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

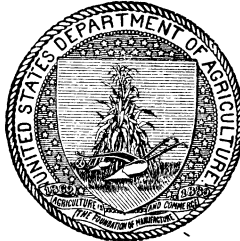
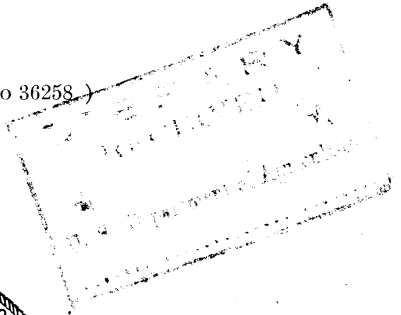
WILLIAM A. TAYLOR, *Chief of Bureau.*

INVENTORY
OF
SEEDS AND PLANTS IMPORTED

BY THE

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

(No. 36; Nos. 35667 to 36258.)



WASHINGTON:
GOVERNMENT PRINTING OFFICE.
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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 JULY 1 TO SEPTEMBER 30, 1913 (NO. 36; NOS. 35667 TO 36258).

INTRODUCTORY STATEMENT.

This inventory covers the summer months only, but anyone looking through it will get a very fair idea of the stream of new plants which the department is bringing into the country and, after propagating, is sending out to experimenters scattered from Alaska to southern Florida. The limitation of funds allotted for this work prevents the making of a thorough governmental investigation of more than a very few of these newly introduced plants, but private experimenters in increasing numbers are placing their facilities for testing plants at our disposal, and the aggregate observations made by this corps of volunteer experimenters furnish the proof in large measure of the adaptability of these various plants to American conditions of climate and to the economic conditions of American life.

Although it is often the case that some unheralded, obscure plant in this process of selection turns out to have great value, it may not be out of place, as has been the custom for a number of years past, to emphasize particular introductions which, on their face, so to speak, appear to be particularly promising.

There appear to be localities in America where a short-season corn which will ripen with comparatively little sunlight may be of distinct value, and Mr. Wight's introduction of a variety (No. 35998) from Castro, a cool, rainy region in Chile, may help solve this problem.

The success of several of the foreign cover crops previously introduced will create an interest in the East African legume, *Meibomia hirta* (No. 36060), and its trial is recommended in the orchards of Florida. The Australian Rhodes grass, *Chloris paraguayensis* (No. 36255), which is pronounced by certain Australian experimenters distinctly more productive than the South African form, growing to 5 feet in height and yielding hay of a finer quality and twice as much, can not fail to be of interest to stockmen in the Gulf States, where the South African variety has already been so successful.

NOTE.—This bulletin is intended for distribution to the agricultural experiment stations and the more important private cooperators of the Department of Agriculture.

The growing interest in hardy so-called English walnuts will create a demand for the Changli walnut (No. 36082), found recently by Mr. Meyer near the Great Wall of China, which will probably prove hardier than any of the varieties from southern Europe; and his chestnut species, identified as *Castanea mollissima* (No. 35891), from San Tun Ying, even though a low-branching open-headed species of no value for timber, can not fail to attract attention as an orchard tree because of its greater resistance to the chestnut bark disease, which is destroying the American chestnut, and its excellent nuts, for which it is cultivated in China.

The pistache-nut tree has begun to be grown in California, and bearing specimens are already interesting the California horticulturists. The introduction of the Kaka tree of India, *Pistacia integerima* (No. 36065), a close relative of it, for trial as a stock for commercial varieties of the pistache will be of interest to a widening circle of cultivators.

Throughout historic times the olive has been grown on its own roots. In California it fruits abundantly, but in Florida and Texas, although growing luxuriantly, it refuses to produce more than a few scattering fruits. The introduction of the South African wild olive, *Olea verrucosa* (No. 36059), on which the cultivated olive has already been successfully grafted, makes it desirable to try the olive on this wild stock in moist southern regions.

The introduction of a quantity of the nuts of the Nipa palm, *Nypa fruticans* (No. 36058), from the Philippines, should call attention to what appears to be a remarkable sugar and alcohol producing crop for tidal tropical swamp lands, where little that is profitable is now grown. The vast areas of this land and the many uses of this palm make it worthy of the serious attention of tropical agriculturists.

Whether the Nikau palm, *Areca sapida* (No. 35888), which in the forests of New Zealand is said to withstand the forest fires, will prove adapted to conditions in southern Florida and spread over the hammocks is a question worth determining.

The success of our previous introduction of the remarkable white-barked pine of China, *Pinus bungeana* (No. 35916), has led to its re-introduction. Although it may be 50 years before the trees will show their white-barked character, they are long-lived trees, growing to a great size, and a place should be found for them in our landscape gardening.

The Siberian larch, *Larix sibirica*, one of the most rapid growing of all the conifers, is proving to be adapted climatically to the Canadian Northwest, and American foresters are already experimenting with it. A strain from the southern Ural Mountains (No. 36163) will doubtless be of interest to them.

The Chinese cabbage, or *pai ts'ai*, *Brassica pekinensis*, has made a place for itself in American gardening, and there is a distinct impression that it is more easily digested than the ordinary cabbage. A quick-maturing variety for early-autumn use (No. 36114) and a large-headed variety (No. 36113) are recommended to those who are growing this new vegetable.

Of new fruits the following are worthy of special mention: Eleven varieties of mango (Nos. 36029 to 36039) from India, two of which came from the rainier region of Mozufferpur and may prove valuable for the rainy portions of Porto Rico; the Pahutan mango (No. 36052), of Manila, which, on account of its great vigor, may be useful as a stock; the Diamond mango (No. 36070), from the Island of Chiloane, off the coast of East Africa, the home of the Lathrop mango; the Chinese bush cherry, or *ying tau'r*, *Prunus tomentosa* (Nos. 36086 and 36111), which, in the opinion of Mr. Meyer, who discovered pale-fruited and white-fruited forms of it (Nos. 36109 and 36110), is a bush fruit for the home garden in the cold semiarid sections of the Northwest; the Monte Porcio Catone apricot (No. 35701), said by Dr. Gustav Eisen, who knows California fruits well, to be the handsomest apricot he had ever seen, and therefore of interest to Californians.

The collection of citrus fruits (Nos. 35690 to 35700) made by Mr. Woglum during his search for the white-fly parasites in India has in it some promising new varieties, including a round seedless lemon from Cawnpore, the Kaghzi lime, and the loose-skinned Nagpur tangerine. Popenoe's Bedana grape, a small seedless variety from Seharunpur (No. 36040), adds another seedless form to those already being cultivated in California. Tropical fruit growers will doubtless welcome Wester's introduction of the marang, *Artocarpus odoratissima* (No. 36256), a new relative of the breadfruit and the jak fruit, which is a native of the Sulu Archipelago and Mindanao and appears to be juicier, sweeter, and more aromatic than either of these widely grown tropical fruits. They will also want to test the galo fruit, *Anacolosia luzoniensis* (No. 35893), from the hilly interior of Cavite. Strawberry hybridizers may want to test the wild *Fragaria chiloensis* (No. 35953), from the Island of Chiloe, where Mr. Wight found it growing on the seashore.

The demand for early-flowering dooryard shrubs will make the elm-leaved plum of China, *Prunus triloba* (No. 36112), a welcome addition, since, according to Mr. Meyer, it produces blooms ranging in color from pale pink to dark violet-rose and is already a favorite shrub among the Chinese.

As in the previous inventory, the manuscript has been prepared by Miss May Riley, under the supervision of Mr. S. C. Stuntz, in general

charge of the publications of the Office of Foreign Seed and Plant Introduction. Mr. H. C. Skeels has provided notes of geographical distribution and, together with Mr. Stuntz, is responsible for the orthography of the inventory, since, working under the direction of the Committee on Scientific Orthography of the Bureau, they settle so far as possible questions of nomenclature, following in general the classification of the most recent reputable monographers.

DAVID FAIRCHILD,
Agricultural Explorer in Charge.

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION.
Washington, D. C., August 17, 1915.

INVENTORY.

35667. PUNICA GRANATUM L.

Pomegranate.

From Mesa, Ariz. Presented by Mr. E. W. Hudson, Sacaton, Ariz., who procured the cuttings from Mr. G. S. Kelly, Mesa, Ariz. Received at the Plant Introduction Field Station, Chico, Cal.

"Cuttings from several large bushes, all of one variety, growing on the ranch of Mr. Kelly at Mesa, Ariz. Origin unknown; apparently identical with the variety sold by western nurseries under the name 'Sweet fruited'; fruit medium size, with a deep rose-colored skin and flesh; sweet, of excellent flavor, and soft seeded; represents the best type of pomegranate for eating out of hand." (T. H. Kearney.)

35668 to 35670. CARICA PAPAYA L.

Papaya.

From Kongo da Lemba, Kongo. Presented by Mr. H. Meyr, acting director, Ministry of the Colonies, Brussels, Belgium. Received July 7, 1913.

Quoted notes by Mr. Meyr.

35668. "(No. 1.) *Lala*. Fruit very nearly spherical, not prominently ridged, exterior very smooth. Color of both exterior and pulp, orange yellow."

35669. "(No. 2) *Lala*. Fruit ovoid, not prominently ridged. Exterior very smooth. Color of both exterior and pulp, orange yellow."

Nos. 1 and 2 resemble each other in flavor.

35670. "(No. 3.) Fruits of large dimensions, more or less irregularly ovoid; large ridges very pronounced. Color of both exterior and pulp, orange yellow. The pulp is very fine and of a distinct flavor, quite different from the other two [S. P. I. Nos. 35668 and 35669]. The natives make no distinction among the varieties, except that this No. 3, on account of its large size, is called *lala na sisi* (elephant papaya)."

35671 and 35672.

From Puerto de Orotava, Teneriffe, Canary Islands. Presented by Dr. George V. Perez. Received July 3, 1913.

35671. ANNONA CHERIMOLA Mill.

Cherimoya.

35672. ECHIUM FASTUOSUM Salisbury.

Pride of Madeira.

"The so-called pride of Madeira; flowers are light blue." (Perez.)

"There can hardly be a more striking object than this plant in early March in full beauty of bright pale-blue blossoms. The bush measures up to 18 feet in circumference, and the flower heads of crowded cymes are 6 inches to 1 foot long. The filaments are white, fading into pink; the leaves pale glaucous green. The flowers are highly attractive to bees and butterflies, furnishing an abundant supply of nectar and dark-blue pollen. The plant is perennial in habit, rises 5 or 6 feet from the ground, assuming a graceful pyramidal form, generally perishing after a few years' growth, leaving seedlings in abundance." (Gardeners' Chronicle, May 30, 1903.)

35673 to 35676.

From San Jose, Costa Rica. Presented by Sr. Otón Jiménez L., chief, Department of Botany, Museo Nacional. Received July 7, 1913.

35673. *ACHRADELPHA MAMMOSA* (L.) O. F. Cook. **Sapote.**
(*Lucuma mammosa* Gaertn. f.)

"From San Francisco de Guadalupe. A sapote 10 centimeters in diameter, with pulp of golden-red color, very sweet taste, and not very glutinous. It is very much esteemed and brings good prices in the market." (*Jiménez L.*)

35674. *ACHRADELPHA VIRIDIS* (Pittier) O. F. Cook. **Sapote.**

A tree related to the sapote, but producing fruit of superior quality. It was described originally as *Calocarpum viride* Pittier. A larger quantity of seed of this species was secured afterward from Guatemala by Mr. O. F. Cook, who refers to this tree as *Achradelpha viridis* (S. P. I. Nos. 38478 to 38481, 38566, and 40906). The reason for changing the name is stated by Mr. Cook as follows:

"The injerto is undoubtedly a close relative of the true sapote of Mexico and Central America, which is the type of the genus *Achradelpha*. The generic name *Calocarpum* used by Pierre and other recent writers for the sapote is not considered available on account of its previous application to other plants."

"From Guanacaste. The fruit reaches about 10 centimeters in diameter. The pulp is dark red and of fine flavor. This variety is rare and one of the most valuable." (*Jiménez L.*)

35675. *PERSEA AMERICANA* Miller. **Avocado.**
(*Persea gratissima* Gaertn. f.)

"From San Mateo. The fruit reaches 30 centimeters in length and 10 centimeters in width at its largest part. It is one of the largest varieties of Costa Rica. It is of delicious flavor and is called butter avocado (*Aguacate de mantequilla*)."

35676. *PERSEA AMERICANA* Miller. **Avocado.**
(*Persea gratissima* Gaertn. f.)

"From San Mateo. The fruit is ovoid, and about 10 to 12 centimeters in both diameters. Much esteemed."

35677 to 35684. *STIZOLOBIUM* spp.

Presented by Mr. D. Hooper, Office of Economic Botanist, Botanical Survey of India Department, Calcutta, through Mr. C. V. Piper, of the Bureau of Plant Industry. Received July 2, 1913.

