits can be grown. A single specimen at my place in Maryland lived through two winters and grew slowly, although the temperature dropped to -17° F. It succumbed the third winter, however, although it was a very mild open one." (*Fairchild*.)

For an illustration of the hard-shelled edible acorns of this evergreen Chinese oak, see Plate VI.

35321. OPUNTIA FICUS-INDICA (L.) Miller. Prickly pear.

From Valparaiso, Chile. Presented by Mr. W. F. Wight, of the Bureau of Plant Industry. Received May 14, 1913.

Cuttings.

35322. CAPSICUM ANNUUM L. Red pepper.

From Budapest, Hungary. Presented through Mr. F. E. Mallett, vice consul general. Received May 15, 1913.

"Seeds from the Kalocsa district."

35323. MIDA ACUMINATA (R. Br.) Kuntze. Quandong.
(*Fusanus acuminatus* R. Br.)

From Sydney, New South Wales, Australia. Purchased from Anderson & Co. Received at the Plant Introduction Field Station, Chico, Cal., March 10, 1913.

"The quandong, which is found in all the States of the Commonwealth except Tasmania, is a beautiful evergreen tree, finally attaining a height of about 30 feet. It has opposite lance-shaped leaves, mostly 2 or 3 inches long, and rather numerous insignificant flowers arranged on small, terminal branches. These are succeeded by globular fruits, about three-fourths of an inch in diameter, of a reddish color when ripe, and in that condition are often called 'native peaches.' When the quandong is carrying a crop of fruit the smaller branches often become pendulous from the weight of it, and then the tree is decidedly ornamental and produces a very fine effect in the landscape. The succulent outer part of the fruit is acidulous, but can be made into an excellent preserve and jelly, having a flavor somewhat similar to guava conserve. It can also be used for tarts or pies or served with cream. The outer covering, after the nuts have been extracted, may be dried either in the sun or in an evaporator. The nuts, which are called quandongs, have edible and nutritious kernels of a very pleasant flavor. They contain a large percentage of oil, which burns readily, producing a bright light. The oil can be expressed from the kernels by ordinary methods, and may eventually prove of considerable commercial importance. The hard, curiously and deeply pitted nuts are often pierced and strung as necklaces, bracelets, and other ornaments and are much prized for such purposes. These inland quandongs must not be confounded with those that grow in the warmer coast districts, for they are produced on a different kind of tree, of which the botanical name is *Elaeocarpus grandis*. The trunk of the inland quandong is not of great dimensions, for it rarely exceeds 8 or 9 inches in diameter. Its timber is hard, close in the grain, not liable to split or warp, and when mature of a yellowish color. It is easy to work, and on being freshly cut or reworked emits a pleasant fragrance. It is suitable for turnery and cabinet work, and has been recommended for wood engraving. The smooth surface takes a fine polish. At one time the wood of the quandong was employed by the aborigines in the interior to produce fire, and the fruit, including the nut, constituted

an important article of their food. The leaves are useful feed for stock in adverse seasons, and both cattle and sheep often eat the young seedlings and taller plants even when other feed is plentiful in the pastures. In consequence of this, the tree is not so plentiful in some districts as formerly. This tree is well worth extensively planting in the interior about homesteads, from both an ornamental and an economic point of view. The drought-enduring qualities of established trees are remarkable, for their growth seems to be neither seriously affected by the hot winds that are periodically experienced in summer nor by the long periods of dry weather which prevail in adverse seasons. There would be no difficulty in bringing it under systematic cultivation, for when left unmolested for a time it produces quantities of fruit, and under ordinary conditions the nuts germinate readily. Under cultivation the succulent portion of the fruit might be considerably increased and the kernel enlarged, which would add greatly to its importance as a fruit and nut producing tree. Plants grown from seeds in nursery rows do not bear transplanting very well, for if the root system of the young seedlings is disturbed they will take some time to recover or they may eventually die. The nuts, therefore, should be planted where it is intended that the trees are to grow permanently, and the best time to do this is in the early autumn or early spring, when the earth is moist. The nuts should be left covered with about 1 inch of soil. If the trees are intended for growing in rows or in groups, the nuts should be planted not less than 15 feet apart, and it is advisable to set two together in case one fails to germinate. Should both germinate, the weaker of the two seedlings should be cut out when about 2 years old. The following method of raising seedlings I have found very successful: In 3-inch flower pots that have been drained and filled nearly to the brim with a light compost, one nut was planted in the center of each, and left covered with a quarter of an inch of soil. The pots were then plunged to the rim in a bed of ashes in a sunny position and regularly watered. In a short time the nuts germinated, and the young seedlings were large and strong enough for transplanting in about 18 months. The young plants I had under cultivation made about 1 foot of growth annually. Germination may, under some conditions, be facilitated by slightly cracking the nut, but very great care must be taken not to injure the kernel containing the germ. Only the best developed nuts from the ripest fruits should be selected for planting, then there will be no difficulty in getting them to germinate and develop into strong plants." (*Fred Turner, F. L. S., Sydney Morning Herald, Dec. 16, 1912.*)

For an illustration of the dried fruit and nuts of the Australian quandong tree, see Plate VII.

35324 to 35399.

From Bangalore, Mysore, India. Presented by Mr. G. H. Krumbiegel, economic botanist, Government Gardens. Received March 24, 1913.

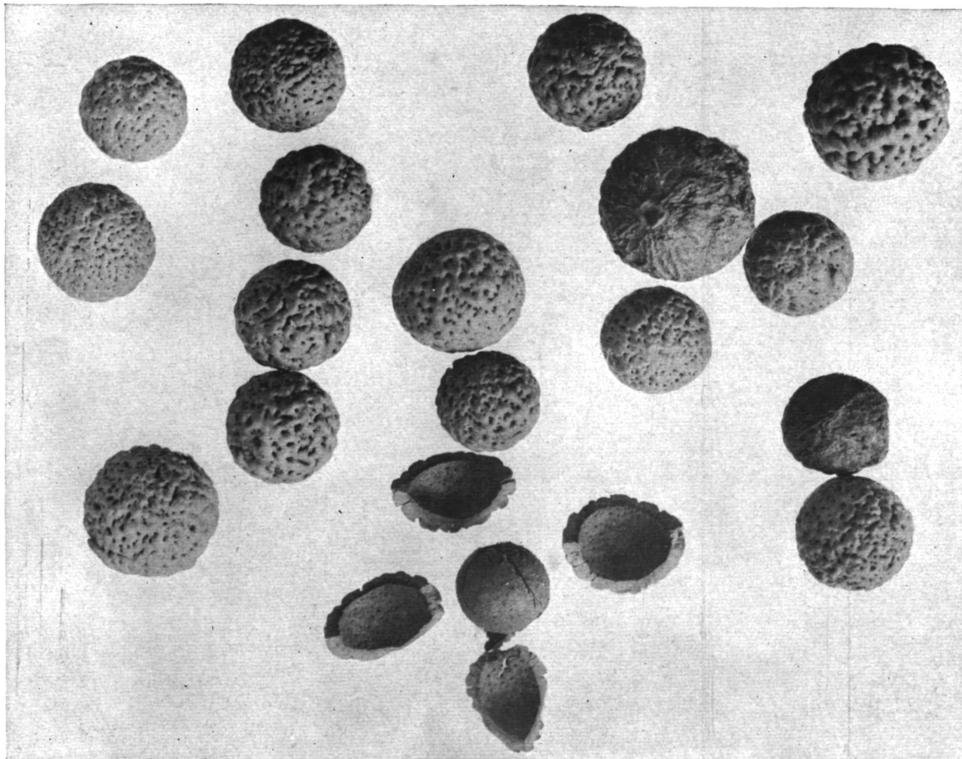
Numbers in parentheses are exhibit numbers in the Official Handbook of Exhibits of the Mysore Dasara Industrial and Agricultural Exhibition, 1912, in which certain details concerning the yields and methods of cultivation of the respective numbers are given.

Seeds of the following:

- | | | |
|------------------------|--------------------------------|--------------|
| 35324 to 35331. | ELEUSINE CORACANA (L.) Gaertn. | Ragi. |
| 35324. | (725) White. | |
| 35325. | (743) White, large seeded. | |
| 35326. | (751) Dark red, large seeded. | |
| 35327. | (754) Yellowish red. | |

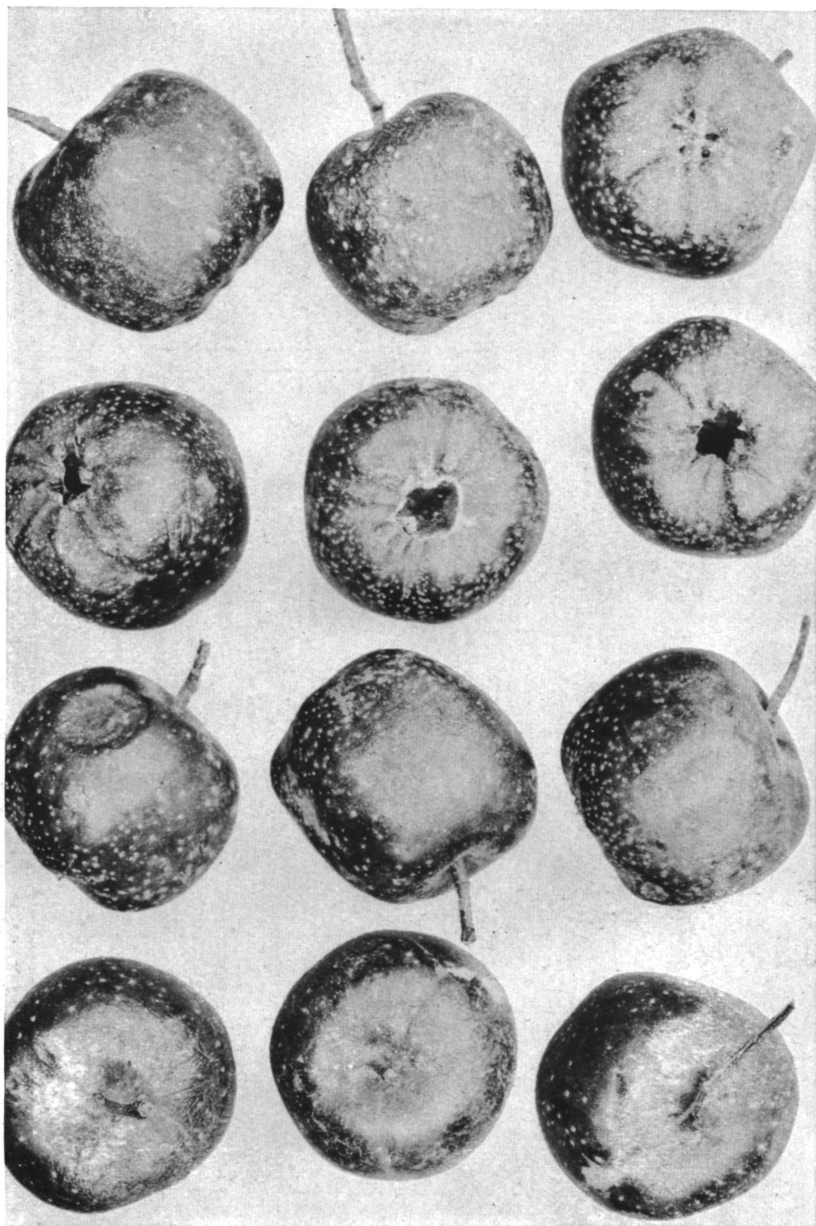
35324 to 35399—Continued.

35328. (769) Light red, retaining the pericarp.
35329. (773) Black and red seed (the common kind).
35330. (796) Light red, large seeded.
35331. (798) White, easily decorticated.
35332. *PASPALUM SCROBICULATUM* L. **Kodo.**
(807, 813, 822, 825, 830.)
Distribution.—A grass found throughout the warmer parts of India, wild and cultivated, and generally distributed in the Tropics.
35333. *PENNISETUM GLAUCUM* (L.) R. Brown. **Pearl millet.**
(*Pennisetum typhoideum* Rich.)
(1138.)
- 35334 to 35336. *PANICUM MILIARE* Lamarck. **Little millet.**
35334. (949, 1023, 1025.)
Distribution.—A grass found in India and generally introduced in the Tropics.
35335. (1027, 1063.) 35336. (993, 1070.)
- 35337 to 35342. *CHAETOCHLOA ITALICA* (L.) Scribner. **Millet.**
(*Setaria italica* Beauv.)
35337. (939) Siberian millet.
35338. (944) Siberian millet.
35339. (946) Common millet.
35340. (965) Common mixed with Hungarian and Siberian millets.
35341. (1072) Siberian millet.
35342. (1076) Hungarian millet.
- 35343 to 35345. *DOLICHOS BIFLORUS* L.
35343. (1223.)
35344. (1237.)
35345. (1213, 1221, 1233, 1243, 1248.)
35346. *PHASEOLUS MUNGO* L. **Urd.**
(1294, 1295, 1300.)
35347. *PHASEOLUS AUREUS* Roxb. **Mung bean.**
(1313, 1318, 1327.)
35348. *CAJAN INDICUM* Sprengel. **Pigeon pea.**
(1169, 1204, 1205, 1206.)
35349. *VIGNA CYLINDRICA* (Stickman) Skeels. **Catjang.**
(*Vigna catjang* Walp.)
(1331, 1333, 1334, 1335.)
35350. *VIGNA CYLINDRICA* (Stickman) Skeels. **Catjang.**
(1329, 1332.)
- 35351 to 35354. *DOLICHOS LABLAB* L. **Bonavist bean.**
35351. (1367, 1385.)
35352. (1362, 1372.)
35353. (1349, 1354, 1365.)
35354. (1350, 1374, 1380, 1381, 1383, 1384, 1386.)



DRIED FRUITS AND NUTS OF THE AUSTRALIAN QUANDONG (*MIDA ACUMINATA* (R. BR.) KUNTZE).
(S. P. I. No. 35323.) NATURAL SIZE.

A low-growing evergreen tree with remarkable drought-resistant qualities, which when loaded with its reddish fruits becomes very ornamental. The ripe fruits, called native peaches, are good stewed or when made into preserves, resembling in flavor the guava. The nuts have oily kernels of a pleasant flavor and are sold as quandongs. They were to the aborigines of Australia what almonds are to us. The leaves are greedily eaten by cattle and sheep, even when other forage is plentiful. Recommended in Australia for extensive planting around homesteads. Photograph (P11332FS), June 19, 1913.



THE CHINESE EDIBLE HAW (*CRATAEGUS PINNATIFIDA* BUNGE). (S. P. I. No. 35456.)
NATURAL SIZE.

In the Shantung Province of China, Mr. Frank N. Meyer found orchards of this hawthorn of considerable size. The fruits are stewed or candied or made into jellies or preserves, and their characteristic flavor seems to have appealed strongly to European residents of China. The culture of the hawthorn in China suggests that a horticultural study of our own species of *Crataegus* should be made. Photograph (P13072FS), by Frank N. Meyer, Taianfu, Shantung, China, March 20, 1914.

35324 to 35399—Continued.

35355 to 35367. PANICUM MLIACEUM L.

Proso.

35355. (1165) Dark amber seed mixed with yellow and gray.
 35356. (941) Dark amber, few gray.
 35357. (1153) Amber, yellow, and gray.
 35358. (1166) Gray seed mixed with amber and yellow.
 35359. (994) Dark amber and gray.
 35360. (1157) Gray, amber, and yellow.
 35361. (1167) Gray, dark amber, and yellow.
 35362. (1160) Dark amber and gray mixed.
 35363. (1164) Amber, gray, and yellow.
 35364. (1154) Gray seed mixed with amber.
 35365. (1158) Gray seed.
 35366. (1156) Gray seed mixed with amber and yellow.
 35367. (1163) Dark amber seed mixed with gray.

35368 to 35372. GUIZOTIA ABYSSINICA (L. f.) Cass.

Niger.

"An annual herb from tropical Africa grown in oriental countries for its oil-producing seeds. Thrives well in southern California and the Gulf States, but requires a growing season too long for culture in the North. Grows readily in light soils of moderate fertility." (*W. Van Fleet.*)

35368. (1456.) 35371. (1446.)
 35369. (1443.) 35372. (1447.)
 35370. (1444.)

35373 to 35380. SESAMUM ORIENTALE L.

Sesame.

(*Sesamum indicum* L.)

"Annual herb, native to India and Egypt. Grown extensively in the Orient for its oil-bearing seeds. Succeeds everywhere in warm and temperate climates. Prefers light, warm soils." (*W. Van Fleet.*)

35373. (1426.) 35377. (1428.)
 35374. (1434.) 35378. (1432.)
 35375. (1421.) 35379. (1417.)
 35376. (1430.) 35380. (1433.)

35381 to 35399. RICINUS COMMUNIS L.

Castor bean.

"A treelike perennial, native of tropical Africa. Grown as an annual in northern countries for its oil-containing seeds. Succeeds over the greater portion of the United States." (*W. Van Fleet.*)

35381. (1482.) 35391. (1476.)
 35382. (1468.) 35392. (1467.)
 35383. (1500.) 35393. (1464.)
 35384. (1497.) 35394. (1511.)
 35385. (1478.) 35395. (1503.)
 35386. (1481.) 35396. (1504.)
 35387. (1498.) 35397. (1505.)
 35388. (1480.) 35398. (1488.)
 35389. (1483.) 35399. (1489.)
 35390. (1484.)

35400. ARRACACIA XANTHORRHIZA Bancr. Apio.

From Caracas, Venezuela. Presented by Mr. H. Pittier, of the Bureau of Plant Industry. Received May 24, 1913.

"This plant is cultivated in the cooler mountain districts of northern South America, where the roots form the staple diet of the inhabitants. The plant is somewhat like the wild hemlock (*Conium maculatum*) but its leaves are broader, its stem not spotted, and its flowers are of a dingy purple color; the roots are large and are divided into several fleshy lobes of the size of a carrot, which when boiled are firm and have a flavor intermediate between that of a chestnut and a parsnip." (*Masters, Treasury of Botany.*)

"Here the plant grows only in the mountains above 1,500 meters. I do not know whether it reaches the freezing line, but everybody says it does not thrive at lower altitudes." (*Pittier.*)

Tubers.

35401. MEDICAGO SATIVA L. Alfalfa.

From China. Presented by Rev. Horace W. Houlding, South Chihli Mission, Tai Ming-Fu, North China. Received May 27, 1913.

"Seed grown on the mission farm in Chihli Province. This is self-seeded wild alfalfa, called by the natives *Yeh-mu hsu*, which means 'wild alfalfa'. It was grown on high, uncultivated land. Seed was taken from very low grown prostrate plants which bear blue flowers and coiled pods. Plants appear very much like white clover. Collected August, 1912." (*Houlding.*)

35402. AGROPYRON CRISTATUM (L.) Beauv.

From Irkutsk, Russia. Presented by Mr. Victor Pissareff, director, Agricultural Experiment Station of the Government of Irkutsk. Received April 28, 1913.

35403 to 35412. MANGIFERA spp. Mango.

From Buitenzorg, Java. Presented by Dr. J. C. Koningsberger, director, Botanic Garden. Received May 20, 1913.

Rooted cuttings of the following, except as otherwise stated:

35403. MANGIFERA FOETIDA Lour.

"(No. 1.) Var. *mollis* Blume. *Mangga daging.*"

M. foetida is described as follows:

"Petals one twenty-fifth to two-fifths inch long, elliptical lanceolate; at the base yellow, for the remaining part dark red except the top, which is colored less dark red. The flowers lose more or less of their colors at the time of fading, Stamen one, filament one-fifth to two-fifths inch long. Style almost terminal, one-fifth inch long more or less. Disk almost absent. Fruit elliptical oblong. oblique. Leaves elliptical; tip generally slightly emarginate, very thick and firm, more or less plaited, 5 to 13 inches long, 2 to 5 inches broad. Tree 60 to 90 feet high. Flowering period, May to December. Fruit flesh yellow, with the smell and flavor of turpentine. The fruits are eaten by the natives, who often cultivate this species." (*Letter from the Director, Buitenzorg Botanic Gardens, May 29, 1915.*)

"Var. *mollis* Blume having medium sized, delicious fruits, appears to us from the leaf to belong rather to *M. indica* than to *M. foetida*; the native name *mangga* (not *limoes*) points to this, and the taste of the fruit (entirely without bad odor or resinous) likewise." (*Koorders and Valetton, Boomsorten van Java, pt. 4, p. 90.*)

Distribution.—A large tree found throughout the islands of the Malay Archipelago.