Quoted notes by Mr. Hooper.

35677. *STIZOLOBIUM* sp.

"(Reg. No. 34979.) From Hajipur subdivision, Mozufferpur, Behar; locally called *Kabach*."

35678. *STIZOLOBIUM CINEREUM* Piper and Tracy.

"(Reg. No. 35055.) From Kessaria, Chumparun, Behar; locally called *Kabach*."

35679. *STIZOLOBIUM* sp.

"(Reg. No. 35085.) From Mozufferpur, Behar; locally known as *Kabach*. These shiny beadlike black seeds are probably *S. capitatum*."

35680. *STIZOLOBIUM* sp.

"(Reg. No. 35096.) From Cuttack, Orissa; locally called *Byle*. This also appears to resemble *S. capitatum*."

35677 to 35684—Continued.**35681. STIZOLOBIUM sp.**

"(Reg. No. 35236.) From Falam, Chin Hills, Burma; locally known as *Ra* or *Aunglauk*."

35682. STIZOLOBIUM sp.

"(Reg. No. 35237.) Probably from Falam, Chin Hills, Burma; locally known as *Ewe-shewl*, *Bu-shule*, or *Yum-man*. These are large marbled seeds of gray, brown, and black, and come very close to the Darjeeling specimen."

35683. STIZOLOBIUM ATERRIMUM Piper and Tracy.

"(Reg. No. 35238.) From Akyab, Burma; locally called *Pe-det-quet*."

35684. STIZOLOBIUM CAPITATUM (Roxb.) Kuntze.

"(Reg. No. 35271.) From Ketah Durbar, Rajputana where it is known as a bean."

35685. OPUNTIA sp.**Prickly pear.**

From Augusta, Ga. Presented by the P. J. Berckmans Co.

"Hardy cactus from Argentina; 3-year seedlings." (*R. C. Berckmans*.)
Plants.

35686 and 35687. SOLANUM spp.**Potato.**

From Guaqui Mole, Bolivia. Presented by Dr. C. W. Foster, La Paz, Bolivia, at the request of Mr. W. F. Wight, of the Bureau of Plant Industry. Received July 7, 1913.

"Wild potatoes collected at Guaqui Mole." (*Foster*.)

35688. LANSIUM DOMESTICUM Jack.**Duku.**

From Buitenzorg, Java. Presented by the director, Department of Agriculture. Received July 11, 1913.

35689. CORYPHA ELATA Roxburgh.**Buri palm.**

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

"Trunk straight, 60 to 70 feet high, 2 feet in diameter, spirally ridged; leaves lunate, 8 to 10 feet in diameter, segments 80 to 100, separated nearly to the middle, ensiform, obtuse or bifid; petioles 6 to 12 feet, with black margins and curved spines; spadix about one-fourth the length of the trunk, but narrow. Bengal and Burma." (*N. Taylor, in Bailey, Standard Cyclopaedia of Horticulture*.)

35690 to 35700. CITRUS spp.

From India. Received from Mr. R. S. Woglum, Bureau of Entomology, Department of Agriculture, who procured them from the government gardens at Nagpur and the botanical gardens at Seharunpur, India. Received at the Plant Introduction Field Station, Miami, Fla.

35690. CITRUS sp.**Orange.**

"*Mussempi*. This word is, of course, a corruption of Mozambique. The introduction of this orange into India is unknown, but it is probably traceable to the early Portuguese settlers at Goa. It is commonly grown in the Dekkan, and is a handsome orange color, of the *Malta* type. As a sucking orange it is to my mind delicious. It comes into bearing very early. I am unable in all instances to personally testify to the quality of the varieties, as up to the present many of them have not fruited properly since I have been in charge here." (*A. C. Hartless*.)

35690 to 35700—Continued.

"The *Mussempi* orange is shaped much like the *Valencia* and is about the same size. In flavor it is very sweet. From the botanical gardens, Seharunpur, India." (*Woglum.*)

35691. CITRUS NOBILIS DELICIOSA (Tenore) Swingle. **Madeiran orange.**

"*Nagpur*. From the government gardens, Nagpur, India. This is a well-known orange, and supposed to be one of the best, if not the best, grown in India. I, however, attribute its superlative quality to its coming into season at a time when such fruits are more appreciated rather than at the time when most other oranges are in season. As doubtless you are aware, oranges can fruit twice a year, at least in India, and at Nagpur the conditions are especially favorable for the second fruiting, or '*dumrez*,' as it is called in the vernacular. We grow the *Nagpur* variety, but we can say that it differs but very little from the ordinary *Suntra*, which, by the way, is a class in itself, and includes with us several varieties. It is a class or type, much in the way the *Malta* is." (*A. C. Hartless.*)

"The Nagpur orange is a large, loose-jacketed orange of the tangerine group." (*Woglum.*)

35692. CITRUS GRANDIS (L.) Osbeck. **Pomelo.**

"Red. From the botanical gardens, Seharunpur, India." (*Woglum.*)

35693. CITRUS GRANDIS (L.) Osbeck. **Pomelo.**

"Large, white fleshed. From the botanical gardens, Seharunpur, India." (*Woglum.*)

"These two varieties (S. P. I. Nos. 35692 and 35693) differ from one another only in the color of the flesh. They are of the large oblate varieties. They are not very much used by the Europeans in India, but more so by Indians. I follow Bonavia in thinking that the pomelo group is much more extensive than is generally supposed. I know two or three varieties that are called limes here, but which are undoubtedly pomelos." (*A. C. Hartless.*)

35694. CITRUS LIMONIA Osbeck. **Lemon.**

"Round, seedless. I regret that I can not at present give you any information concerning this, other than it came from Cawnpore. Presumably it is like some other varieties and distinguished as being seedless." (*A. C. Hartless.*)

35695. CITRUS AURANTIFOLIA (Christm.) Swingle. **Lime.**

"*Kaghzi*. From the botanical gardens, Seharunpur, India. *Kaghzi* in the vernacular means 'paper,' referring to the thin rind. This is the true lime of India. There are possibly various forms of it. It is one of the hardiest citrus fruits we have, particularly in withstanding drought and extreme heat. It is extensively grown around jails to supply the prisoners with lime juice, and is in fruit more or less all the year round." (*A. C. Hartless.*)

35696. CITRUS sp. **Lime.**

"*Atanni*. From the botanical gardens, Seharunpur, India." (*Woglum.*)

35697. CITRUS sp. **Lime.**

"*Atanni kala*. Is known in this garden as a lime, but is, I am convinced, a pomelo. The termination or last name *kala* should be *kalan*. *Kala* means 'black,' but *kalan* means 'large,' which, I think, is what is intended here. There is no doubt that the proper spelling of this word should be *Atanni*, which means eight annas, or half a rupee, implying possibly, as Bonavia says, that it is half the size of the pomelo. Its uses are similar to that of the pomelo." (*A. C. Hartless.*)

"From the botanical gardens, Seharunpur, India." (*Woglum.*)

35690 to 35700—Continued.**35698.** CITRUS sp.**Lime.**

"*Sylhet or Rangpur.* It is difficult to account for the double name attached to this variety. Sylhet is a well-known district in eastern India, whereas Rangpur is a district in the United Provinces. I think that originally plants were obtained from both places and subsequently found to be identical. I think this is the same as Reasoner Bros.' 'Sour Rangpur.' It is an excellent lime and is in fruit most of the year." (*A. C. Hartless.*)

"From the botanical gardens, Seharunpur, India." (*Woglum.*)

35699. CITRUS MEDICA L.**Sour citron.**

"*Jamberi.* From the government gardens, Nagpur, India." (*Woglum.*)

To be used for stocks.

35700. CITRUS SINENSIS (L.) Osbeck.**Orange.**

"*Sikhim.* From the botanical gardens, Seharunpur, India." (*Woglum.*)

35701. PRUNUS ARMENIACA L.**Apricot.**

From Rome, Italy. Presented by Dr. Gustav Eisen, California Academy of Sciences, San Francisco, Cal. Received July 17, 1913.

"Cuttings of a new apricot from Monte Porcio Catone. It is the handsomest apricot I have yet seen, though not the very largest, and this year I have come across a variety of *Crisomelo* much larger. The *Monte Porcio Catone* is the most highly colored apricot I have seen, carmine red on one side, and the yellow is vivid, like that of a peach, and not dull, as is generally the case with apricots. It is of high flavor, ripening here at the end of June, and very sweet, the only defect being that the seed is slightly adherent to the flesh, but its other good qualities will make it valuable. As far as I can learn it is a seedling." (*Eisen.*)

35702. HAEMANTHUS FASCINATOR Linden.

From Brussels, Belgium. Presented by Mr. Edmund Leplace, acting director general, Ministry of the Colonies. Received July 17, 1913.

"Seeds of a beautiful species of the genus *Haemanthus*, from Belgian Kongo." (*Leplace.*)

"Plant with a bulbous base. Leaves 6 to 9, petiole 15 to 17 cm. long, semicylindrical, enlarged, sheathed at the base, with wings 2 to 3 mm. wide at the center; limb oval, subacute, rounded at the base, 21 to 22 cm. long and 10 cm. wide, pale on both sides, with the medial nerve violet colored on the back; lateral nerves to the number of 13 to 16 on each side of the medial nerve. Peduncle central with relation to the leaves, about 30 cm. long and 8 mm. wide; umbel attaining a diameter of 20 cm.; multiflorous; valves of the spathe linear oblong, 5 to 6 cm. long, reflexed.

"Flowers bright red, with slender pedicels, 30 to 40 mm. long; ovary green, 3 to 4 mm. in diameter; tube cylindrical, short, 7 to 10 mm. in length; lobes lanceolate linear, 22 to 25 mm. long, acute, furnished with a tuft of down at the summit, about 3 mm. wide. Filaments of the stamens 37 to 42 mm. long, with anthers about 2 mm. long. Style slender, much longer than the filaments.

"Since its appearance this species, gathered in the Kongo, has attracted the attention of the horticultural world. *Haemanthus fascinator* belongs in the same group as *H. germanianus*, *H. longipes*, *H. etveldeanus*, and *H. laurentii*, and is closely related to *H. diadema* and *H. lindeni*, from which it differs by the much shorter tube of the perianth. It differs from *H. longipes* and *H. etveldeanus* by the elongated filaments, from 37 to 42 mm. long, and from *H. laurentii* by its lobes, only 22 to 23 mm. long and 2 to 3 mm. wide. *H. fascinator*, *mirabilis*, and *diadema* have been described in the

'Meeting' of the Royal Horticultural Society of London, March 26, 1901, and the English horticultural papers, among others the 'Gardeners' Chronicle,' in its number of May 25, have drawn the attention of amateurs to them.

"Dr. Masters believes that in view of the general conditions in which these plants grow in the Kongo, that is to say, under the constant shade of the equatorial forest, in a light soil composed of sand and decayed vegetable matter, it will be easy to cultivate them in the temperate lands, and that they promise to have a great horticultural future." (*Journal Société Nationale d' Horticulture, ser. 4, vol. 3, 1902.*)

35703 to 35868.

Collected by Mr. W. F. Wight, of the Bureau of Plant Industry. Received July 3, 1913.

Quoted notes by Mr. Wight.

- 35703 to 35723.** SOLANUM TUBEROSUM L. **Potato.**
- 35703.** "(No. 400.) From Oruro, Bolivia."
35704. "(No. 401.) From La Paz, Bolivia."
35705. "(No. 402.) From La Paz, Bolivia."
35706. "(No. 403.) From Oruro, Bolivia."
35707. "(No. 405.) From Cuzco, Peru."
35708. "(No. 406.) From La Paz, Bolivia."
35709. "(No. 407.) From La Paz, Bolivia."
35710. "(No. 408.) From La Paz, Bolivia."
35711. "(No. 409.) From La Paz, Bolivia."
35712. "(No. 410.) From Cuzco, Peru."
35713. "(No. 411.) From Oruro, Bolivia."
35714. "(No. 412.) From Cuzco, Peru."
35715. "(No. 413.) From Cuzco, Peru."
35716. "(No. 414.) From Cuzco, Peru."
35717. "(No. 415.) From Oruro, Bolivia."
35718. "(No. 416.) From La Paz, Bolivia."
35719. "(No. 417.) From Oruro, Bolivia."
35720. "(No. 418.) From Cuzco, Peru."
35721. "(No. 419.) From Cuzco, Peru."
35722. "(No. 420.) From Cuzco, Peru."
35723. "(No. 421.) From Cuzco, Peru."
- 35724.** ULLUCUS TUBEROSUS Caldas. **Melluco.**
 "(No. 422.) From Cuzco, Peru. Tubers about 1½ inches long, oblong; skin yellow, splashed with red or pink."
- 35725 and 35726.** SOLANUM TUBEROSUM L. **Potato.**
- 35725.** "(No. 423.) From La Paz, Bolivia."
35726. "(No. 426.) From Cuzco, Peru."
- 35727.** ULLUCUS TUBEROSUS Caldas. **Melluco.**
 "(No. 427.) From Cuzco, Peru. Tubers about 1½ inches in diameter, more or less spherical; skin light pink."
- 35728 to 35730.** SOLANUM TUBEROSUM L. **Potato.**
- 35728.** "(No. 428.) From Oruro, Bolivia."
35729. "(No. 429.) From Cuzco, Peru."
35730. "(No. 430.) From La Paz, Bolivia."