35403 to 35412—Continued.**35404 to 35411. MANGIFERA INDICA L.**

Malay names.

35404. "(No. 2.) *Mangga arvemania*."**35405.** "(No. 3.) *Mangga golek*."

Seedling.

35406. "(No. 4.) *Mangga madoe*."

Seedlings.

35407. "(No. 5.) *Mangga tjëngkir*."**35408.** "(No. 6.) *Kapang. Mangga kapang*."**35409.** "(No. 7.) *Cheribon. Mangga gëdong* or *cheribon*."**35410.** "(No. 8.) Var. *compressa. Mangga bëngala*."**35411.** "(No. 9.) Var. *gratissima. Mangga wangië*."**35412. MANGIFERA sp.**

Plant received without label.

35413 to 35416.

From Manila, Philippine Islands. Presented by Mr. O. W. Barrett, chief, Division of Horticulture, Bureau of Agriculture. Received May 19, 1913.

Seeds of the following; quoted notes by Mr. Barrett:

35413. HERITIERA LITTORALIS Dryander.**Dungon-late.**

"A medium-sized tree with a dense crown, leaves entire, leathery, dark green above and silvery beneath. The wood is very hard and durable and classed among the best of the Philippine hardwoods. The tree is a good ornamental and makes an excellent windbreak. It succeeds best on moist land and grows well even in the proximity of salt water."

Distribution.—Along the coasts of India and islands as far as the Khasia Hills; generally distributed on the coasts in the Tropics of the Old World.

35414. IPOMOEA sp.

"Convolvulaceæ. A climber of medium vigorous growth with pure white, very attractive flowers that are open until in the afternoon; season of flowering, winter."

35415. OROXYLON INDICUM (L.) Vent.**Pinkapinkahan.**

"A striking ornamental tree of the Bignoniaceæ; it attains a height of 5 or more meters, with large compound leaves 1.5 meters long."

35416. ZIZIPHUS TRINERVA (Cavan.) Poir.**Ligaa.***(Ziziphus exserta DC.)*

"A tall shrub or small, thorny tree of vigorous growth. This species may prove a good stock for the improved varieties of *Ziziphus jujuba* in the Tropics, where this species does not succeed well on its own roots. It should be planted on well-drained land."

Distribution.—The vicinity of Manila in the island of Luzon.

35417. SMILAX OFFICINALIS H. B. K.**Sarsaparilla.**

From San Ramon, Costa Rica. Presented by Mr. Ad. Tonduz, botaniste explorador. Received May 22, 1913.

"In my explorations in the region of San Ramon I have met with a smilax (*zarzaparilla*) which I believe to be the true *S. officinalis* cultivated in Jamaica. It is very abundant here and wild in the woods."

Distribution.—A woody climber found in Colombia and Panama.

35418. CARICA PAPAYA L.**Papaya.**

From Merida, Yucatan, Mexico. Presented by Mr. Arturo Zavala. Received May 19, 1913.

35419 to 35425.

From Russia. Presented by Mr. Alexander Kol, Russian Government Assistant Agricultural Commissioner, St. Louis, Mo. Received May 21, 1913.

35419. TRIFOLIUM SUAVEOLENS Willd.**Persian clover.**

"Russian Agricultural Agency No. 134. Shabdar, Charkof Selection Station No. 77.

35420. MEDICAGO SATIVA L.**Alfalfa.**

"Russian Agricultural Agency No. 135. Tambof, Charkof Experiment Station No. 3.

35421. MEDICAGO SATIVA L.**Alfalfa.**

"Russian Agricultural Agency No. 136. Common local alfalfa from Government of Crimea, Charkof Experiment Station No. 5.

35422. AGROPYRON sp.

"Russian Agricultural Agency No. 301. Wheat-grass with narrow ears. Kostichef Experiment Station, Samara.

35423. AGROPYRON CRISTATUM (L.) Beauv.

"Russian Agricultural Agency No. 303. *Zhitniak*. Wheat-grass with broad ears. Kostichef Experiment Station, Samara.

35424. TRIFOLIUM INCARNATUM L.**Crimson clover.**

"Russian Agricultural Agency No. 137. Clover. Charkof Selection Station No. 78.

35425. LATHYRUS SATIVUS L.

"Russian Agricultural Agency No. 309. Flat field peas. Verchnedneprovsky Experiment Field, Yekaterinoslav.

35426. BRASSICA PEKINENSIS (Lour.) Skeels.**Pai ts'ai.**

Grown at Arlington Farm from S. P. I. No. 21625, 1912 seed. Received May 16, 1913.

"*Pai ts'ai.*"

35427 and 35428. MEDICAGO SATIVA L.**Alfalfa.**

From Lima, Peru. Purchased from Dr. C. H. T. Townsend, chief entomologist, Peruvian Department of Agriculture. Received May 14, 1913.

Seeds of the following; quoted notes by Dr. Townsend:

35427. "*Chanca*y. Comes from the Sierra inside from Chanca'y, thus grown at considerable altitude."

35428. "*San Pedro*. Comes from near Pacasmayo, grown near sea level, produces sooner and with less water."

35429 to 35434.

From the Argentine Andes, south of Lago Nahuel Huapi. Presented by Dr. Bailey Willis. Received March 31, 1913.

35429 to 35434—Continued.

Seeds of the following; quoted notes by Dr. Willis:

35429. BROMUS sp.

“(No. 1.) Andes of Argentina, latitude 41° S., near Lago Hess. Burnt mountain slopes, soil volcanic ash; altitude 800 meters. A grass growing in bunches waist high. Reported good horse feed and doing well when irrigated.”

35430. ELYMUS sp.

“(No. 2.) From same locality as No. 1 (S. P. I. No. 35429). Prevailing pasture grass of the burnt forests. Said to be excellent feed and to be cultivated by the Chilean Indians, who cut it for hay.”

35431. AGROSTIS sp.

“(No. 3.) From same locality as above (S. P. I. No. 35430). *Pasto Araña*, or spider grass. A fine red grass not considered valuable for feed.”

35432. JUNCOIDES sp.

“(No. 4.) Andes of Argentina, latitude 41° 30' S. Planicie del Toro on Rio Villegas. Altitude 900 meters. *Pasto Colorado*, a common 'grass' of the northern pampas; not abundant here in the mountains at this altitude.”

35433. ELYMUS sp.

“(No. 5.) From the same locality as No. 4 (S. P. I. No. 35432). *Cevarilla*, a grass that grows like wheat in moist places and is much valued for pasture.”

35434. TORRESIA sp.

“(No. 6.) From the same locality as Nos. 1 and 2 (S. P. I. Nos. 35429 and 35430). *Coiron*, the prevailing bunch-grass of the pampas of Patagonia, but common here in the dry gravelly bench lands and plains.”

“All these grasses thrive and ripen where heavy frosts are frequent throughout the summer.”

35435 to 35443. MEDICAGO SATIVA L.**Alfalfa.**

From Poona, India. Presented by Mr. T. Forster Main, deputy director of agriculture. Received May 23, 1913.

“From botanical examination it seems that practically the specimens do not show any appreciable difference, the only slight differences which were noticed being the more or less hairy nature of the leaves, the prominent or obscure tothing of their margins, the more or less emargination of their tips, and the smaller or larger size of the same.” (*Extract from his letter of April 4, 1913.*)

Seeds of the following:

35435. “No. 1. *Rajkot.*”

35437. “No. 3. *Rajkot.*”

35436. “No. 2. *Rajkot.*”

35438. “No. 4. *Junagar.*”

35439. “No. 5. *Bhavnagar.* Less hairy, large leaflets, 1½ inches to 1¼ inches long by one-fourth to one-half inch, oblanceolate, less emarginate, teeth rather obscure.”

35440. “No. 6. *Manavadar.* Small obovate-cuneate leaflets three-fourths to 1 inch long by one-fifth to one-fourth inch broad, hairy on the under surface, midrib, and nerves, with the apex emarginate and retuse.”

35441. “No. 7. *Januagar.*”

35442. “No. 8. *Palitana No. 1.* Teeth of the leaflets more prominent. Inferior quality.

35443. “No. 9. *Palitana No. 2.* More or less like *Manavadar.* Good variety.”

35444 to 35448. HEDYSARUM spp.

From Albano, Stockholm, Sweden. Presented by Dr. Veit Wittrock, director of the Botanic Gardens. Received March 31, 1913.

- 35444.** HEDYSARUM ALTAICUM Fisch.
(*Hedysarum polymorphum* Ledeb.)

Distribution.—The region of the Altai Mountains, in Siberia.

- 35445.** HEDYSARUM FLAVESCENS Regel and Schmalh.

See S. P. I. No. 33304 for previous introduction.

- 35446.** HEDYSARUM HEDYSAROIDES (L.) Stuntz.
(*Hedysarum obscurum* L.)

“A hardy perennial from the Alps of Germany and Switzerland. It rarely exceeds a foot in height and produces its spikes of pendulous flowers, which are of a most beautiful purple color, in July and August.” (*Botanical Magazine*, pl. 282.)

See S. P. I. No. 33306 for previous introduction.

- 35447.** HEDYSARUM MULTIJUGUM Maxim.

Distribution.—A shrubby legume found in desert places in southern Mongolia and in the Province of Kansu, in China.

- 35448.** HEDYSARUM ALPINUM L.
(*Hedysarum sibiricum* Poir.)

“A very ornamental hardy perennial from Siberia. Stem tall, branched, fluted. Leaves odd pinnate, leaflets about 12 pairs, ovate, obtuse with a small mucro, ribbed with parallel veins on the underside. Flowers crimson, in long racemes, on foot stalks longer than the leaves, produced abundantly from May to August. (*Botanical Magazine*, pl. 2213.)

35449 to 35455.

From Los Banos, Philippine Islands. Presented by Mr. C. F. Baker, University of the Philippines, College of Agriculture. Received May 24, 1913.

Seeds of the following:

- 35449.** FICUS ULMIFOLIA Lamarck.

Fig.

“A very good edible form of this common Philippine fig. Occasional individual trees of this small fig give very sweet and very palatable fruits. It should certainly be a subject for some breeding and selection work. Figs for moist, hot countries are a great desideratum.” (*Baker*.)

- 35450.** MYRISTICA PHILIPPENSIS Lamarck.

Wild nutmeg.

“*Dugóan.*” A fine tree. Apart from the interest in this fine forest tree as a wild nutmeg, it is a tree of great ornamental value for the wet Tropics. (*Baker*.)

“This is a small or medium sized tree reaching a height of 15 to 25 meters and a diameter of 60 or more centimeters. The bole is usually somewhat irregular, slightly buttressed, and yields lengths up to 12 meters. The crown is irregular and somewhat dense, about one-third the height of the tree. This species is found scattered throughout the dipterocarp forests. It requires good soil and is fairly tolerant to shade. The bark is 4 to 6 millimeters in thickness, nearly black in color, with light-brown patches where freshly shed; the inner bark is brown to reddish brown in color and when cut exudes a thin red sap. The sapwood is very light creamy pink in color; the heartwood is slightly darker in color, soft, moderately heavy, not durable, and somewhat spongy in texture. It is used locally for light and temperate constructions, boxes, and dry measures.” (*H. N. Whitford, The Forests of the Philippines*, pt. 2, 1911.)

35449 to 35455—Continued.

35451. PITHECOLOBIUM ANGULATUM Bentham.

“Ornamental small tree.” (Baker).

35452. PITHECOLOBIUM LOBATUM Bentham.

“Small tree with very large ornamental red pods. Valuable as a tropical ornamental, especially so far as the red pods, in which, after they open, the blue seeds hang for a long time.” (Baker).

“This Pithecolobium goes under the name of *Anagap*, or *Bansilak*. It is a small or medium sized tree, with large red, deeply lobed and curved pods. The wood of this tree is used to some extent.” (H. N. Whitford, *The Forests of the Philippines*, pt. 2, 1911.)

35453. PREMNA ODORATA Blanco.

(*Premna pubescens* Blume.)

“The leaves are rich in an unknown essential oil, which possesses marked insecticidal power. The leaves dried and powdered are used by the natives for lice on poultry and other animals.” (Baker.)

35454. SIDEROXYLON sp.

“A large, fine, forest tree in an interesting group. Will be of great interest in tropical gardens.” (Baker.)

35455. STREBLUS ASPER Loureiro.

Kalios.

“An ilex-leaved moraceous tree. Produces large quantities of subedible juicy fruit of small size. Cultivation and selection might easily make something of value of it some day.” (Baker.)

“This is a small tree known as *Kalios* and is common in second-growth forests.” (H. N. Whitford, *The Forests of the Philippines*, pt. 2, 1911.)

Distribution.—The drier parts of India and eastward through China, Cochin China, and the Malay Archipelago and the Philippines.

35456 to 35458.

Collected by Mr. F. N. Meyer, agricultural explorer for the Department of Agriculture. Received May 27, 1913.

Quoted notes by Mr. Meyer.

35456. CRATAEGUS PINNATIFIDA Bunge.

Hawthorn.

“(Tsinan, Shantung, China, April 9, 1913.) A Chinese cultivated edible haw called *Hong kuo* much used by the Chinese as a sweetmeat, being eaten mostly covered with molten sugar; also stewed with sugar or honey. Foreigners in China make much use of them as preserves, compotes, jellies, and cake fillings. They are also served stewed with game, meats, and as a tarty side dish. This haw deserves the highest consideration of the American public as a new fruit for the home, as the flavor is of such a nature that it appeals straightway to practically all European and American people. The trees are slow growers and thrive especially in sandy but rich soil and in regions where the summers are warm and the winters only moderately cold. They are able to withstand considerable drought.”

For an illustration of the edible fruit of this Chinese cultivated hawthorn, see Plate VIII.

35457. PYRUS CHINENSIS Lindley.

Pear.

(*Pyrus sinensis* Lindl.)

“(Tsinan, Shantung, China, April 5, 1913.) A large, coarse variety of Chinese pear, called *ma huang li*, meaning ‘yellow horse pear.’ Grown in the vicinity of Tsinan, Shantung. The pear possesses a very agreeable aroma, but a coarse, watery flesh, like so many of the Chinese pears.”

35456 to 35458—Continued.

35458. *CHAENOMELES CATHAYENSIS* (Hemsl.) Schneider. **Quince.**
(*Pyrus cathayensis* Hemsl.)

“(Tsinan, Shantung, China, April 4, 1913.) The Chinese quince, which is used by the rich Chinese as a room perfumer, but foreign missionaries have learned to use it for making preserves and jellies. The Chinese call it *mu kua*, meaning ‘wooden gourd.’ This species is said to have come from Chowcho, Shantung Province.”

35459. LOVOA SWYNNERTONII E. G. Baker.

From Mount Silinda, Masetter, Rhodesia. Presented by Mr. O. J. Omer, American Board Mission in South Africa, through the United States Forest Service. Received May 27, 1913.

“Brown mahogany. This tree produces a splendid dark-brown wood of great strength and durability and is found only in our forest here at Mount Silinda (the only forest of large trees in Rhodesia). The tree grows to a height of 150 to 200 feet, diameter 5 to 8 feet, a 150-foot tree requiring about 150 years for growth. It is, I understand, a true mahogany, and it is because of its rareness that I thought you might take an interest in experimenting with it in America. The temperature here varies from about 30° F. in the cold season to about 80° F. in the shade during the summer months; rainfall, 70 inches, more than half of this falling during the three summer months; elevation, 5,000 feet; distance to sea, 150 miles; prevailing winds from the sea.” (Omer.)

“It is a fact worth mentioning that other trees from Rhodesia have done particularly well in Florida.” (David Fairchild.)

35460. PIPER NIGRUM L.**Black pepper.**

From Malay Peninsula. Presented by Mr. I. Henry Burkhill, director of the Botanic Gardens, Singapore, Straits Settlements. Received April 14 to 16, 1913.

“A woody climber, native to the Old World Tropics, widely grown for its aromatic berries, from which the black pepper of commerce is made. May succeed in extreme southern Florida.” (R. H. True.)

35461 and 35462. ASPARAGUS spp.**Asparagus.**

From Jerusalem, Palestine. Presented by Mr. Ernest F. Beaumont. Received May 27, 1913.

35461. *ASPARAGUS PALAESTINUS* Baker.

Distribution.—A wild asparagus found along the banks of the Jordan, in Palestine.

35462. *ASPARAGUS ACUTIFOLIUS* L.

Plants.

35463. JUGLANS REGIA L.**Walnut.**

From Tabriz, Persia. Presented by Mr. Gordon Paddock, American consul. Received May 31, 1913.

“From a tree known to bear the finest variety of the soft-shelled walnut to be had in this district.” (Paddock.)

Cuttings.

35464. CITRUS sp.**Orange.**

From Bas Obispo, Canal Zone. Presented by Mr. S. P. Verner. Received May 29, 1913.

"The finest oranges I ever saw." (*Verner.*)

Cuttings.

35465. HIPPEASTRUM spp.**Amaryllis.**

A mixed collection of amaryllis grown at the greenhouses of the Department of Agriculture, Washington, D. C.

"These seedlings were raised from 13 crosses of named sorts under numbers, and I find that after the crosses were made the bulbs were renumbered, so I am unable to give their pedigree. My records show the crosses were made February 12, 14, 16, and 18, 1910. The seed was gathered March 26 and sown March 29, 1910. Seedling bulbs were potted into 2-inch pots from seed boxes June 2, 1910. The seedling bulbs were grown without a check and flowered in January and February, 1912. On February 27, 1913, we had on exhibition 580 of these amaryllis bulbs in flower at one time." (*E. M. Byrnes.*)

35466 to 35469.

From Manila, Philippine Islands. Presented by Mr. O. W. Barrett, chief, Division of Horticulture, Bureau of Agriculture. Received May 31, 1913.

Seeds of the following; quoted notes by Mr. Barrett:

35466. CUCUMIS SATIVUS L.**Cucumber.**

"Form oblong, transversely more or less triangulate, slightly concave; average weight 0.85 kilogram; color brown, surface cracked exposing the flesh, giving the cucumber the appearance of being reticulated. The variety is vigorous, productive, resistant to insect pests, and of excellent quality."

35467. HERITIERA LITTORALIS Dryander.**Dungon-late.**

See S. P. I. No. 35413 for previous introduction and description.

35468. OROXYLON INDICUM (L.) Vent.**Pinkpinkahan.**

See S. P. I. No. 35415 for previous introduction and description.

35469. PARKIA TIMORIANA (DC.) Merrill.**Cupang.**

(*Parkia roxburghii* Don.)

"A large ornamental deciduous forest tree attaining a height of 25 to 40 meters, with bipinnate, feathery, attractive leaves and large pods upward of 30 centimeters long, containing from 15 to 20 seeds. The pods are relished by the native cattle and the seeds are roasted and used as a substitute for coffee by the Filipinos."

See S. P. I. No. 35035 for previous introduction.

35470. PHORMIUM TENAX Forster.**New Zealand flax.**

From Wellington, New Zealand. Presented by Mr. E. Clifton, director, Fields and Experimental Farms Division, Department of Agriculture, Industries, and Commerce, through Mr. F. B. Hyde, Washington, D. C. Received June 6, 1913.

"This is the seed of the ordinary variety of *Phormium tenax* used for commercial purposes." (*Clifton.*)

See S. P. I. No. 34720 for previous introduction.

35471 and 35472. LOTUS spp.

From St. Andrews, Scotland. Collected by Mr. G. W. Oliver, of the Bureau of Plant Industry, August 26, 1911.

35471. LOTUS CORNICULATUS L.

"Large-growing variety found near the seashore growing among grasses of a very tufty nature." (*Oliver.*)

Plants.

35472. LOTUS sp.

"Dwarf form found growing near the seashore among grasses of a tufty nature and is found on the golf links, where it competes with the closely clipped grasses." (*Oliver.*)

Plants.

35473. CARICA PAPAYA L.**Papaya.**

From Manila, Philippine Islands. Presented by Mr. O. W. Barrett, chief, Division of Horticulture, Bureau of Agriculture. Received June 7, 1913.

"Seeds of the more or less distinct form of the Hawaiian papaya. This form has been bred up by Mr. P. J. Wester at the Lamao Experiment Station; it is about 90 per cent hermaphrodite." (*Barrett.*)

35474 and 35475. ARNICA spp.

From Kew, England. Presented by Sir David Prain, director, Royal Botanic Gardens. Received February 26, 1913.