35703 to 35868—Continued.**35731. ULLUCUS TUBEROSUS** Caldas.**Melluco.**

"(No. 431.) From Cuzco, Peru. Tubers 3 to 14 inches long, cylindrical; skin light yellow."

35732 to 35739. SOLANUM TUBEROSUM L.**Potato.****35732.** "(No. 432.) From Cuzco, Peru."**35733.** "(No. 433.) From La Paz, Bolivia."**35734.** "(No. 434.) From Cuzco, Peru."**35735.** "(No. 435.) From Cuzco, Peru."**35736.** "(No. 436.) From Cuzco, Peru."**35737.** "(No. 437.) From Cuzco, Peru."**35738.** "(No. 438.) From La Paz, Bolivia."**35739.** "(No. 439.) From Oruro, Bolivia."**35740. ULLUCUS TUBEROSUS** Caldas.**Melluco.**

"(No. 440.) From Cuzco, Peru. Tubers about 1½ inches long, ovoid; skin light pink."

35741 to 35752. SOLANUM TUBEROSUM L.**Potato.****35741.** "(No. 441.) From Cuzco, Peru."**35742.** "(No. 442.) From Cuzco, Peru."**35743.** "(No. 443.) From Cuzco, Peru."**35744.** "(No. 445.) From Cuzco, Peru."**35745.** "(No. 446.) From La Paz, Bolivia."**35746.** "(No. 447.) From Oruro, Bolivia."**35747.** "(No. 448.) From La Paz, Bolivia."**35748.** "(No. 449.) From Cuzco, Peru."**35749.** "(No. 450.) From Cuzco, Peru."**35750.** "(No. 451.) From Cuzco, Peru."**35751.** "(No. 452.) From Cuzco, Peru."**35752.** "(No. 453.) From Cuzco, Peru."**35753. ULLUCUS TUBEROSUS** Caldas.**Melluco.**

"(No. 454.) From La Paz, Bolivia. Tubers 1¼ inches long, oblong; skin light yellow."

35754 to 35783. SOLANUM TUBEROSUM L.**Potato.****35754.** "(No. 456.) From Cuzco, Peru."**35755.** "(No. 458.) From Cuzco, Peru."**35756.** "(No. 459.) From La Paz, Bolivia."**35757.** "(No. 461.) From Cuzco, Peru."**35758.** "(No. 463.) From Oruro, Bolivia."**35759.** "(No. 464.) From Oruro, Bolivia."**35760.** "(No. 465.) From Oruro, Bolivia."**35761.** "(No. 466.) From Cuzco, Peru."**35762.** "(No. 467.) From Oruro, Bolivia."**35763.** "(No. 468.) From La Paz, Bolivia."**35764.** "(No. 469.) From Cuzco, Peru."**35765.** "(No. 470.) From Cuzco, Peru."**35766.** "(No. 471.) From Oruro, Bolivia."

35703 to 35868—Continued.

35767. "(No. 472.) From Oruro, Bolivia."
 35768. "(No. 473.) From Oruro, Bolivia."
 35769. "(No. 474.) From Cuzco, Peru."
 35770. "(No. 475.) From Cuzco, Peru."
 35771. "(No. 477.) From Cuzco, Peru."
 35772. "(No. 478.) From Cuzco, Peru."
 35773. "(No. 479.) From La Paz, Bolivia."
 35774. "(No. 480.) From Cuzco, Peru."
 35775. "(No. 481.) From Cuzco, Peru."
 35776. "(No. 482.) From Oruro, Bolivia."
 35777. "(No. 483.) From Oruro, Bolivia."
 35778. "(No. 484.) From Cuzco, Peru."
 35779. "(No. 485.) From Oruro, Bolivia."
 35780. "(No. 486.) From Oruro, Bolivia."
 35781. "(No. 487.) From Oruro, Bolivia."
 35782. "(No. 488.) From Lima, Peru."
 35783. "(No. 489.) From Tarma, Peru."
- 35784. ULLUCUS TUBEROSUS** Caldas. **Melluco.**
 "(No. 490.) From Lima, Peru. Tubers cylindrical, about $2\frac{3}{4}$ inches long; skin olive green, splashed with red."
- 35785 to 35793. SOLANUM TUBEROSUM** L. **Potato.**
 35785. "(No. 492.) From Lima, Peru."
 35786. "(No. 493.) From Arequipa, Peru."
 35787. "(No. 494.) From Arequipa, Peru."
 35788. "(No. 495.) From Lima, Peru."
 35789. "(No. 496.) From Arequipa, Peru."
 35790. "(No. 497.) From Arequipa, Peru."
 35791. "(No. 498.) From Arequipa, Peru."
 35792. "(No. 500.) From Lima, Peru."
 35793. "(No. 501.) From Arequipa, Peru."
- 35794. ULLUCUS TUBEROSUS** Caldas. **Melluco.**
 "(No. 502.) From Lima, Peru. Tubers nearly spherical, about 1 inch in diameter; skin olive green."
- 35795. SOLANUM TUBEROSUM** L. **Potato.**
 "(No. 503.) From Lima, Peru."
- 35796. ULLUCUS TUBEROSUS** Caldas. **Melluco.**
 "(No. 504.) From Lima, Peru. Tubers cylindrical, about $2\frac{1}{2}$ inches long; skin bright red."
- 35797 to 35824. SOLANUM TUBEROSUM** L. **Potato.**
 35797. "(No. 505.) From Lima, Peru."
 35798. "(No. 506.) From Arequipa, Peru."
 35799. "(No. 507.) From Oroya, Peru."
 35800. "(No. 509.) From Arequipa, Peru."
 35801. "(No. 510.) From La Paz, Bolivia."
 35802. "(No. 511.) From Tarma, Peru."



A COLLECTION OF WILD AND CULTIVATED POTATO AND MELLUCO TUBERS FROM SOUTH AMERICA. (S. P. I. Nos. 35703 to 35868.)

Mr. W. F. Wight made a preliminary investigation of the potato situation in Chile and Peru, extending his explorations to the Chiloe Archipelago of southern Chile. This represents only a portion of the tubers secured. Among them is the remarkable yellow-fleshed potato and a number of wild forms, the economic possibilities of which have yet to be determined. (Photograph P11806FS.)



Inventary 36, Seeds and Plants Imported.

PLATE II.

A GROVE OF CHINESE CHESTNUT TREES (*CASTANEA MOLLISSIMA*) AT SAN TUN YING, CHINA. (S. P. I. No. 35891.)

These trees were only slightly attacked by the bark disease, according to Mr. Meyer, and it is hoped the species will show a high degree of resistance in America. The tree is too small to replace the American chestnut for any purpose except the production of nuts. (Photographed by Frank N. Meyer, May 28, 1913; P5846FS.)

35703 to 35868—Continued.

35803. "(No. 512.) From Lima, Peru."
 35804. "(No. 513.) From Lima, Peru."
 35805. "(No. 514.) From Lima, Peru."
 35806. "(No. 515.) From Lima, Peru."
 35807. "(No. 516.) From Lima, Peru."
 35808. "(No. 517.) From Lima, Peru."
 35809. "(No. 519.) From Arequipa, Peru."
 35810. "(No. 520.) From Tarma, Peru."
 35811. "(No. 521.) From Arequipa, Peru."
 35812. "(No. 522.) From Arequipa, Peru."
 35813. "(No. 523.) From Oroya, Peru."
 35814. "(No. 524.) From Oroya, Peru."
 35815. "(No. 525.) From Oroya, Peru."
 35816. "(No. 527.) From La Paz, Bolivia."
 35817. "(No. 528.) From Cuzco, Peru."
 35818. "(No. 529.) From Oruro, Bolivia."
 35819. "(No. 530.) From Cuzco, Peru."
 35820. "(No. 531.) From Cuzco, Peru."
 35821. "(No. 532.) From Cuzco, Peru."
 35822. "(No. 533.) From Arequipa, Peru."
 35823. "(No. 534.) From Cuzco, Peru."
 35824. "(No. 535.) From Oruro, Bolivia."

35825 to 35828. ULLUCUS TUBEROSUS Caldas.

Melluco.

35825. "(No. 536.) From Lima, Peru. Tubers nearly spherical, about $1\frac{1}{2}$ inches in diameter; skin pink."
 35826. "(No. 537.) From Lima, Peru. Tubers cylindrical, about $1\frac{1}{2}$ inches long; skin light yellow.
 35827. "(No. 538.) From Lima, Peru. Tubers oblong, sometimes somewhat constricted in the center, about $1\frac{1}{4}$ inches long; skin olive green."
 35828. "(No. 539.) From Cuzco, Peru. Tubers oblong oval, about $1\frac{1}{4}$ inches long; skin pink, with spots of dark red."

35829 to 35868. SOLANUM TUBEROSUM L.

Potato.

35829. "(No. 540.) From Cuzco, Peru."
 35830. "(No. 541.) From Lima, Peru."
 35831. "(No. 542.) From Lima, Peru."
 35832. "(No. 543.) From Cuzco, Peru."
 35833. "(No. 544.) From La Paz, Bolivia."
 35834. "(No. 545.) From La Paz, Bolivia."
 35835. "(No. 546.) From La Paz, Bolivia."
 35836. "(No. 547.) From Oruro, Bolivia."
 35837. "(No. 548.) From Oruro, Bolivia."
 35838. "(No. 549.) From Oruro, Bolivia."
 35839. "(No. 550.) From Oruro, Bolivia."

35703 to 35868—Continued.

- 35840.** "(No. 551.) From Oruro, Bolivia."
35841. "(No. 552.) From Oruro, Bolivia."
35842. "(No. 553.) From Arequipa, Peru."
35843. "(No. 554.) From Arequipa, Peru."
35844. "(No. 555.) From Lima, Peru."
35845. "(No. 556.) From Lima, Peru."
35846. "(No. 557.) From Lima, Peru."
35847. "(No. 558.) From Lima, Peru."
35848. "(No. 559.) From Cuzco, Peru."
35849. "(No. 560.) From Cuzco, Peru."
35850. "(No. 561.) From Cuzco, Peru."
35851. "(No. 562.) From Cuzco, Peru."
35852. "(No. 563.) From Oruro, Bolivia."
35853. "(No. 564.) From Oruro, Bolivia."
35854. "(No. 565.) From Oruro, Bolivia."
35855. "(No. 566.) From Lima, Peru."
35856. "(No. 567.) From Lima, Peru."
35857. "(No. 568.) From Lima, Peru."
35858. "(No. 569.) From Lima, Peru."
35859. "(No. 570.) From Arequipa, Peru."
35860. "(No. 571.) From Arequipa, Peru."
35861. "(No. 572.) From Arequipa, Peru."
35862. "(No. 573.) From Arequipa, Peru."
35863. "(No. 574.) From Arequipa, Peru."
35864. "(No. 579.) From Cuzco, Peru."
35865. "(No. 580.) From Cuzco, Peru."
35866. "(No. 581.) From Lima, Peru."
35867. "(No. 582.) From Lima, Peru."
35868. "(No. 583.) From Lima, Peru."

For an illustration of a part of this collection of potato and melloco tubers, see Plate I.

35869 to 35883.

Collected by Mr. W. F. Wight, of the Bureau of Plant Industry. Received July 3, 1913.

Quoted notes by Mr. Wight.

35869 to 35874. *OXALIS TUBEROSA* Molina.

Oca.

35869. "(No. 424.) From Cuzco, Peru."

Distribution.—An herbaceous perennial bearing potato like tubers, found in Bolivia, Peru, and Chile.

35870. "(No. 425.) From Oruro, Bolivia."

35871. "(No. 444.) From Cuzco, Peru."

35872. "(No. 455.) From Oruro, Bolivia."

35873. "(No. 457.) From Cuzco, Peru."

35874. "(No. 460.) From La Paz, Bolivia."

35869 to 35883—Continued.