35474. ARNICA MONTANA L.**Arnica.**

"A yellow-flowered composite, growing a foot or more in height. Native of the mountains of Europe. The tincture of the petals is successfully used as a healing application to wounds and bruises. Succeeds under cultivation in cool latitudes and high elevations. Not adapted to culture in the South." (*W. Van Fleet.*)

35475. ARNICA SACHALINENSIS A. Gray.**Arnica.**

Distribution.—An herbaceous perennial found on Sakhalin Island.

35476 to 35478. LUPINUS spp.**Lupine.**

From New York, N. Y. Purchased from J. M. Thorburn & Co. Received June 6, 1913.

For the experiments of the Office of Forage Crop Investigations.

35476. LUPINUS ANGUSTIFOLIUS L.**35478. LUPINUS LUTEUS L.**

"Blue."

"Yellow."

35477. LUPINUS ALBUS L.

"White."

35479 and 35480.

From Russia. Presented by Mr. Alexander Kol, Russian Government Assistant Agricultural Commissioner, St. Louis, Mo. Received June 9, 1913.

35479. AVENA SATIVA L.**Oat.**

"Russian Agricultural Agency, No. 304. Giant oats. Bezenchuk Experiment Station, Government of Samara." (*Kol.*)

35480. TRITICUM DURUM Desf.**Durum wheat.**

"Russian Agricultural Agency No. 300. Spring wheat, *Beloturk*, Bezenchuk Experiment Station, Samara." (*Kol.*)

35481. ARGANIA SPINOSA (L.) Skeels. Argan.
(*Argania sideroxyylon* Roem. and Schult.)

From Tangier, Morocco. Procured through Mr. Maxwell Blake, American consul general. Received June 11, 1913.

"Seeds of this year's crop." (*Blake*.)

35482. MANGIFERA VERTICILLATA Robinson. Baño.

From the Philippine Islands. Presented by Mr. W. S. Lyon, Manila. Received June 13, 1913.

See S. P. I. Nos. 34353 and 34431 for previous introductions and descriptions. Plant.

35483. ANNONA SQUAMOSA L. Anona.

From Tampico, Mexico. Presented by Mr. Clarence A. Miller, American consul. Received June 12, 1913.

35484. CITRUS HYSTRIX DC. Cabuyao.

From Lamao, Bataan, Philippine Islands. Presented by Mr. P. J. Wester, horticulturist, Division of Horticulture, Lamao Experiment Station. Received June 14, 1913.

"A large, thorny tree, 6 to 12 meters in height; the leaves are 16 to 24 centimeters long, and broadly winged; in fact, the wing area sometimes exceeds the leaf area. The species is quite variable. The form sent you has smooth, oblate to pyriform-turbinate shaped fruits. Surface greenish lemon, rind medium thick, flesh greenish, juicy, sharply acid, aromatic, contained in 12 to 14 loculi. The fruit makes a fair 'ade' and is eaten with rice by the natives; it is also used in cleaning clothes. As a fruit the cabuyao has little value, but it may, on account of its remarkable vigor, be a valuable stock for other citrus fruits; in fact, I have several imported varieties growing on it now." (*Wester*.)

35485 to 35490. XANTHOSOMA spp. Yautia.

From Trinidad, British West Indies. Presented by Mr. W. C. Freeman, assistant director of agriculture and Government botanist. Received June 12, 1913.

One tuber of each of the following yautias:

35485. "No. 1. *Garl blanc*, 'White Itch,' so named from the small bumps, supposed to resemble pustules, with which it is covered."

35486. "No. 2. *Garl noir*, 'Black Itch.'" **35489.** "No. 5. *Parim*."

35487. "No. 3. *Caylaimbe*." **35490.** "No. 6. *Mark*."

35488. "No. 4. *Belle Mamzelle*."

"These are all patois names, and for most of them I can offer no derivation or meaning." (*Freeman*.)

35491 to 35569.

From Chile. Collected by Mr. W. F. Wight, of the Bureau of Plant Industry. Received June 10, 1913.

Quoted notes by Mr. Wight.

For previous large introductions of Chilean potatoes, see S. P. I. Nos. 31411 to 31464 and 31537 to 31547, sent in by Mr. José D. Husbands, Limavida, Chile.

35491 to 35569—Continued.

35491 to 35503. SOLANUM TUBEROSUM L.

Potato.

"All seeds of cultivated potatoes were subject to open pollination."

35491. "(91.) *Rosada*. From Panguipulli."35492. "(125.) A variety called *Coraida*. From Panguipulli."35493. "(126.) *Blanca prima riza*. From Panguipulli."35494. "(163.) *Torreno*. From Temuco, and much grown about Nuevo Imperial. Regarded as an excellent keeper."35495. "(164.) *Bastoniza blanca*. From Llifén."35496. "(165.) *Bastoniza colorada*. From Llifén."35497. "(166.) *Artellera*. From Temuco. Said to be better than *Pe huencha*, which it closely resembles."35498. "(170.) *Bastoniza*. From Panguipulli."35499. "(172.) *Alemana*. From Puerto Montt. The fact that this is called *Alemana* does not necessarily mean that it came from Germany, but merely that it was grown by a German in Chile."35500. "(173.) *Blanca*. From Temuco."

35501. "(176.) This is a local variety at Puerto Montt, but I could not learn the name. It is said to be an excellent variety with very yellow flesh."

35502. "(177.) *Caraila*. Very similar to *Reina* and perhaps identical with it. A good variety much grown in Ancud, Chiloe."35503. "(178.) *Camota*. From Ancud, Chiloe."

35504 to 35506. SOLANUM spp.

Tubers of the following:

35504. "(199.) This form has probably never been introduced into cultivation before. It grows wild in a region, so far as known, never inhabited. Not even is there any tradition among the Indians of this part of the island having been inhabited, and the locality can be reached only at low tide. The tubers are sometimes 3 and 4 inches long. From Punta Tablaruca."

35505. "(200.) *Casha negra*. From Quilan."35506. "(201.) *Casha blanca*. From Castro."

35507 to 35532. SOLANUM TUBEROSUM L.

Potato.

35507. "(202.) *Morada*. From Quilan."35508. "(204.) *Villaroela*, also known as *Antehuapa*. An excellent variety, one of the best in fact. From Castro."

35509. "(205.) From Castro."

35511. "(207.) From Castro."

35510. "(206.) From Castro."

35512. "(208.) From Castro."

35513. "(211.) A remarkable potato that has persisted in a garden in Castro for 20 years without replanting and in spite of efforts to destroy it. There is very little frost in Castro."

35514. "(212.) *Mantequilla*. The celebrated yellow potato of Peru. This was originally brought from the Oroya Valley in Peru in 1882 to Puerto Montt, Chile, and is now grown to a limited extent at Calanco and in Chiloe. It is usually considered necessary to remove the blossoms, otherwise few tubers are obtained. Perhaps the most yellow of any variety known. Should be compared with the same variety direct from Peru, where, however, it is known by a different name. From Castro."

35491 to 35569—Continued.

35515. "(213.) *Petiteta*. From Quilan."
 35516. "(214.) These are apparently 12 different varieties picked out of the warehouse at Castro. The natives bring them in usually with many varieties mixed together, and I could get no name for these."
 35517. "(215.) *Camota*. From Castro."
 35518. "(216.) *Camota*. From Quilan."
 35519. "(217.) *Pecun negra*. From Castro."
 35520. "(218.) Another variety without name. From Castro."
 35521. "(220.) *Francesa blanca*. From Ancud."
 35522. "(221.) *Francesa colorada*. From Ancud."
 35523. "(222.) Unknown variety. From Ancud."
 35524. "(235.) *Tronco*. From Talcahuano."
 35525. "(236.) These came from a different lot, but perhaps the same variety. From Talcahuano."
 35526. "(237.) *Zembrana*. From Talcahuano."
 35527. "(243.) *Chancho*. An early variety. From Chillan. Also a variety in Peru of the same name."
 35528. "(244.) *La Ulloana*. From Chillan."
 35529. "(245.) *Doma*. From Chillan."
 35530. "(247.) From Chillan."
 35531. "(248.) *Cazuela*. From Santiago."
 35532. "(253.) Apparently growing in a wild state for several years in a ravine in the city of Valparaiso."

35533 to 35535. ULLUCUS TUBEROSUS.

"In some localities tubers of this plant are known as *papa liza* and in others as *ulluco*. They are of various colors, red, pink, olive, and yellow, with more or less intermediate shades and some even variegated. They are grown at considerable elevation and used in soups in much the same manner as the potato."

35533. "(257.) *Papa liza amarilla*."
 35534. "(258.) *Papa liza colorada*."
 35535. "(259.) *Papa liza*. Apparently a mixture of the red and yellow. This vegetable is quite extensively grown at the higher altitudes around Lake Titicaca, and in fact may be almost the only one grown in that region. It is said to withstand the frost better than the ordinary potato."

35536 to 35546. SOLANUM TUBEROSUM L.

- | | |
|----------------------------------|-----------------|
| 35536. "(261.)" | 35542. "(272.)" |
| 35537. "(263.) <i>Chinata</i> ." | 35543. "(273.)" |
| 35538. "(264.) <i>Tingo</i> ." | 35544. "(275.)" |
| 35539. "(266.)" | 35545. "(276.)" |
| 35540. "(269.)" | 35546. "(277.)" |
| 35541. "(271.)" | |

35547. SOLANUM sp.

"(94.) A wild solanum from Panguipulli. No tubers were found, but under certain conditions they are probably produced."

35491 to 35569—Continued.**35548 to 35561.** SOLANUM BRIDGESII A. DC.

"These seeds were gathered from several localities and the plants show some variation, but the differences are too slight for even varietal distinctions."

35548. "(97.) Similar to number 94 (S. P. I. No. 35547). From Panguipulli."

35549. "(98.) From Lancatraro, on the south side of Lago Villarica."

35550. "(112.) North side of Lago Villarica. Does not appear to differ from the other wild solanums of the region."

35551. "(131.) Apparently the same as found at Lago Villarica. Between Lago Villarica and Lago Calafquen."

35552. "(147.) From Lancatraro. Identical with the one on the north side of Lago Villarica (S. P. I. No. 35550)."

35553. "(154.) From Panguipulli. February 24, 1913."

35554. "(155.) Many of these vines were 10 and 12 feet long and produced an enormous quantity of berries. Molco, February 26, 1913."

35555. "(156.) West end of Lago Rinihue. Fruit nearly black. February 26, 1913."

35556. "(157.) San Martin, Argentina. March 11, 1913."

35557. "(158.) San Martin, Argentina."

35558. "(159.) Near Banos Chi huio. The most abundant in this locality of any through which I passed."

35559. "(160.) From Llifén. March 8, 1913."

35560. "(161.) West end of Lago Ranco on the road to Lan Union. March 9, 1913."

35561. "(162.)"

35562 to 35564. SOLANUM TUBEROSUM L.

35562. "(197.) Seeds of the cultivated potato which bore very large edible berries, some of them $1\frac{1}{4}$ inches in diameter. Possibly a new fruit can be developed from this variety. They were produced in great abundance. From Quilan."

35563. "(198.) Same as 197 (S. P. I. No. 35562), but the fruits smaller. These fruits or seeds are doubtless from more than one variety, as no effort is made to keep varieties separate in Chiloe and often one finds a dozen or more in the same row."

35564. "(223.) *Mantequilla*. From Castro. A yellow potato."
Seeds.

35565. SOLANUM sp.

"(224.) *Casha blanca*. From Castro."

Seeds.

35566 to 35569. SOLANUM TUBEROSUM L.

35566. "(225.) Unknown variety. From Castro."

Seeds.

35567. "(226.) Seeds of the cultivated potato, varieties unknown. From Island of Que hui."

35568. "(241.) These seeds came from fruit without calyx lobes, mixed with the variety *Mantequilla*. They should be grown separately to see if it is really a different form. From Castro."

A yellow potato known in Chiloe as *Mantequilla*.

35491 to 35569—Continued.

35569. "(242.) Apparently *Rosada*. From Chillan."
Tubers.

35570. PANICUM MILIACEUM L.**Proso.**

From Russia. Presented by Mr. Alexander Kol, Russian Government Assistant Agricultural Commissioner, St. Louis, Mo. Received June 9, 1913.

"Proso millet. Province of Simbirsk. From K. Svetlikoff."

35571 and 35572. ERIOBOTRYA JAPONICA (Thunb.) Lindl. Loquat.

From Naples, Italy. Presented by Dr. Gustav Eisen, California Academy of Sciences, San Francisco, Cal. Received July 2, 1913.

35571. "Seeds from one of the best loquat trees, of the variety *Apple*, in Boscotrecase." (*Eisen.*)

35572. "Loquat, variety *Pear*." (*Eisen.*)

35573 and 35574. PHOENIX DACTYLIFERA L.**Date.**

From Heyel, central Arabia. Presented by Mr. Emil Saur, American consul, Bagdad, Turkey, who procured them from the Sheik of Heyel. Received June 9, 1913.

35573. "*Shakra*." Seeds.

35574. "*Sukkari*." Seeds.

From the interior of the Arabian peninsula, both varieties occurring only at Heyel, from which place the difficulties of transportation make the introduction of offshoots practically impossible.

35575. MELILOTUS ALBA Desr.**White sweet clover.**

From Lawrence, Kans. Purchased from the Barteldes Seed Co. Received July 24, 1913.

35576. VANGUERIA INFAUSTA Burch.

From Berea, Durban, Natal. Presented by Dr. J. Medley Wood, director, Natal Herbarium. Received July 7, 1913.

"A small tree, 6 to 7 feet high, with few and rather thick branches. All younger parts densely tomentose, the upper surface of the leaves becoming scabrid with age. Leaves 2 to 6 inches long, 2 to 4 inches wide, ovate, ovate elliptical, or suborbicular, bluntly pointed, and having one-half inch petioles. Cymes axillary, forked, many flowered, 3 inches across. Flowers green; calyx lobes short, triangular, tomentose, caducous, and absent from the fruit. Corolla tube much longer, tomentose externally, with spreading 5-fid limb. Stamens in the throat of the corolla, erect, oblong, on a subulate filament. Ovary five celled, five ovuled; fruit about 1 inch diameter, globose, glabrous when nearly ripe, usually some ovules abortive. Eastern and Transkeian Conservancies, Natal, Transvaal, and Rhodesia; of no forestal importance, and usually in open country. In 'Flora of Tropical Africa,' it is stated, 'Burchell states that this plant was regarded by the Bachapins as bewitched and unlucky, and therefore unfit for firewood, and that the fruit is not edible. It is, however, edible in other parts of South Africa, and is the wild medlar of the colonists; in Kafirland it is an excellent fruit tree, and the fruit surpasses our medlar.' That is not high praise, but even that is more than I have found it to deserve, but I have seldom found the shrub, and may have missed its best condition. In view of its being the host plant of a fungus *Hemileia woodii* K. and C., closely allied to the coffee disease, and its probability of being subject to the latter also, coffee planters should keep a watch on this shrub." (*Sim, Forest Flora of Cape Colony.*)

35577. HIBISCUS CANNABINUS L.**Ambari.**

From Pusa, India. Presented by Mr. A. Howard, Agricultural Research Institute, through Mr. L. H. Dewey, of the Bureau of Plant Industry. Received July 7, 1913.

"Seeds of an improved type developed by plant-breeding methods under the direction of Mr. Howard. This fiber plant, known as Ambari, Deccan hemp, Bimlipitam jute, Java jute, and Mesta pat, is an annual, similar in appearance to hemp, but yielding a fiber intermediate in character between India jute (*Corchorus*) and China jute (*Abutilon*). Adapted to rich alluvial soils in the Southern States, but not recommended for commercial cultivation in this country until mechanical methods are devised for preparing the fiber." (*L. H. Dewey.*)

35578 and 35579.

From Burringbar, New South Wales, Australia. Presented by Mr. B. Harrison. Received June 24, 1913.

35578. EUGENIA MYRTIFOLIA Sims.**Australian rose-apple.**

Distribution.—An evergreen shrub found in Queensland and New South Wales in Australia.

35579. TRICHOSANTHES ANGUINA L.**Snake gourd.**

"Grows from 3 to 6 feet long and is very prolific." (*Harrison.*)

Introduced as the Guada bean; sold throughout the Tropics as a wonderfully productive and valuable vegetable. So common in India that the high price charged for the seeds is entirely unwarranted.

35580 and 35581.

From Dondo, Angola, Africa. Presented by Mr. W. P. Dodson. Received June 26, 1913.

35580. RUBUS PINNATUS Willd.**Raspberry.**

"The wild raspberry I found in the jungle of this part called the 'Libolo country.' The vine is a very vigorous one, and the main stem I found sometimes over one-half inch in diameter, much stouter at the main stem, and as dry and tough on the outside as the small limb of a tough tree. It was thorn covered. From this it branched out in many directions and threw out stout and very vigorous shoots 20 feet. I pruned these the first year I found them, and the next season they did not bear so well. I had to cut away the awfully fierce tangle to get anywhere near it. It may have been disturbed. This year the fruit seems not so fine, but that may be because my duties have compelled me to let the jungle close in again on it. The raspberry matures here twice a year." (*Dodson.*)

Distribution.—Upper and Lower Guinea and in Cape Colony.

35581. ELAeis GUINEENSIS Jacq.**African oil palm.**

"Nuts of the oil palm, which exists in such vast quantities on the west coast of Africa from Sierra Leone down below us. We are about 9° south, in the interior of the vast Province of Angola. The variety the natives name *Sombo* is the very finest. When the tree is a fine one, as in this case, the nut proper is very small, while the meat of the nut, from which the oil is extracted by boiling and pressure, is plentiful. The taste is also finer. These nuts were given me by the chief of Ndunga, at whose capital we have our home." (*Dodson.*)

35582 to 35586. CARICA PAPAYA L.**Papaya.**

From Boma, Belgian Kongo. Collected by the governor general at the request of the director, Ministry of the Colonies, Brussels, Belgium. Received June 23, 1913.

Seeds of the following; quoted notes by the director:

35582. "Medium size; taste rather agreeable."

35583. "Smaller size; certain fruits have a better taste."

35584. "These fruits are very small, of the size of a large orange, almost insipid."

The native name of these three varieties is "*Paie-paie*."

35585. "Of Ceylon. Fruits rather attenuated; taste very savory."

35586. "*Elegantissima*. Fruit shorter than the preceding and larger."

35587. CYRTOSTACHYS LAKKA Beccari.

From Singapore, Straits Settlements. Presented by Mr. I. Henry Burhill, director of the Botanic Gardens. Received June 24, 1913.

Distribution.—A tall, slender palm found in the vicinity of Singapore and on the island of Borneo.

35588. ZEA MAYS L.**Corn.**

From La Paz, Bolivia. Presented by Mr. Horace G. Knowles, American minister. Received May 9, 1913.

"As this corn is grown at a very high altitude and where the nights are quite cold, average 38° to 42° F., it should grow well in our Northern States. Its fine texture and snow-white color permit it to make a flour fine almost as wheat. As will be seen, the grains are twice the size of our southern white corn, and that should result in a much larger production per acre than our American corn." (*Knowles*.)

35589. CARICA PAPAYA L.**Papaya.**

From St. Croix, Danish West Indies. Presented by Mr. Longfield Smith, Agricultural Experiment Station. Received June 18, 1913.

"Seeds of the papaw just received from Mr. G. P. Wilder, of Honolulu, Hawaii, and I am sending you some of it. My trees have been planted only about 10 months and are not bearing." (*Smith*.)

35590 to 35592.

From Noria, Sinaloa, Mexico. Presented by Don Nat. O. y Osuna. Received June 14, 1913.

Seeds of the following; quoted notes by Mr. Osuna, except as indicated:

35590. *ANNONA LUTESCENS* Safford.

"The fruit is of a delicious flavor and relished by all."

"*Annona lutescens* is closely allied to *A. reticulata* L., from which it differs in its broader leaves and its yellow fruit. In general appearance the fruit resembles very closely the common alligator apple of tropical mangrove swamps (*A. glabra* L.). The fruit is broadly heart-shaped or conoid, 8 to 9 centimeters (3 to 4 inches) in diameter, yellow when ripe, rounded at the apex, resembling that of *A. reticulata*; pulp sweetish but insipid, adhering to the seeds, tallowlike, with minute hard granules." (*Safford, Classification of Annona, Cont. U. S. Nat. Herb., vol. 18, p. 42-43, 1914.*)

35590 to 35592—Continued.