- 35875.** PERSEA AMERICANA Miller. Avocado.
 (*Persea gratissima* Gaertn. f.)
 “(No. 462.) From Cuzco, Peru.”
- 35876.** OXALIS TUBEROSA Molina. Oca.
 “(No. 476.) From Oruro, Bolivia.”
- 35877.** PERSEA AMERICANA Miller. Avocado.
 (*Persea gratissima* Gaertn. f.)
 “(No. 518.) From Lima, Peru.”
- 35878 and 35879.** IPOMOEA BATATAS (L.) Poir. Sweet potato.
35878. “(No. 508.) Round fruit from Lima, Peru.”
35879. “(No. 526.) Red-skinned fruit from Lima, Peru.”
- 35880 to 35883.** OXALIS TUBEROSA Molina. Oca.
35880. “(No. 575.) From Oruro, Bolivia.”
35881. “(No. 576.) From Oruro, Bolivia.”
35882. “(No. 577.) From Oruro, Bolivia.”
35883. “(No. 578.) From Cuzco, Peru.”

35884. SPONDIAS CYTHEREA Sonnerat. We fruit.
 (*Spondias dulcis* Forster.)

From Buitenzorg, Java. Presented by the director, Department of Agriculture
 Received July 17, 1913.

35885. LANSIUM DOMESTICUM Jack. Duku.

From Buitenzorg, Java. Presented by the director, Department of Agriculture.
 Received July 17, 1913.

35886 and 35887.

From Cambridge, England. Presented by Mr. R. Irwin Lynch, curator, Cambridge Botanic Garden. Received July 15, 1913.

35886. CAJUPUTI HYPERICIFOLIA (Salisb.) Skeels. Hillock tree.
 (*Melaleuca hypericifolia* Smith.)

35887. HELIOPHILA SCANDENS Harvey.

“The genus *Heliophila* belongs to South Africa. *H. scandens* is a perennial climber with white flowers, the only climbing species of the genus, and, with the exception of the Peruvian *Cremolobus*, the only climbing member of the natural order of Cruciferae. This makes it extremely interesting from the botanical point of view, but it is also of interest horticulturally as a white-flowered climber flowering freely in the depth of winter. From this point of view there is nothing to compete with it, and for lighting up a conservatory at this time of the year it is certainly of value. It is slender in habit, sparingly branched; the leaves are 1½ or 2 inches long, elliptic or oblong lanceolate, acuminate, and pale green; the flowers are in racemes, pure white, and borne in considerable numbers. They do not appear to be fragrant, as has been stated. The plant was introduced to Kew some years ago from the Botanical Gardens of Durban, in which locality, as well as Manda, in Natal, it inhabits shady places among shrubs. In a corridor at the Botanic Garden, Cambridge, it flourishes and flowers every year. The culture does not appear difficult, and the plant strikes readily from cuttings.” (*Gardeners' Chronicle*, January 20, 1912.)

35888. ARECA SAPIDA Solander.**Nikau palm.***(Rhopalostylis sapida* Wendl. and Drude.)

From Kohu Kohu, Hokianga, New Zealand. Presented by Mr. G. J. Clapham, Public Works Department, Wellington. Received July 18, 1913.

"Seeds of the nikau palm, which is quite hardy in this country." (*Clapham.*)

"A tree sometimes 30 feet in height. Stem ringed, green. Leaves 14 feet in length. Spathes two or three, 12 inches long. Flowering axis white; flowers white. Drupe one-half inch long. Both islands, as far south as Akaroa on the east coast and Dusky Bay on the west.

"This elegant and graceful palm is found usually in thick bush. Any specimen standing alone will have its leaves bruised or broken. The Maoris used the nikau leaves in the construction of their whares, or native huts. A framework was made of manuka sticks, and the roof and walls composed of palm leaves, which formed a covering as water-tight as if built of iron. These leaves keep out the wet in a marvelous manner, even when the thatching is so open that one can see the clouds and stars through the interstices. Every separate leaf division is a little channel, which conducts the rain drops to the ground outside. Nikau whares are extremely pretty and picturesque, but are now rarely seen, owing to the unfortunate cheapness of corrugated iron. Bushmen, however, still make them occasionally for temporary residences.

"The top of the stem is fleshy and juicy, and is sometimes eaten. The nikau palm will stand fire almost as well as the cabbage tree. After a big bush fire most of the trees are killed except the nikau, the cabbage trees, and the fern trees.

"The flowers are sessile upon a thick, fleshy axis, the whole inflorescence being inclosed when young in a large spathe. The fruit is of a vivid red when ripe, appearing like a huge bunch of coral. The berries are about the size of a large pea and are extremely hard. They have been used by settlers for bird shooting when ammunition was scarce. Though so hard, however, they are much relished by the kakas or wild parrots. These birds, unable to find foothold upon the smooth stem of the palm, hang upside down, with one claw fixed on the base of the leaf, and thus enjoy their meal.

"The leaf strips are much used by the Maoris for weaving into baskets and kits of every description.

"The bark is ringed with cicatrices formed by the falling off of the dead leaves. The base of a fallen leaf, with the fanlike part torn off, makes an excellent basket for carrying flowers." (*Laing and Blackwell, Plants of New Zealand.*)

35889. IXERBA BREXIOIDES Cunningham.**Tawari.**

From Wellington, New Zealand. Presented by Mr. E. Clifton, director, Fields and Experimental Farms Division, Department of Agriculture. Received July 17, 1913.

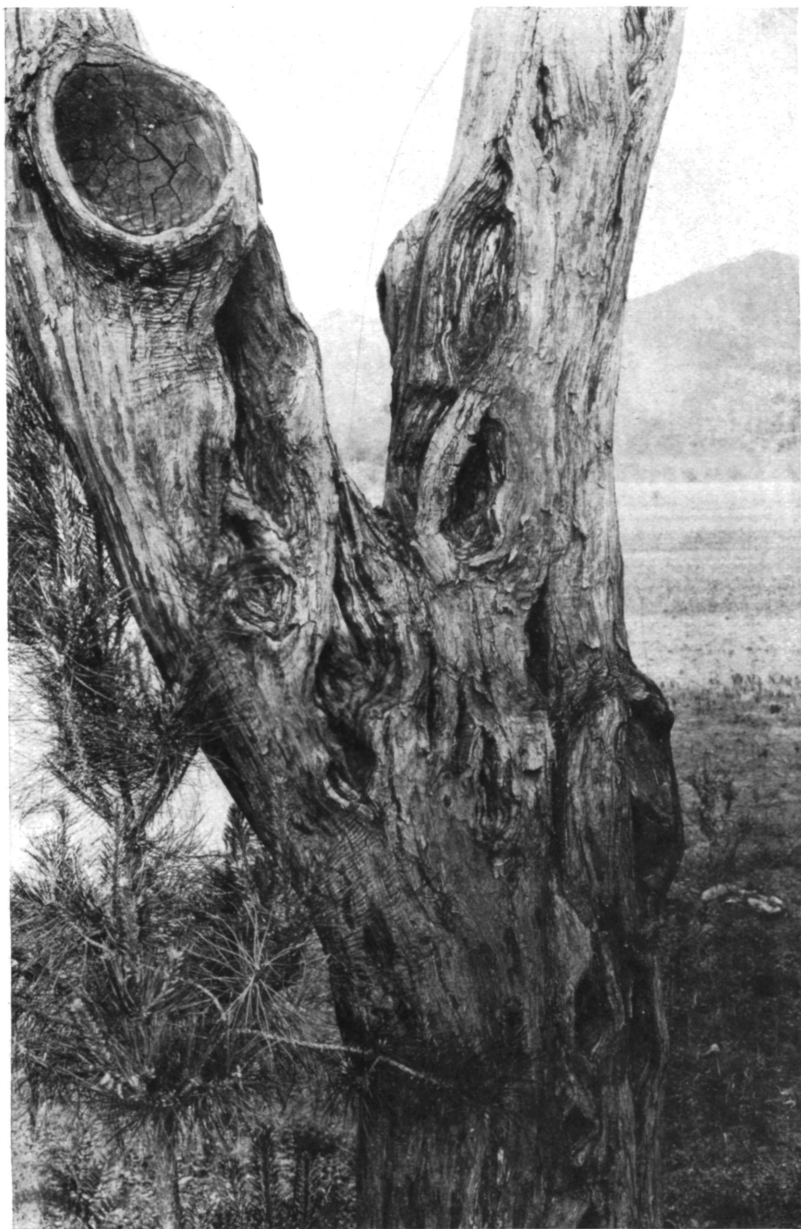
"A beautiful evergreen tree, sometimes 70 feet in height, with thick, leathery leaves and flat panicles of white flowers. Considered by Kirk to be the most beautiful tree in the New Zealand flora." (*Laing and Blackwell, Plants of New Zealand.*)

Distribution.—A small tree having a hard, dense wood, found in the forests on the hills in the North Island of New Zealand up to an elevation of 3,000 feet.

35890. RAPHANUS SATIVUS L.**Egyptian black radish.**

From Tampa, Fla. Received from Mr. Peter Bisset, of the Bureau of Plant Industry, who procured the seed from Dr. W. C. Richardson, Tampa, Fla. Received July 16, 1913.

"A large variety, said to be superior in quality to the well-known Japanese Sakurajima radish. Original seed collected in Egypt by Dr. W. C. Richardson. The plants from which this seed was raised were grown at Dr. Richardson's place in Tampa." (*Bisset.*)



THE TRUNK OF AN OLD CHINESE CHESTNUT TREE (*CASTANEA MOLLISSIMA*) NEAR
SAN TUN YING, CHINA. (S. P. I. No. 35891.)

The partly healed scars of the wounds which were made by the bark disease (*Endothia parasitica*) probably 50 years ago indicate, according to Mr. Meyer, that this bark disease is not a new introduction into this part of China. (Photographed by Frank N. Meyer, June 3, 1913; P13008FS.)



Inventory 36. Seeds and Plants Imported.

PLATE IV.

AN ELM-LEAVED FLOWERING PLUM (*PRUNUS TRILOBA*) AT PEKING, CHINA. (S. P. I. No. 36112.)

An April-flowering dooryard shrub which is a great favorite with the Chinese, forms of which have proved hardy in New York State. Its flowers are delicate rosy pink, suited to semiarid regions and for forcing purposes. (Photographed by Frank N. Meyer, April 17, 1913; P5864FS.)

35891. CASTANEA MOLLISSIMA Blume.**Chestnut.**

From San Tun Ying, China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received July 21, 1913.

“(No. 1867a. San Tun Ying, China. May 30, 1913.) *Lee tze*. A good quality of seeds of a Chinese chestnut coming from the best chestnut district of North China. This North China chestnut has no value as a timber tree, being of a low-branching open-headed growth, while the trees do not grow tall, specimens over 40 feet in height being rare. It seems, however, much more resistant to the bark fungus disease than the American chestnut, and it might be utilized in certain hybridization experiments in trying to combine the good qualities of both the American and the Chinese parents into one tree. This chestnut loves a well-drained, decomposed granite soil, preferably at the foot of hills or of mountains; it also seems quite averse to strong winds and therefore thrives best in well-sheltered valleys. In its native localities it is but little cultivated, the peasants being contented to plant a few trees here and there along the bases of hills and on sloping fields, and the trees in general look much thriftier when close to rocks and boulders than when seen on fairly level fields. From the nature of the tree and the climate where it grows one might conclude that sheltered valleys in the foothill sections of the Rocky Mountain region will probably suit this chestnut better than any other section in the United States, and some serious attempts should be made to establish it in these regions as a hardy nut-bearing tree. The Chinese roast these nuts in wintertime in large open iron pans in a mixture of sand with some coarse sugar or molasses in it. This treatment gives the chestnuts a glossy, appetizing appearance.” (*Meyer*.)

For illustrations of this chestnut tree as found growing in China, see Plates II and III.

35892. CASTILLA NICOYENSIS O. F. Cook.**Central American rubber tree.**

From San Jose, Costa Rica. Presented by Mr. Carlos Wercklé, Department of Agriculture. Received July 19, 1913.

“A medium-sized tree, 10 to 20 meters high. Limbs divaricate, ascending, or horizontal. Floriferous twigs covered with a dense coating of rather long, brownish hairs, longitudinally striate when dry and filled with a thick, white pith. Leaves of medium size, deciduous. Petioles 1 to 2 cm. long, thick and densely hairy. Leaf blades 20 to 46 cm. long, 10 to 20 cm. broad, more or less cordate-emarginate at base, acuminate at tip, covered on the upper surface with sparse hair, this thicker on the midrib and primary veins, paler and hairy, especially on the veins, beneath. Nervation regular, prominent beneath. Margin distinctly dentate-sinuate, with tufts of hair on the teeth. The young leaves are dark green and sparsely hairy above, densely hairy tomentose beneath; the indentation of the margin is scarcely noticeable, and the base is often only rounded or scarcely emarginate. So far *Castilla nicoyensis* is reported from the peninsula of Nicoya only, but the probability is that it will be found all along the coast of the Pacific, from Nicaragua to Panama. It is a good rubber producer, the milk being particularly abundant toward the end of the dry season, and to this fact is due its almost complete extermination in the western forests of Costa Rica.” (*Pittier, Treatment of the genus Castilla, Contr. U. S. Nat. Herb., vol. 13, pp. 275-277, 1910.*)

35893. ANACOLOSA LUZONIENSIS Merrill.**Galo.**

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

“Seeds of a newly discovered fruit. The seed contains a very high grade starchy kernel, which may be eaten raw or roasted, and which is at certain seasons a very important article of diet among the Filipinos. When thoroughly ripe the pulp surrounding the shell is also edible and is a very delicious thing. Galo fruit occurs only in the hilly interior of Cavite Province.” (*Barrett*.)