35591. ENTEROLOBIUM CYCLOCARPUM (Jacq.) Griseb.

"*Quinacastle.* A tree which grows to enormous size, 4 feet or more in diameter. Being an evergreen, it makes a beautiful shade tree. I have one in my yard which shades an area 150 feet in diameter. The wood is used for chests, trunks, closets, etc., because worms or bugs will not enter it."

35592. HURA CREPITANS L.

Sand-box tree.

"*Haba.* Another tree which grows to a large size and will do well in a dry climate. The cattle eat the falling leaves the year round and do well on them. The lumber is used for making tanks, vats, etc."

Distribution.—A shade tree about 40 feet tall, bearing poplarlike leaves, found throughout tropical America and the West Indies, and often cultivated in other warm countries.

35593 and 35594.

From Jerusalem, Palestine. Presented by the American colony. Received June 18, 1913.

35593. MEDICAGO LITTORALIS Rhode.

"Found at Caesarea, near the sea."

See S. P. I., No. 29914 for previous introduction.

35594. LALLEMANTIA IBERICA (Bieb.) Fisch. and Meyer.

"Wild near Jerusalem."

See S. P. I. No. 29932 for previous introduction and description.

35595. SOLANUM TUBEROSUM L.

Potato.

From Erfurt, Germany. Purchased from Messrs. Haage & Schmidt. Received May 8, 1913.

These potatoes were imported for the use of the pathologists and plant breeders of the Bureau of Plant Industry.

35596 to 35598. HIBISCUS spp.

From Port of Spain, Trinidad, British West Indies. Presented by Mr. E. N. Reedy. Received June 17, 1913.

Cuttings.

35596. "Salmon, a very beautiful variety." (*Reedy.*)

35597. "White."

35598. "Yellow."

35599. BLIGHIA SAPIDA Koenig.

Akee.

From Kingston, Jamaica, British West Indies. Presented by Mr. W. Harris, superintendent of public gardens. Received June 14, 1913.

See S. P. I. No. 35232 for previous introduction.

35600. SOJA MAX (L.) Piper.

Soy bean.

(*Glycine hispida* Maxim.)

Grown at the Plant Introduction Field Station, Rockville, Md., under Yarrow No. 288. Original seed received from Pomona College, Claremont, Cal., in 1911.

"It makes a remarkable growth of vines and has extremely large root nodules. Two bushels of seed were secured last year, and this has all been planted this spring." (*J. M. Rankin.*)

35601 to 35657.

Collected by Mr. Frank N. Meyer, agricultural explorer. Received June 14, 1913.

Seeds of the following; quoted notes by Mr. Meyer:

35601 to 35609. ZIZIPHUS JUJUBA Miller. **Jujube.**
(*Ziziphus sativa* Gaertn.)

35601. "(Tsinan, Shantung, China. No. 1b. April 4, 1913.) A variety of jujube called *Tze lin tsao*, meaning 'scarlet jujube.' The fruits are large, often the size of small hens' eggs, and of round, elongated shape. Skin fairly hard, of a rich dark-brown color, meat firm and of sweet flavor. Scions sent under No. 1023 (S. P. I. No. 35255)."

35602. "(Peking, China. No. 2b. April 19, 1913.) A variety of jujube, called *Pou hong ta tsao*, meaning 'inflated large jujube.' Fruits large, of elongated shape, skin hard, of brown-red color, flesh of a spongy texture and not very sweet."

35603. "(Tsinan, Shantung, China. No. 3b. April 10, 1913.) A variety of jujube, called *Yuan ling tsao*, meaning 'round jujube.' Fruits medium large, of round shape, skin fairly thin, of mahogany-brown color, meat firm and medium sweet. Is much used in the smoked state and bears different names then."

35604. "(Tientsin, China. No. 4b. April 16, 1913.) A variety of jujube, called *Ta hong tsao* meaning 'large red jujube.' Fruits large, of marked elongated form, skin medium hard, of a reddish-brown color, meat firm and of medium, sweet taste; seed large."

35605. "(Peking, China. No. 5b. April 19, 1913.) A variety of jujube, called *Ta hsiao hong tsao*, meaning 'large small red jujube.' Fruits of medium size, round, oblong in shape, skin soft, of a shining red-brown color, meat firm and lighter in color than with most jujubes, of very sweet taste. This variety is a much-beloved market sort in Peking."

35606. "(Tsinan, Shantung, China. No. 6b. April 4, 1913.) A variety of jujube called *Hsiao tsao*, meaning 'small jujube.' Fruits small, of elliptical shape, skin soft, of bright brown-red color. Meat firm and quite sweet. This variety is very popular with the country people, who eat them raw, stewed, and cooked in proso cakes. Scions sent under No. 1025 (S. P. I. No. 35257)."

35607. "(Tientsin, China. No. 7b. April 16, 1913.) A variety of jujube, called *Hsiao tsao*, meaning 'small jujube.' This variety comes from the Tientsin district and is slightly different from the preceding one; otherwise the same remarks apply to it."

35608. "(Tientsin, China. No. 8b. April 16, 1913.) A variety of jujube, called *Rho hsiao tsao*, meaning 'meaty small jujube.' Of medium size, somewhat plumper in shape than the ordinary small jujube. Meat of a very firm texture and very sweet. In Tientsin considered to be one of the best market varieties."

35609. "(Peking, China. No. 9b. April 19, 1913.) A variety of jujube, called *Pou hong hsiao tsao*, meaning 'inflated red small jujube.' Fruits larger than the ordinary small jujube. Skin rather soft, meat brownish, sweet, and of a juicy, spongy nature."

35610 to 35613. JUGLANS REGIA SINENSIS DC. **Walnut.**

35610. "(Tsinan, Shantung, China. No. 1810a. April 4, 1913.) A large variety of Chinese walnut said to occur around Tsinan, Shantung.

35601 to 35657—Continued.

Chinese name *Hoto*. Chinese walnuts may be expected to thrive, especially in the warmer valleys of the southern Rocky Mountain regions, as the climate of these regions very much resembles that of northeastern China."

35611. "(Peking, China. No. 1811a. April 19, 1911.) Large walnuts said to occur in the mountains to the northwest of Peking. Chinese name *Ta hoto*. See notes on No. 1810a (S. P. I. No. 35610)."

35612. "(Peking, China. No. 1812a. April 19, 1913.) A rare variety of Chinese walnut, being quite flat. Said to come from the mountains to the northwest of Peking. Chinese name *Ping do hoto*."

35613. "(Peking, China. No. 1813a. April 19, 1913.) A large variety of Chinese walnut, said to occur in the mountains west of Peking. Chinese name *Hoto*. See notes under No. 1810a (S. P. I. No. 35610)."

35614. PINUS sp.

Pine.

"(Tientsin, China. No. 1814a. March 27, 1913.) A conifer said to be the ordinary pine of north China, the seed coming from Honan. To be experimented with in the drier parts of the United States. Chinese name *Sung shu*."

35615. PINUS KORAIENSIS Sieb. and Zucc.

Korean pine.

"(Tientsin, China. No. 1815a. March 27, 1913.) A pine said to come from southern China, but this information is probably incorrect, as it seems to be the ordinary *Pinus koraiensis*. The white, oily kernels are used by the Chinese in high-class confectionery and in special cakes. Chinese name *Sung tze*."

35616. GLEDITSIA SINENSIS Lam.

Honey locust.

"(Tsinan, Shantung, China. No. 1816a. April 4, 1913.) A honey locust of which the pods are used as a substitute for soap in washing the hair and fine clothing. The tree will be of value as a medium-sized shade tree in the drier parts of the United States where the winters are not too severe. Chinese name *Tsau chiaushu*."

35617. ZEA MAYS L.

Corn

"(Tientsin, China. No. 1817a. April 16, 1913.) A large variety of flint maize grown in the region around Tientsin. Chinese name *Hai yumili*."

35618 to 35620. VIGNA SINENSIS (Torner) Savi.

Cowpea

35618. "(Tsinan, Shantung, China. No. 1818a. April 10, 1913. A white-seeded variety of cowpea used locally as human food, either fresh or dry. Chinese name *Pai chiang doh*."

35619. "(Tientsin, China. No. 1819a. April 16, 1913.) A white seeded variety of cowpea used as human food, either fresh or dry. Chinese name *Pai chiang doh*."

35620. "(Tsinan, Shantung, China. No. 1820a. April 10, 1913. A rare variety of speckled cowpea used boiled in soups. Chinese name *Hong chiang doh*."

35621. DOLICHOS LABLAB L.

Bonavist bean

"(Tsinan, Shantung, China. No. 1821a. April 4, 1913.) A white-seeded variety of lablab bean eaten fresh like string beans, also used much as an ornamental vine for covering porches and trellises. Thrives especially well in regions with dry air. Chinese name *Pai pien doh*."

35601 to 35657—Continued.

35622 to 35628. SOJA MAX (L.) Piper. **Soy bean.**
(*Glycine hispida* Maxim.)

35622. "(Tsinan, Shantung, China. No. 1822a. April 10, 1913.) A small black soy bean locally used to produce bean sprouts. Chinese name *Hsiao ghae doh*."

35623. "(Tsinan, Shantung, China. No. 1823a. April 10, 1913.) A soy bean which is black outside and green inside. Used boiled when half sprouted as a human food. Chinese name *Lu li ghae doh*."

35624. "(Tsinan, Shantung, China. No. 1824a. April 10, 1913.) A soy bean which is black outside and yellow inside. Used boiled when sprouted, also employed in soy-bean sauce production. Chinese name *Tau hsing ghae doh*."

35625. "(Tsinan, Shantung, China. No. 1825a. April 10, 1913.) A good variety of yellow soy bean used in the manufacture of sauce, bean curd, bean oil for sprouts, etc. Chinese name *Huang doh*."

35626. "(Tsinan, Shantung, China. No. 1826a. April 10, 1913.) A large green soy bean, considered locally a fine variety. Used like the preceding one (S. P. I. No. 35625), and besides that it is also eaten roasted and salted as an appetizer before meals. Chinese name *Tsing doh*."

35627. "(Tientsin, China. No. 1827a. April 16, 1913.) A large green variety of soy bean used like the preceding number (S. P. I. No. 35626). Chinese name *Ta tsing doh*."

35628. "(Tientsin, China. No. 1828a. April 16, 1913.) A rare variety of soy bean, being of brown color. Used boiled in soups. Chinese name *Ta tze doh*."

35629 to 35631. PHASEOLUS AUREUS Roxb. **Mung bean.**

35629. "(Tientsin, China. No. 1829a. April 16, 1913.) A variety of mung bean, called *Ta hi doh*, eaten boiled with rice, employed in the manufacture of bean vermicelli and also extensively used to produce bean sprouts."

35630. "(Tientsin, China. No. 1830a. April 16, 1913.) A variety of mung bean called *Mou lu doh*; used like preceding number (S. P. I. No. 35629)."

35631. "(Tientsin, China. No. 1831a. April 16, 1913.) A variety of mung bean of which the seeds are nonshining. Chinese name *Nan lu doh*. Used boiled with rice."

35632. PHASEOLUS ANGULARIS (Willd.) W. F. Wight. **Adzuki bean.**

"(Tientsin, China. No. 1832a. April 16, 1913.) A good variety of adzuki bean called *Chi hsiao doh*. Used boiled in soups or eaten with rice, also ground up into a paste together with brown sugar and used as a filling in special cakes and buns, in which state children especially are very fond of it."

35633. CANNABIS SATIVA L. **Hemp.**

"(Tsinan, Shantung, China. No. 1833a. April 9, 1913.) A variety of hemp, cultivated around Tsinan, said to produce especially strong fiber. Chinese name *San ma*."

35634. FOENICULUM VULGARE Hill. **Fennel.**

"(Tsinan, Shantung, China. No. 1834a. April 10, 1913.) A sweet fennel used by the Chinese as a flavoring herb in soups and in sauces, when young. The seeds are baked in certain cakes and also taken medicinally in cases of cold in the stomach. Sow out late, as it is very sensitive to frosts. Chinese name *Hsiao hui hsien*."

35601 to 35657—Continued.

35635. SOLANUM MELONGENA L.**Eggplant.**

“(Near Laoling, Shantung, China. No. 1835a. March 31, 1913.) A variety of eggplant bearing large, round fruits of a white color. Very rare, even locally. Chinese name *Pai che tze*. Treat with great care.”

35636. MALUS SYLVESTRIS Miller.**Apple.***(Pyrus malus L.)*

“(Novo Nikolayefsk, Siberia. No. 1836a. December, 1912.) A variety of apple coming from southern Russia, called *Liestnaya Antonoffka*. Received from Mr. Svend Lange, at Novo Nikolayefsk.”

Seeds.

35637. PYRUS CHINENSIS Lindl.**Pear.***(Pyrus sinensis Lindl.)*

“(Tsinan, Shantung, China. No. 1837a. April 9, 1913.) Various varieties of cultivated pears, collected here and there. Sow out to see whether some good forms appear.”

35638. MALUS SYLVESTRIS Miller.**Apple.***(Pyrus malus L.)*

“(Novo Nikolayefsk, Siberia. No. 1838a. December, 1912.) A variety of apple, coming from Crimea, called *Oporto*. Obtained like No. 1836a (S. P. I. No. 35636).”

35639. CHAENOMELES CATHAYENSIS (Hemsl.) Schneider.**Quince.***(Pyrus cathayensis Hemsl.)*

“(Tsinan, Shantung, China. No. 1839a. April 9, 1913.) A Chinese quince, the fruits of which are used by the better classes of Chinese as room perfumers. These fruits can easily be kept throughout the winter until late in spring. Some foreign missionaries have learned how to make preserves and jellies from these quinces, though the meat is quite woody. This Chinese quince grows to be a tall shrub and it might perhaps be profitable to grow it in the mild-wintered sections of the United States, so as to supply the Chinese colonies in America with one of their favorite fruits. The American people themselves may also come to like these fruits for the strong pleasant aroma they produce. Chinese name *Mu kua*.”

35640. PRUNUS sp.**Cherry.**

“(Peking, China. No. 1840a. May 8, 1913.) A small, sweet, early cherry. apparently rare, appearing on the Peking market early in May. Chinese name *Ying taur*.”

35641. CRATAEGUS PINNATIFIDA Bunge.**Hawthorn.**

“(Peking, China. No. 1841a. April 16, 1913.) A large-fruited variety of the edible Chinese haw, a fine fruit for preserves in all forms. Chinese name *Hong kuo*. These seeds may lie dormant for one or two years.”

35642. NICOTIANA TABACUM L.**Tobacco.**

“(Tsinan, Shantung, China. No. 1842a. April 9, 1913.) A good broad-leaved variety of tobacco called *Yen ye*. Able to withstand climates with very dry air; also does not object to a fair percentage of alkali in the soil or irrigation water.”

35601 to 35657—Continued.

35643 and 35644. CUCUMIS SATIVUS L.

Cucumber.

35643. "(Laoling, Shantung, China. No. 1843a. March 31, 1913.)

A rare cucumber of local origin, said to be of green color, growing 2½ feet in length and of fine quality. Is always trained on trellises made from sorghum stems, so as to prevent the fruits from touching the ground. Loves a rich, sandy soil. Chinese name *Huang kua*."

35644. "(Laoling, Shantung, China. No. 1844a. March 31, 1913.)

A rare variety of cucumber of local origin, said to be of white color, growing 2½ feet long and being covered with little warts and points. Is trained like the preceding number (S. P. I. No. 35643). Chinese name *Pai huang kua*. This and the preceding number may perhaps do well in countries with dry air, as the Shantung Province is decidedly semiarid."

35645 to 35657. CUCUMIS MELO L.

Muskmelon.

35645. "(Laoling, Shantung, China. No. 1845a. March 31, 1913.)

A muskmelon said to be of small size, of yellow color, and fragile. The flesh is soft and sweet. Chinese name *Kwan tung yu mi kua*. This and the following varieties of melons all love a rich, sandy soil with a small amount of alkali in it. The Chinese melon growers claim that to obtain year in and year out the finest melons one has to grow certain melons for seed entirely; that is, the first two fruits from some selected plants should always be retained for future seed producers, for when one simply takes the ordinary melons the strain very soon runs out and the quality gets worse and worse every year. They also admit that a slight difference in soil and location has very much to do with quality and that seeds from melons that were good in one locality produce inferior melons in another locality only a few miles away."

35646. "(Near Laoling, Shantung, China. No. 1846a. March 31, 1913.)

A muskmelon said to be of elongated shape, of white color, and easily breaking, while the meat is not too sweet. Chinese name *Tsiu kua*."

35647. "(Laoling, Shantung, China. No. 1847a. March 31, 1913.)

A muskmelon said to be of long shape, moderate size, and of a white color. Flesh juicy. Chinese name *Yang dja tsiu kua*."

35648. "(Laoling, Shantung, China. No. 1848a. March 31, 1913.)

A muskmelon said to resemble a gourd, skin dark green, flesh red and of sweet taste. A rare local variety. Chinese name *Ghu lu su kua*."

35649. "(Laoling, Shantung, China. No. 1849a. March 31, 1913.)

A muskmelon said to have a very dark-colored skin; meat red and as soft as flour, ripens in July. Chinese name *Ghai mien kua*."

35650. "(Laoling, Shantung, China. No. 1850a. March 31, 1913.)

A muskmelon said to have a blotched skin, growing to moderate size and being very sweet. Chinese name *Hua pi tsiu kua*."

35651. "(Laoling, Shantung, China. No. 1851a. March 31, 1913.)

A muskmelon said to be of long shape, of green color with white stripes, while the flesh is juicy. Chinese name *Pa d'jau tsiu kua*."

35652. "(Laoling, Shantung, China. No. 1852a. March 31, 1913.)

A muskmelon said to be of small size, with mottled, yellow skin, while the meat is of red color and quite sweet. Chinese name *Hong yang khan kua*."

35601 to 35657—Continued.

- 35653.** "(Laoling, Shantung, China. No. 1853a. March 31, 1913.) A muskmelon said to be of long shape and sweet taste. Chinese name *Kwan tung pantze kua.*"
- 35654.** "(Laoling, Shantung, China. No. 1854a. March 31, 1913.) A rare local variety of muskmelon having exceedingly small seeds. Said to grow large and to be of sweet taste. Chinese name *Sze ma li kua*, which means 'sesame-seeded melon.'"
- 35655.** "(Laoling, Shantung, China. No. 1855a. March 31, 1913.) A rare variety of muskmelon said to be round, gourdlike form. Meat white and watery. Chinese name *Sao kua.*"
- 35656.** "(Laoling, Shantung, China. No. 1856a. March 31, 1913.) A muskmelon, said to be round, of large size, and possessing a fine, strong aroma. Chinese name *Huang hua kua*, or *Huang mien kua.*"
- 35657.** "(Laoling, Shantung, China. No. 1857a. March 31, 1913.) Mixed Chinese muskmelons, among which some interesting types may appear. Sow out, if possible, in various localities in the semiarid belt of the United States."

35658 to 35665. CANAVALI spp.

From Calcutta, India. Presented by Mr. David Hooker, economic botanist, Indian Museum, through Mr. C. V. Piper, of the Bureau of Plant Industry. Received June 25, 1913.

Seeds of the following:

- 35658 and 35659.** CANAVALI GLADIATUM (Jacq.) DC. **Sword bean.**
- 35658.** "(35334.) From Poona, India. Seeds red, edible."
- 35659.** "(35342.) From Sheharunpur, India. Seeds red."
- 35660 to 35665.** CANAVALI VIROSUM (Roxb.) Wight and Arnott.
- Distribution.*—The warmer parts of India and eastward to the Philippines.
- 35660.** "(35249.) From Prome, India. Seeds gray, pods medium sized."
- 35661.** "(35251.) From Prome, India. Seeds gray, pods small.
- 35662.** "(35315.) From Thana, India. Seeds marbled brown and gray. Inedible."
- 35663.** "(35324.) From Surat, India. Seeds brown and gray marbled. Inedible."
- 35664.** "(35320.) From Kaira, India. Seeds brown and gray marbled. Inedible."
- 35665.** "(35329.) From Belgaum, India. Seeds brown and gray marbled. Edible. Seeds of this are quite indistinguishable from the three preceding numbers."

35666. PANICUM MUTICUM Forsk.

From Peradeniya, Ceylon. Presented by Mr. C. K. Moser, American consul, Colombo, Ceylon. Received June 28, 1913.

See S. P. I. No. 29980 for previous introduction.

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Ziziphus exserta. See *Ziziphus trinervia*.
 jujuba, 35253 to 35257, 35260, 35287, 35601 to 35609.
 sativa. See *Ziziphus jujuba*.
 trinervia, 35416.