35894. ABELMOSCHUS MINDANAENSIS Warb.

From Lamao, Bataan, Philippine Islands. Presented by Mr. P. J. Wester, horticulturist, Division of Horticulture, Lamao Experiment Station. Received July 21, 1913.

35895. TECOMA JASMINOIDES Lindl.**Bower of beauty.**

From Tolga, Queensland, Australia. Presented by Mr. J. A. Hamilton. Received July 17, 1913.

"Seeds of a wild tecoma vine, very ornamental and sweet scented, but it grows only in our drier districts in granite formations." (*Hamilton.*)

Distribution.—A woody climber with panicles of white flowers having a red throat, found in Queensland and New South Wales.

35896. CAESALPINIA CORIARIA (Jacq.) Willd.**Divi-divi.**

From Contreras, Federal District of Mexico, Mexico. Presented by Mr. William Brockway, superintendent, Hotel Imperial Gardens. Received July 21, 1913.

"*Cascalote.* This is a small tree, 20 to 30 feet high, native of several of the West Indian Islands, Mexico, Venezuela, and north Brazil. The primary divisions of its leaves vary from 9 to 15, each bearing from 16 to 24 narrow, oblong, blunt leaflets marked with black dots on the under surface. It has branched racemes of white flowers, which produce curiously flattened pods about 2 inches long by three-fourths broad, and curved so as to bear some resemblance to the letter S. The large percentage of tannin in these pods renders them exceedingly valuable for tanning purposes; they are known in commerce under the names of Divi-divi, Libi-divi, or Libi-dibi, and chiefly imported from Maracaibo, Paraiba, and the Dominican Republic." (*A. Smith, in Lindley's Treasury of Botany.*)

35897. SESAMUM ORIENTALE L.**Sesame.**

(*Sesamum indicum* L.)

From Contreras, Federal District of Mexico, Mexico. Presented by Mr. William Brockway, superintendent, Hotel Imperial Gardens. Received July 21, 1913.

"Local name *Ajoujili.*" (*Brockway.*)

35898. SWARTZIA LANGSDORFFII Raddi.

From Rio de Janeiro, Brazil. Presented by Mr. E. C. Green. Received July 24, 1913.

"One of Brazil's local timber trees, native of this State (Rio de Janeiro). Tree 16 inches in diameter, 75 feet high. Local name *Pacoya macacos.* Endures a little frost on the higher lands. Likes granite and clayey loam soils." (*Green.*)

35899. SOLANUM sp.**Bitter potato.**

From Guaqui, Bolivia. Presented by Dr. C. W. Foster, through Mr. W. F. Wight, of the Bureau of Plant Industry. Received August 22, 1913.

"This *Solanum* is the *papa amarga*, or bitter potato, which the natives of some parts of both Peru and Bolivia offer in the market in a frozen state. It is apparently rarely, if ever, placed on sale in the natural or ordinary condition." (*Wight.*)

35900. GLADIOLUS sp.**Wild gladiolus.**

From Pretoria, Union of South Africa. Presented by Fred G. Nicholson, secretary, Transvaal Agricultural Union. Received July 24, 1913.

"Bulbs of the wild gladioli common in the Transvaal." (*Nicholson.*)

35901. STIZOLOBIUM STANS (Welw.) Kuntze.*(Mucuna stans Welw.)*

From Pungo Ndongo, Angola. Presented by Mr. J. Gossweiler, Loanda, Angola, at the request of Dr. Otto Stapf, Royal Botanic Gardens, Kew, England.
Received July 29, 1913.

Distribution.—A much-branched erect shrub, 5 to 6 feet high, found in the highlands of Angola.

35903. MANGIFERA INDICA L.**Mango.**

From Manila, Philippine Islands. Presented by Mr. O. W. Barrett, chief, Division of Horticulture, Bureau of Agriculture. Received August 4, 1913.

“*Carabao*. Said to come true from seed.”

See S. P. I. Nos. 24927 and 25659 for previous introductions.

35904. COUMAROUNA ODORATA Aublet.**Tonka bean.***(Dipteryx odorata Willd.)*

From the Solorzano Cacao Estate at Borburata, near Puerto Cabello, Venezuela.

Received through Mr. H. Pittier, of the Bureau of Plant Industry. Received July 29, 1913.

“This tree was introduced less than 20 years ago as a tentative shade for cacao. When the first lot came into bearing it was found that they were far more productive as a crop producer than even cacao itself (I was told that last year’s crop sold at \$500 a hundredweight, or \$5 a pound), so the plantation has been extended along the foot of the hills all around the Solorzano estate. As a shade tree the species was not successful; it does not rise high enough to allow good ventilation, and its foliage is too dense. The leaves are smooth and composed generally of four petiolulate, alternate ovate leaflets, borne on a broadly winged petiole. The flowers are purplish pink and grouped together in short, rounded, terminal racemes. There is seldom more than one fruit to each raceme, an egg-shaped pod, with a smooth, resisting, yellowish skin and a fleshy-spongy mesocarp, the flavor of which is rather agreeable to smell and taste. Each pod contains one of the black elongated seeds known as the tonka bean, which contains the alkaloid known as coumarin, extensively used in perfumery. The Venezuelan tonka bean is apparently what is commercially known as the English tonka bean. Its native country is in the little-known tract embracing the headwaters of the Orinoco and the northern reaches of the Amazon River. The Venezuelan annual crop is exported through Ciudad Bolivar, after having gone through a process of curing, which consists of soaking the beans in rum for about 12 hours and drying them again by exposure to the sun. They then become covered with a thin, white, minutely crystalline coating and so acquire their characteristic perfume.” (*Pittier.*)

35905. MYRISTICA FRAGRANS Houttuyn.**Nutmeg.**

From the Solorzano Cacao Estate at Borburata, near Puerto Cabello, Venezuela.

Received through Mr. H. Pittier, of the Bureau of Plant Industry, July 29, 1913.

“A medium-sized tree, 30 to 50 feet high, native of the Molukkas. The nutmeg of shops is the hard brown oval kernel of the fruit. Immediately surrounding it is the scarlet aril, or mace, in the form of a net, next to which is the thick, fleshy, juicy husk. The pale-amber fruit much resembles a peach or an apricot in form and appearance. When ripe, the husk splits and discloses the nut covered with the mace. The nuts drop to the ground, when they are collected and separated from the mace; both are then dried separately in the sun or in heated sheds. The nuts are graded for export; 70 to 120 or more go to the pound, these fetching at present (1910) in London

about 8 pence to 1 shilling 4 pence, and 4½ pence to 10½ pence per pound, respectively, the largest size commanding the highest price. The tree thrives best in deep, loamy, and well-drained soil, in a hot and moist climate, and up to 1,500 feet elevation. Being dioecious, that is, the male and female flowers borne on separate trees, it is impossible to tell to which sex a tree belongs until it flowers. The proportion of 1 male to 10 or 12 female trees (or 10 males to an acre) should be enough for insuring the fertilization of the flowers of the latter. The trees become productive at the age of 7 or 8 years, and increase in yield till they reach about 30 years, when the crop may be 3,000 to 5,000 or more nuts per tree. They produce two crops a year, and continue to be productive for very many years. Trees about 70 years old in Peradeniya Gardens bear very heavy crops annually and appear to be now in their prime. Propagation is usually by seed, which take about three months to germinate. Sow in pots or boxes under cover, or in a well-prepared bed in a shady corner; cover with an inch of fine soil, and water daily in dry weather; artificial shade is beneficial until the seeds have germinated. When the seedlings are old enough to handle, transfer them to baskets or bamboo pots and plant out in permanent places when 8 or 10 inches high, at distances of about 30 feet apart. Owing to the uncertainty of the proportion of male to female plants when raised from seed, propagation by budding or inarching should as far as possible be resorted to." (*Macmillan, Handbook of Tropical Gardening and Planting.*)

35906. LANSIUM DOMESTICUM Jack.**Duku.**

From Buitenzorg, Java. Presented by the director, Department of Agriculture. Received July 31, 1913.

For previous introduction, see S. P. I. No. 35885.

35907 and 35908. CEIBA PENTANDRA (L.) Gaertner.**Kapok.**

From Nairobi, British East Africa. Presented by Mr. Ralph M. Odell, commercial agent, Department of Commerce and Labor, who secured them from Mr. A. C. MacDonald, Director of Agriculture. Received August 1, 1913.

"Pods of the so-called kapok cotton tree, which grows wild out here. The fiber is very soft and silky, but the staple is very short and I am in doubt as to whether it could be spun into yarn without a great deal of difficulty or without special machinery." (*Odell.*)

35909. MAMMEA AMERICANA L.**Mammee apple.**

From Puerto Plata, Dominican Republic. Presented by Mr. Charles M. Hathaway, jr., American consul. Received August 4, 1913.

"Seeds and fruits of the mammee picked from a tree on the land of Eugenie Deschamps, on the edge of Puerto Plata. The leaves are dark olive green and shiny. The fruit is hard, solid, and heavy. When ripe it is of a yellowish brown color and has on the surface grayish specks like those on a potato skin. The rind is thick and leathery and may be readily stripped off after being quartered like the rind of an orange. It has the smell of an apricot. The larger specimens are from 16 to 18 inches in circumference and contain three stones; smaller ones contain one or two stones. The meat, which is of the color and smell of an apricot, is solid and adheres to the stones like that of a green peach. The fruit becomes soft only when decay sets it, as it does without showing any sign from the outside except softness to the touch. It should be eaten when still hard, but a little yielding to pressure. After the rind is stripped off, the fibrous layer that covers the meat should be scraped away. All the rest may be eaten. I have been told that the meat is improved by soaking a little while in salt water before eating. It is made into two sorts of jam, or dulce, as it is called here." (*Hathaway.*)

35910. CASSIA BEAREANA Holmes.

From Inhamban, Portuguese East Africa. Presented by Rev. Pliny W. Keys, superintendent, Limpopo District Methodist Episcopal Mission. Received August 5, 1913.

See S. P. I. No. 34367 for previous introduction.

35911. PHOENIX DACTYLIFERA L.**Date.**

From Algiers, Algeria. Purchased from Mr. Yakia Ben Kassem. Received at Indio, Cal., by Mr. Bruce Drummond, August 4, 1913.

"*Tazizoot*. A soft date from the M'Zab region of the Algerian Sahara. The fruit ripens rather early. It is of excellent flavor, resembling that of the Tedalla variety, but is mealier and drier." (*W. T. Swingle*.)

35912 to 35915. PISUM SATIVUM L.**Pea.**

From Budapest, Hungary. Presented by Mr. F. E. Mallett, American vice consul general. Received July 14, 1913.

Quoted notes by Mr. Mallett.

35912. "(No. 1.) Green."

35914. "(No. 3.) Cream."

35913. "(No. 2.) Orange."

35915. "(No. 4.) Light green."

"The above varieties are used as split peas."

35916 and 35917.

From Seoul, Chosen (Korea). Presented by Rev. H. Loomis, American Bible Society, Yokohama, Japan, who secured them from Mr. O. Saito, of the Agricultural, Commercial, and Industrial Department of the Government General. Received August 5, 1913.

35916. PINUS BUNGEANA Zucc.**Pine.**

"A tree sometimes forming a rounded, bushy head, but frequently branching near the ground and forming several stems, which grow erect to a height occasionally of 80 to 100 feet. The bark is smooth and peels off the trunk like that of the plane; in young specimens it is brown, but in old ones becomes quite white and gives to this pine its most remarkable character. Young shoots perfectly smooth, shining, greyish green. Leaves in threes, persisting four or five years, about 3 inches long, two edged, stiff, sharply pointed, bright green, very minutely toothed, marked all round with faint stomatic lines; leaf sheath one-half to three-fourths inch long, soon falling. Cones 2 to 2½ inches long, 1¼ to 1½ inches wide, shortly stalked, the scales terminated by decurved, triangular spines; seeds one-third inch long, without wings.

"Native of China, first seen by Dr. Bunge in 1831 in the environs of Peking, where it has been largely planted for the sake of its remarkable white trunk; introduced by Fortune in 1848. It has lately been seen in quantity by Wilson in central China. It is distinct from all other 3-leaved pines, except *P. gerardiana*, in the deciduous leaf sheaths. It succeeds very well at Kew, where there are trees approaching 30 feet in height, not yet, however, showing the white bark. This is said not to appear, even in China, until the trees are 50 years old." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, pp. 175-176.*)

35917. CASTANEA sp.**Chestnut.**

"These chestnuts are of a variety that is free from any injury by insects, is very sweet, has a loose husk to the kernel, and seems to me to be of great importance because of its healthfulness." (*Loomis*.)

35918 to 35975.

Collected by Mr. W. F. Wight, of the Bureau of Plant Industry.

Quoted notes by Mr. Wight, except as indicated.

35918. ALSTROEMERIA sp.

From Chile. Received June 10, 1913. "(No. 107.) An herbaceous plant 2½ to 3 feet high with umbels of large, yellowish, very handsome flowers. In the forests between Petrufquen and Villarica."

35919. ALSTROEMERIA sp.

From Talcahuano, Chile. Received May 7, 1913. "(No. 58.) A very ornamental herbaceous plant with pinkish flowers. These seeds were gathered from rather small plants in very light soil. It should do much better under good conditions."

35920. APIUM sp.**Wild celery.**

From Quilan, Chile. Received June 10, 1913. "(No. 191.) A wild celery from south of Quilan. This has more or less the same taste as *Apium graveolens* and can be utilized in the same way. This should prove a valuable plant. I found it only near the sea."

35921 and 35922. ARAUCARIA ARAUCANA (Molina) Koch.**Pehuen.**

35921. From Concepcion, Chile. Received June 10, 1913. "(No. 122.) Piñon nuts sold in the market at Concepcion. The natives bring them in from the mountains."

35922. From Temuco, Chile. Received June 10, 1913. "(No. 167.) Piñon nut from the mountains east of Temuco. Very common in many localities."

35923 and 35924. BERBERIS spp.**Barberry.**

From San Martin, Argentina. Received June 6, 1913.

35923. BERBERIS EMPETRIFOLIA Persoon.

"(No. 139. March 1, 1913.) This has narrow needlelike leaves and is a low-growing shrub, those I found being not more than 24 inches high."

"A low, densely branched shrub, up to 2 feet high: last year's branches slightly angular, brown, the young ones purplish, often bloomy: spines 1 to 3 parted, one-fourth to three-fourths inch long; leaves linear, as long as the spines, strongly revolute at the margin, spiny pointed; bright green; flowers 1 or 2, on slender pedicels, about one-fourth inch long; fruit globose, bluish black, about one-fourth inch in diameter." (*Rehder, in Bailey, Standard Cyclopaedia of Horticulture.*)

Distribution.—The southern part of South America, extending from latitude 30° S. in Chile southward to the Strait of Magellan.

35924. BERBERIS DARWINII Hooker.**Michai.**

"(No. 141. March 1, 1913.) Very common in southern Chile, but only at San Martin did I find fruit. Doubtless the coldest locality in which I found it."

"An evergreen shrub of dense habit, from 6 to 12 feet high: branchlets covered with a dense, reddish brown down. Leaves very dark, glossy green, stalkless, hard in texture, obovate, three-fourths inch to 1½ inches long, the apex three spined, and with one to several spiny teeth down each side; they spring in tufts from the axils of short multiple spines.

35918 to 35975—Continued.

Flowers on drooping racemes 1½ to 2 inches long, each flower on a slender stalk longer than itself, deep golden or orange colored, tinged with red; petals elliptical, notched at the tip. Fruit plum colored, roundish oval, the size of small peas.

“Native of Chile; first discovered by Charles Darwin in 1835, when attached as naturalist to the *Beagle* on her famous voyage. It was introduced in 1849 by William Lobb for Messrs. Veitch, from the Island of Chiloe. One of the finest of all evergreen shrubs; this is also tolerably hardy. It likes a good loamy soil and should be given a position sheltered from cutting winds. It is in its greatest beauty, of course, during April and May, when laden with its profusion of golden blossom, but it is often very attractive also in early autumn, bearing a large crop of the bluish berries and occasionally a small crop of flowers. Should be propagated by seeds.” (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 233.*)

35925. CARICA CANDAMARCENSIS Hook. f. **Mountain papaya.**

From Quillota, Chile. Received June 6, 1913. “(No. 254.) Seeds of papaya. These fruits were grown in Quillota and are therefore perhaps as hardy as any to be had in Chile. Otherwise they are not noteworthy.”

See S. P. I. Nos. 35142 and 35143 for previous introductions and descriptions.

35926. CISSUS STRIATA Ruiz and Pavon.

(*Vitis striata* Miq.)

From Concepcion, Chile. Received June 6, 1913. “(No. 133.) An ornamental climber which produces an enormous quantity of dark-blue berries. Found on the hills above Concepcion.”

“An evergreen climber; young stems slender, angled, hairy, and very leafy; tendrils threadlike. Leaves 1½ to 3 inches across, composed of five scarcely stalked leaflets radiating from the end of a common stalk three-fourths of an inch to 1½ inches long. Leaflets obovate or oblanceolate, one-half inch to 1½ inches long, one-fourth to three-fourths inch wide; tapered at the base, coarsely toothed towards the apex, each tooth tipped abruptly with a short gland; dark glossy green, and smooth on both surfaces. Flowers green, produced in small cymes. Fruits about the size and shape of small red currants, but of a reddish purple color.

“Native of Chile and south Brazil; introduced about 1878. Against a wall this survives all but the hardest winters, but is tender in the open. It is a very elegant plant, luxuriantly leafy, and with beautifully cut leaves. Tweedie, the Kew collector in South America, called it the ‘ivy of Uruguay,’ and says it covers the bushes with red berries in winter. It thrives very well in the south and west [of England] and bore large crops of fruit at St. Leonards as long ago as 1885, but the berries were purplish rather than red. When cut down to the ground by frost it will often break up again the following summer, but on the whole it is only well adapted for the mildest counties.” (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, pp. 676-677.*)

35927. CISSUS STRIATA Ruiz and Pavon.

(*Vitis striata* Miq.)

From Chile. Received June 10, 1913.

“(No. 138.) Similar to No. 133 (S. P. I. No. 35926). Found between Concepcion and Talcahuano.”

35918 to 35975—Continued.**35928 to 35932. COTONEASTER spp.**

- 35928.** From Chile. "(No. 59.) A shrub with a dark-green rather glossy foliage, of compact habit, and exceedingly thorny. It produces an abundance of purplish blue berries one-fourth to three-eighths inch in diameter, which add to the attractiveness of the shrub. It should make an excellent hedge plant."
- 35929.** From Chile. "(No. 60.) Similar to No. 59 (S. P. I. No. 35928), but less thorny."
- 35930.** From Llifén, Chile. "(No. 115.) Hedge plant with small glossy leaves and sharp thorns. It produces an abundance of small berries, and the plant should make a very attractive hedge. Flowers not seen."
- 35931.** From Panguipulli, Chile. "(No. 129. February 23, 1913.) Hedge plant, produces a large crop of blue berries and is much taller growing than the *Colletia* sp., No. 35951."
- 35932.** From Lancotrara, Chile. "(No. 130.) A shrub similar to No. 35931."

35933 to 35942. CUCUMIS MELO L.**Muskmelon.**

- 35933.** From Concepcion, Chile. "(No. 85.) Rather small, of gourdlike appearance, secured in the market at Concepcion. Apparently very few European or North American seeds are sold in Chile. The farmers save their own seeds from year to year, and consequently there is a greater chance of securing unusual strains than would be the case if they planted only European or North American varieties."
- 35934.** From Concepcion, Chile. "(No. 86.) Rather small, elongated, mottled yellow; secured in the market at Concepcion."
- 35935.** From Santiago, Chile. Received June 10, 1913. "(No. 250.) White flesh and good quality."
- 35936.** From Santiago, Chile. Received June 6, 1913. "(No. 249.) Melon with white flesh and of good quality."
- 35937.** From Santiago, Chile. Received June 6, 1913. "(No. 251.) Melon with white flesh and of good quality."
- 35938.** From Santiago, Chile. Received June 10, 1913. "(No. 252.) Melon with white flesh, good quality."
- 35939.** From Concepcion, Chile. Received May 7, 1913. "(No. 88.) Round, medium size. For further notes, see S. P. I. No. 35933."
- 35940.** From Concepcion, Chile. Received May 7, 1913. "(No. 89.) Large, deep yellow, good quality. For further notes, see S. P. I. No. 35933."
- 35941.** From Concepcion, Chile. Received May 7, 1913. "(No. 90.) Medium size. For further notes, see S. P. I. No. 35933."
- 35942.** From Chile. "(No. 175.) This melon was cylindrical in shape, about 13 inches long, with deep, white flesh and of fair quality. So many melons are picked before they are properly ripened that it is difficult to judge what the quality might be if they matured on the vines."

35943 and 35944. CUCURBITA spp.**Squash.**

From Chile.

35943. "(No. 317.)"**35944.** "(No. 318.)"

35918 to 35975—Continued.**35945.** *TRICONDYLUS FERRUGINEUS* (Cav.) Salisb.

From Villarica, Chile. "(No. 113. February 17, 1913.) A particularly fine bignoniaceous ornamental tree perhaps 20 to 30 feet high, with finely divided fernlike foliage. Lago Villarica, north side."

35946 and 35947. *EMBOTHRIMUM COCCINEUM* Forst.

Ciurelillo.

35946. "From Valdivia, Chile. (No. 174. March 15, 1913.) Ornamental tree about 20 to 30 feet high. Said to have very handsome red flowers."

"This remarkable evergreen small tree perhaps hardly comes within the scope of this work, for it is suitable only for the mildest parts of our islands, such as Cornwall, the southwest of Ireland, and similar places. It has dark glossy green, somewhat leathery leaves, ovate-lanceolate or oval, $2\frac{1}{2}$ to $4\frac{1}{2}$ inches long, three-fourths inch to $1\frac{1}{2}$ inches wide; blunt ended, smooth and entire. Flowers brilliant crimson scarlet, produced in wonderful profusion in short axillary and terminal racemes. Each flower is borne on a thin stalk one-half to three-fourths inch long, and is at first a slender tube 1 to $1\frac{1}{2}$ inches long; afterwards the four strap-shaped lobes (in the broadest part of which the anthers are enclosed) curl back, exposing the long, erect style. Perhaps no tree cultivated in the open air in the British Isles gives so striking and brilliant a display of color as this does. In some of the Cornish gardens there are specimens 30 feet high, and about the same through. Like many of its natural order [Proteaceæ] it is often short lived, and after 20 to 25 years is liable to die suddenly without any assignable reason. A native of Chile; introduced by William Lobb in 1846; flowers in May. A tree 40 feet high at Kilmacurragh has a trunk $1\frac{1}{2}$ feet in thickness and produces suckers from the roots." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, pp. 510-511.*)

35947. "From Quilan, Chile. (No. 190.) Ornamental tree with handsome red flowers. Grows 20 to 30 feet high."

35948 to 35950. *ENARGEA* spp.

From Chile. Received June 10, 1913.

35948. "From Lago Villarica. (No. 101.) A vine with foliage slightly resembling smilax and quite ornamental. Flowers were not seen. Found in the dense forest on the north side of Lago Villarica."

35949. "(No. 185.) A vine with attractive smilaxlike foliage, berries red, flowers not seen."

35950. "From Quilan, Chile. (No. 188.) A vine quite similar to No. 185 (S. P. I. No. 35949), but with white berries. Found south of Quilan."

35951. *COLLETIA* sp.

"From Panguipulli, Chile. (No. 128.) A shrub growing 4 to 5 feet high; very thorny and suitable for hedges."

35952. *FUCHSIA MACROSTEMA* Ruiz and Pavon.

Fuchsia.

"From Quilan, Chile. Received June 10, 1913. (No. 192.) South of Quilan. Probably two species mixed. These grow about 6 or 8 feet high."

35953. *FRAGARIA CHILOENSIS* (L.) Duchesne.

Strawberry.

From Chiloe, Chile. Received June 10, 1913. "(No. 186.) These fruits were much out of season and were quite round, very different in form from those

35918 to 35975—Continued.

sent from Santiago. Millions of these plants grow on the sands of the shore, sometimes hardly beyond the reach of the waves. West coast of Chiloe."

35954 and 35955. GEVUINA AVELLANA Molina. Avellano.

35954. From southern Chile. Received June 10, 1913. "(No. 229. February 16, 1913.) The nuts are edible and the tree is a remarkably handsome one. It should prove a very desirable ornamental wherever it can be grown in the United States. Found between Petrufquen and Villarica, but widely distributed in southern Chile."

35955. From Chile. Received May 7, 1913. "(No. 56.) An evergreen tree with very handsome foliage, and when loaded with its bright-red nuts it is particularly fine as an ornamental. The nuts are about five-eighths of an inch in diameter and are agreeable in taste. The tree grows well on the hills near Concepcion, but is probably more abundant and reaches its greatest development in the province of Valdivia, where the rainfall is greatest. Its maximum height is about 25 feet."

35956. GREIGIA SPHACELATA (Ruiz and Pavon) Regel.

From Quilan, Chile. Received June 10, 1913. "(No. 227.) *Chuno*. Perhaps a species of Bromelia. The natives eat the seed capsule, which contains a sweet juice, and consider it a delicacy. Should not be confused with the dried potato called *chuño* in Peru."

35957 and 35958. GUNNERA CHILENSIS Lam.

Received June 10, 1913.

35957. "From Panguipulli, Chile. (No. 93.) *Nalea*. An araceous plant growing in very wet, springy ground at Panguipulli. It is sometimes called Chilean rhubarb, and the leaf stalks are utilized in the same way that rhubarb is. The natives are quite fond of it, but North Americans and Europeans do not consider it quite equal to rhubarb. I was told that an excellent jelly could be made from the juice. In some other parts of Chiloe, notably on the island of Chiloe, the plant attains a large size, the leaves standing considerably above a man's head, and the leaf stalks are 4 or 5 inches in diameter. These large plants were found on high, sandy bluffs near the sea. The plant seems to adapt itself to a variety of situations."

35958. From Valdivia, Chile.

"(No. 195.) Market at Valdivia, but obtained wild in several other places."

35959. LAPAGERIA ROSEA Ruiz and Pavon.

From Concepcion, Chile. "(No. 319.) Copihue."

"Stems many feet in length, climbing, terete, branched, naked below, here and there scaly. Leaves petiolate, ovate-lanceolate, coriaceous, glossy, acuminate, five nerved, and reticulated. Peduncles axillary and solitary, longer than the petioles, bearing a single, handsome, lilylike pendulous flower, of a deep-red rose color, internally especially spotted with white. Outer sepals spatulate, with a gibbosity at the base, inner ones resembling them, but broader and more spotted. Stamen and style shorter than the perianth. The roots are used by the Chilenos as a substitute for sarsaparilla (*Smilax sarsaparilla*). The large, oblong, pulpy berry is prized as an esculent fruit, having a sweet and most agreeable flavor." (*Botanical Magazine, pl. 4447, 1849.*)

35918 to 35975—Continued.**35960. LARDIZABALA BITERNATA** Ruiz and Pavon.

From Llifén, Chile. "(No. 152. March 8, 1913.) This fruit is sweet and very agreeable; grows about $2\frac{1}{2}$ inches long."

"A climbing, copiously leaved evergreen shrub, native of Chile, and growing as far south as Concepcion. Davy, who introduced the plant by sending it to Messrs. Veitch, writes: 'When I first saw it in the Province of Concepcion I was so much struck with the singularly dark color of the flowers and the beauty of the foliage, that I gave instructions to have a root sent to me at Valparaiso, which was done; and it is the plant now in your possession. The fruit is sold in the Chilean markets.' According to Decaisne, cordage is made of the tough fiber. A climbing shrub, with terete, but often twisted branches, bearing leaves, which, especially in the flowering branches, are generally simply ternate, but sometimes biternate and triternate; the leaflets petioled, subcoriaceous, evergreen, ovate, here and there almost spinosely dentate, dark green above, paler and reticulated beneath. Peduncles solitary, from the axil of a leaf; at the base bearing two large unequally cordate spreading bracteas; these we also find at the axil of the leaf, even where there is no flower stalk. Flowers forming a dense drooping spike of numerous rather large, deep purplish, chocolate-colored flowers. The calyx is of six rhomboid-ovate, spreading, fleshy sepals, nearly equal in our specimens. Corolla of six spreading, lanceolate, or almost subulate white, mealy, membranaceous petals. Stamens six, united into a column, and bearing six spreading, oblong, slightly incurved, apiculated, 2-celled anthers opening at the back. A native of woods in the south of Chile, it proves perfectly hardy in this climate [London]. A plant in this garden [Kew] has withstood the cold of the last three winters without injury, and Mr. Veitch informs us that in his nursery there is a specimen 12 feet high growing against a wall. It is a beautiful evergreen creeper, with dark-green foliage, and well adapted for covering high walls. It is a rapid grower, and apparently not particular as to situation, but, from its habit, we infer that shady places suit it best." (*Botanical Magazine, pl. 4501, 1850.*)

35961 and 35962. LATHYRUS spp.

35961. "From Lago Villarica, Chile (No. 106). Growing along the stony beach, north side of Lago Villarica. Not common."

35962. "From Argentina (No. 134, March 4, 1913). In the forest along the shore of Lago Lacar."

35963. CUCUMIS MELO L.**Muskmelon.**

From Concepcion, Chile. "(No. 87.) Small, of very fair quality. For further notes, see S. P. I. No. 35934."

35964 and 35965. LATHYRUS spp.

35964. "(No. 140.) Near Huahun, Argentina, February 28, 1913."

35965. "(No. 179.) From Quilan, west coast of Chiloe."

35966. LATHYRUS SATIVUS L.

From Talcahuano, Chile. "(No. 240.) *Chichara.*"

35967. LAURELIA SEMPERVIRENS (Ruiz and Pavon) Tul.

From Panguipulli, Chile. "(No. 127.) An evergreen forest tree attaining a height of 70 feet and valued for its timber, which is used principally for interior work or for furniture. The foliage and flowers are aromatic."

35918 to 35975—Continued.**35968. LITHREA CAUSTICA** (Mol.) Hook. and Arn.

From Concepcion, Chile. "(No. 43.) A small shrub on the dry hills above Concepcion. Probably of interest only in a botanical garden."

35969. LUPINUS ARBOREUS Sims.

From near Talcahuano, Chile. "(No. 57.) This species grows about 4 feet high on light, rather dry soil, and may prove useful as a sand binder."

"A low, woody shrub with succulent branches. Leaves petiolate, in alternate fascicles about four together; leaflets lanceolate, broadest towards the point, acuminate, slightly pubescent or silky, underneath. Flowers in terminal, distantly verticillated spikes, 3 to 5 in each whorl, with pedicels nearly the length of the flower; sweet scented. Calyx bilabiate; lips entire, acute, keeled, the upper one shortest. Corolla yellow, vexillum orbiculate, reflected at the side; wings large, covering the keel and joined together at the point; keel acute, black pointed. Pod flat, pointed at both ends. Seeds somewhat oblong, very little flattened, shining, black. It is usually treated as a greenhouse plant, but at the Botanic Garden, Oxford, we observed in the same year a large shrub growing in the open ground, in a sheltered situation, in front of the greenhouse, where it produced an abundance of ripe seeds." (*Botanical Magazine*, pl. 682, 1803.)

35970. MIKANIA sp.

From Concepcion, Chile. "(No. 46.) A vine with large clusters of small white flowers. After the petals fall the reddish pappus remains, and it is even more conspicuous."

35971. MUTISIA LATIFOLIA Don.

From Lancotrara, Chile. Received June 10, 1913. "(No. 100.) From south of Villarica. A vine with pink flowers (Compositæ) very similar to the vine with red flowers obtained in the mountains above Santiago."

35972. MUTISIA sp.

From Huahun, Chile. Received June 10, 1913. "(No. 135, March 4, 1913.) A composite vine with pink flowers. Apparently the same as that found at Lancotrara (S. P. I. No. 35971), but this is a much higher altitude."

35973. PSIDIUM sp.

From Chile. "(No. 181.) A shrub 3 to 8 feet high, very compact in habit, and with rather glossy foliage. The flowers are white and the fruits are a half inch or more in diameter. These fruits were collected from shrubs growing along the edge of a huge sand dune and half a mile or more from the seashore at Quilan on the west side of the island of Chiloe, in what is probably a region of very heavy rainfall. This species may probably serve as a stock for the strawberry guava."

35974 and 35975. PERSEA LINGUE (Ruiz and Pavon) Nees.**Lingue.**

From Chile.

35974. "(No. 99, February 20, 1913.) From the south side of Lago Villarica. This is a large forest tree, the bark of which is extensively used in tanning. It is said to contain about 18 per cent tannin. I understand that the seeds are very difficult to germinate."

35975. "From Molco. (No. 169.) *Lingue*. See previous number 99 (S. P. I. No. 35974) for description."

35976 and 35977. ASPARAGUS spp.**Asparagus.**

From Smyrna, Turkey. Presented by Mr. M. E. Lambichi. Received September 22, 1913.

35976. "Called *Acutifolius*." (*Lambichi*.)

35977. "Nicknamed in Smyrna *Avrouniae*." (*Lambichi*.)

35978 to 36000.

Collected by Mr. W. F. Wight, of the Bureau of Plant Industry. Quoted notes by Mr. Wight, except as indicated.

35978. CHENOPODIUM QUINOA Willd.

Quinoa.

"From La Paz, Bolivia. (No. 390.)"

35979. PSIDIUM sp.

Guava.

"From Panguipulli, Chile. (No. 116, February 24, 1913.) A shrub 3 to 8 feet high, very compact in habit, and with rather glossy foliage; the flowers are white; fruits a half inch or more in diameter. This species may possibly serve as a stock for the strawberry guava."

35980 to 35982. TRITICUM AESTIVUM L.

Wheat.

(*Triticum vulgare* Vill.)

35980. "From Chile. (No. 180.) Wheat said to be an old Spanish variety, called *Candiel*. From Quilan, west coast of Chiloe Island."

35981. "(No. 230.) *Cuyo*. Said to have been brought by the first Spanish colonists. From Quilan, west coast of Chiloe Island."

35982. "(No. 231.) This has been grown for nine years in Chiloe. Previously brought from Osorno, Chile, and originally from Germany."

35983. TROPAEOLUM TUBEROSUM Ruiz and Pavon.

"(No. 111.) Found between Petrufulquen and Villarica, Chile. A vine with rather small digitate leaves and very handsome red flowers, resembling nasturtiums somewhat, though smaller. This is one of the most attractive small climbers I have seen."

35984 and 35985. PHASEOLUS VULGARIS L.

Bean.

"From Panguipulli, Chile. No names were known for the beans at this place, but most of them were different from those found farther north."

35984. "(No. 92.)"

35985. "(No. 95.)"

35986. DRIMYS WINTERI Forster.

Canelo.

"From Panguipulli, Chile. (No. 96.) A tree with rather broad leaves, and growing perhaps 30 feet high. It is one of the very few native trees that have been grown in Chilean nurseries, and this to a very limited extent. Flowers were not seen."

"*Laura*, a shrub, which grows usually about 5 meters high and is characterized by small, thick green leaves, green bark, and the green berries which it bears in February and March in large clusters." (*Willis, Northern Patagonia, p. 362.*)

"A handsome evergreen shrub, rather tender, and really satisfactory only in the milder parts of the kingdom: young shoots smooth, often tinged with red. Leaves lanceolate, 5 to 10 inches long, smooth, bright, rather pale green, very aromatic when crushed. Flowers borne in a cluster of loose umbels, from four to seven in each umbel: they are ivory white, fragrant, and about 1¼ inches across: petals linear, pointed, spreading.

35978 to 36000—Continued.

"Native of South America from Tierra del Fuego to north of the equator; introduced as a living plant in 1827, but known since 1578, in which year its bitter, aromatic bark was brought home by Capt. Winter (after whom it is named) in one of Drake's ships from the Magellan Straits. In the southwest of England it is a free-growing shrub 12 to 25 feet high; but, wild in South America, it is described as over 40 feet high. At Gravetye Manor, near East Grinstead, a group of plants 4 feet high came through the trying winter of 1908-09 with little injury. At Kilmacurragh, County Wicklow, a specimen is 30 feet high." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, pp. 502-503.*)

35987. (Undetermined.)

"From Lago Villarica, Chile. (No. 108. February 17, 1913.) A vine climbing on trees to the height of 20 feet. Flowers 1½ inches long, red, and very handsome. Leaves small."

35988. *ALEXTOXICON PUNCTATUM* Ruiz and Pavon.

Palo muerto.

"From Lago Villarica, Chile. (No. 109. February 17, 1913.) A forest tree with foliage resembling *Elaeagnus*. It is known locally in Chiloe as *Tique*. Should be valuable as an ornamental."

35989. *ROSA* sp.

Rose.

"From Llifén, Chile. (No. 117.) This has run wild in many localities in southern Chile. The fruits are unusually large, and from them the natives make a most excellent marmalade. This suggests the possibility of improving both this and other species of *Rosa* with large fruits."

35990. *PERNETTYA MUCRONATA* (L. f.) Gaud.

"(No. 119.) A small ornamental shrub with white berries, resembling *Symphoricarpos*. From the east end of Lago Rinihue."

"A hardy, evergreen shrub, of considerable beauty, on account of the neat appearance and dark color of its foliage; its flowers are pretty, but they are small, and do not make much appearance. Within three years it has formed a bush 3 feet 6 inches in diameter, and 2 feet 6 inches high." (*Botanical Register, pl. 1675, 1834.*)

35991. (Undetermined.)

"From Chile. (No. 121.) A very compact creeping plant which may be used as a lawn cover in shady places, perhaps. It forms a very close, compact mat. It has small yellowish berries, resembling those of some species of *Relbunium*."

35992. *UGNI MOLINAE* (Barn.) Turcz.

Murta.

(*Myrtus molinae* Barn.)

"From Llifén, Chile. (No. 124.) *Murta*. A myrtaceous shrub with edible berries, often gathered and sold in the markets of various towns. A dulce is made from these berries that is considered very fine. No attempt has been made to cultivate, but with selection no doubt a berry considerably larger could be obtained. Found near Llifén, near Lago Ranco."

"A Chilean evergreen, with leathery, ovate leaves very like those of the myrtle, but with smaller flowers, shorter inclosed stamens, and reflexed, awl-shaped sepals. Petals five. It is sometimes grown on walls, and is only about as hardy as the myrtle itself. It bears a blue-black, juicy, and very palatable fruit." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 92.*)

35978 to 36000—Continued.

35993. PHASEOLUS VULGARIS L.**Bean.**

"From Angol, Chile. (No. 132.) A bean which Mr. Manuel Bunster, at Angol, obtained from Los Angeles, Chile, but for which he has no name. He considers it one of the best he has ever grown, both as to quality and productiveness."

35994. (Undetermined.)

"From Chile. (No. 136.) Half vine, half shrub, with long racemes of black berries. Found at the east end of Lago Rinihue. Flowers not seen. Apparently not common."

35995. VICIA sp.

"From Quilan, Chile. (No. 182.) This, of course, has been introduced from Europe."

35996. PISUM ARVENSE L.**Field pea.**

"(No. 183.) A variety grown at Quilan, Chile."

35997. PERNETTYA MUCRONATA (L. f.) Gaud.

"From Quilan, Chile. (No. 189.) A thorny shrub with very handsome edible pink berries. An excellent hedge plant."

"An evergreen shrub, 2 to 5 feet high, spreading freely by suckers and forming ultimately a dense, low thicket; young branches thin and wiry, sometimes furnished with a few appressed, forward-pointing bristles, or short down, but usually becoming smooth in a short time. Leaves alternate, dense upon the branches, ovate to oblong, very shortly stalked, one-third to three-fourths inch long, one-eighth to one-fourth inch wide, toothed and spiny pointed, hard in texture. Flowers produced singly in the leaf axils near the end of the shoot, in May. Corolla white, nodding, cylindrical, about one-fourth inch long, five toothed. Calyx five lobed, green; stamens 10; flower stalk one-fourth inch long. Fruit a globose berry one-third to one-half inch in diameter, containing many very small seeds; it varies in color from pure white to pink, lilac, crimson, and purple, or almost black.

"Native of the region about the Straits of Magellan; introduced in 1828. This is one of the hardiest of South American shrubs and is rarely severely injured by frost in the neighborhood of London. Certainly it is one of the finest ornamental berry-bearing shrubs we have. Its berries attain their color by early autumn, and remain on the branches through the winter and following spring. The *Pernettya* was long strangely neglected, but a great fillip to its cultivation was given by an exhibit in London made about 1882 by an Irish nurseryman, Mr. T. Davis, who showed a number of remarkably beautiful varieties he had raised during the previous 20 or more years in his own nursery. The *Pernettya* is about the only shrub that has been cultivated and selected with a view to the beauty and variety of its fruit, apart from edible qualities. In Kew, the fruits are never touched by birds, although in some gardens they are said to be stripped in winter—possibly by pheasants.

"The chief cultural requirements of *Pernettya* are a cool, moist bottom, and a soil free from lime, with which either peat or decayed leaves or both should be freely mixed. It likes full sunshine, and can be propagated by seeds, division, or cuttings. The last two are best for selected varieties." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, pp. 127-128.*)

35978 to 36000—Continued.**35998. ZEA MAYS L.****Corn.**

"From Castro, Chile. (No. 232.) This is said to be the only corn that will ripen at Castro. It is not from shortness of the season that the difficulty arises, but from the very small amount of sunshine. It should be interesting to see what can be made of this in some of the Northern States where the season is short."

35999. BYRSONIMA sp.

"From Concepcion, Chile. (No. 233.) *Queulle*. A tree which grows wild in the mountains two days' journey from Concepcion. The fruit is yellow, about the size of a plum. Some of them are excellent in a fresh state when well ripened, but chiefly prized for making dulce."

36000. DRIMYS WINTERI Forster.**Canelo.**

"From Lago Villarica, Chile. (No. 110. February 16, 1913.) Small tree." See S. P. I. No. 35986 for description.

36001. BUDDLEIA ALBIFLORA Hemsley.

From Edinburgh, Scotland. Presented by the Royal Botanic Garden. Received June, 1912.

"A central Chinese species related to *B. davidii* (*B. variabilis*), but differing in its robust, upright growth, in its leaves nearly twice as long, and its smaller flowers without orange in the throat." (*Koehne, in Gartenflora, vol. 52, pp. 169-171, 1903.*)

"A strong-growing deciduous shrub, said by Henry to be sometimes a small tree 20 to 30 feet high; branches erect, soon quite smooth. Leaves narrow lanceolate, with a long, tapered point and wedge-shaped base 4 to 9 inches long, one-half inch to 2½ inches wide, toothed, dark green, and soon becoming smooth above, covered beneath with a close, fine, silvery gray felt. Flowers fragrant, lilac (not white), with orange-colored centers, produced from July onwards in slender, tapering panicles 8 to 18 inches long, 2 inches wide at the base, terminating the main shoots, with smaller ones on lateral shoots. Corolla tube one-fourth inch long, persisting, as in other species, until burst off by the swelling seed vessel beneath it. Calyx smooth, bell shaped, with pointed narrow lobes.

"Native of China; discovered by Henry, and introduced in 1900 by Wilson, who observes that it is fairly common on the shrub-clad mountains of central China at 3,000 to 6,000 feet altitude. With the general aspect of *B. variabilis*, it is not so good a shrub; the branchlets are not so square, the leaves are more distinctly stalked, and the calyx differs in being smooth." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, pp. 270-271.*)

36002. MANGIFERA INDICA L.**Mango.**

From Columbia, Isle of Pines. Presented by Mr. L. S. Brown. Received at the Plant Introduction Field Station, Miami, Fla., July 16, 1913.

"A very fine mango, nearly fiberless and of very fine flavor. The tree yielded some 6,500 fruits last year (1913)." (*Brown.*)

36003. TRITICUM DURUM Desf.**Spring wheat.**

From Semipalatinsk, Siberia. Presented by Mr. I. M. Karzin, at the request of Mr. F. N. Meyer.

"Spring wheat, *Sineuska*, or *Chernouska*. Crop of 1910. Pale velvet chaff, brown beards." (*Karzin.*)

36004 to 36008.

From Guaquin, Bolivia. Presented by Dr. C. W. Foster, at the request of Mr. W. F. Wight, of the Bureau of Plant Industry. Received July 11, 1913.

"Grains grown at the southern extremity of Lake Titicaca, at an elevation above 12,500 feet, some as high as 13,000 feet." (*Wight.*)

36004. TRITICUM AESTIVUM L. **Wheat.**
(*T. vulgare* Vill.)

36005. HORDEUM VULGARE L. **Barley.**

36006 and 36007. CHENOPodium QUINOA Willd. **Quinoa.**

36006. "Red or mixed." **36007.** "White."

36008. VICIA FABA L. **Broad bean.**

36009. ERYTHRINA ARBORESCENS Roxburgh.

From Darjiling, India. Presented by Mr. Wilson Popenoe, of the Bureau of Plant Industry. Received July 28, 1913.

"This tree is indigenous to the central and eastern Himalayas, up to the altitude of 7,500 feet. In Darjiling, where there is an occasional snowfall in winter, it seems perfectly hardy, and should, therefore, withstand the frosts of southern California and south Florida without injury. As the annual rainfall at Darjiling is about 130 inches, however, the dry climate of California may not be well suited to it. Attaining a height of 30 or 40 feet and bearing its brilliant flowers in the greatest profusion, it naturally forms a very prominent feature of the landscape; in fact, it may be said to be the most conspicuous of all plants in Darjiling.

"The leaflets are dark green, cordate, sometimes a foot in breadth. The tree is not deciduous during the flowering season, and hence does not exhibit the bare appearance so much objected to in many erythras. The flower spikes are often a foot in length, the individual tubular flowers being 2 inches long and of the most brilliant scarlet. The effect produced by the tree when in full bloom is nothing short of gorgeous, reminding one, in fact, of the royal poinciana.

"This species is quite frequently placed on slopes or hillsides to prevent the soil from washing. It is so easily propagated by cuttings that trimmings, when thrown on the ground, will quickly take root and form new trees." (*Popenoe.*)

36010. COLOCASIA sp.**Taro.**

From Tolga, Queensland, Australia. Presented by Mr. J. A. Hamilton. Received August 21, 1913.

"This taro seems to like volcanic soil. Whether it is the same as the one in Hawaii I do not know, but in flavor it is equally good. It was introduced here by the Chinese and grown along the banks of small creeks and springs, but I have found that by planting the tubers out on good cultivated soil at the beginning of the wet season they produce tubers of superior flavor, better than where the taro is flooded. A clay loam is best." (*Hamilton.*)

"This taro is apparently identical with the *Pat long fu* (S. P. I. No. 29327) from Canton, China. It is of excellent quality, but a poor keeper." (*R. A. Young.*)

36011. ALLIUM CEPA L.**Onion.**

From Denia, Spain. Presented by the American consul. Received August 21, 1913.

See S. P. I. No. 26134 for previous introduction and description.

36012 to 36015.

From Soochow, China. Presented by Mr. N. Gist Gee, Soochow University.
Received August 21, 1913.

36012. AMYGDALUS PERSICA L. Peach.
(*Prunus persica* Stokes.)

36013. ERIOBOTRYA JAPONICA (Thunb.) Lindl. Loquat.
"Bibo seeds."

36014. MYRICA RUBRA Sieb. and Zucc.
(*Myrica nagi* Thunb.)
"Yang mei."

36015. PRUNUS ARMENIACA L. Apricot.

36016. TERMINALIA EDULIS Blanco. Calumpit.

From Lamao, Bataan, Philippine Islands. Presented by Mr. P. J. Wester, horticulturist, Bureau of Agriculture. Received August 26, 1913.

"A large, attractive tree, with rounded well-formed crown, quite open, giving half shade, and therefore making a desirable shade tree where dense shade is not desired. The fruit is a little larger than a cherry, dark red, fleshy, subacid, and edible. Ripens in June and July, when the fruit is collected and eaten by the Filipinos. As far as I know, the tree is never cultivated. The species ought, of course, to do well in Porto Rico and elsewhere in tropical America, and may possibly succeed in extreme south Florida." (*Wester.*)

36017. PENTAPETES PHOENICEA L.

From Lamao, Bataan, Philippine Islands. Presented by Mr. P. J. Wester, horticulturist, Bureau of Agriculture. Received August 26, 1913.

"A robust herb attaining a height of 2 meters. On account of its attractive, intense orange-red flowers, it makes a good ornamental. Collected by me in Mindanao last year." (*Wester.*)

36018 to 36037.

From Seharunpur, India. Presented by the Government Botanical Gardens, through Mr. Wilson Popenoe, of the Bureau of Plant Industry.

Quoted notes by Mr. Popenoe, except as indicated.

36018. PHYLLANTHUS NIVOSUS W. G. Smith.

"Var. *atropurpureus*. This is a small, semideciduous shrub, very similar in growth to *P. nivosus roseopictus*, so common in south Florida. Like the latter, it may be of value as a hedge plant. The young growth is of varying shades of purplish maroon."

36019. ERYTHRINA sp.

"A large shrub, rather open in growth and not particularly attractive in appearance, but producing an abundance of the most brilliant crimson flowers imaginable. It is considered of unusual value as an ornamental; in fact, I was told at one of the large botanical gardens in India that it was the finest flowering shrub in their collection."

This was received as *Erythrina blakei*, for which no place of publication has yet been found.

36018 to 36037—Continued.**36020.** *FIGUS SAEMOCARPA* Miquel.

“An evergreen shrub, with glossy, deep-green leaves. Considered to be of value as an ornamental.”

36021. *GARCINIA LIVINGSTONEI* T. Anderson.

“A small-sized tree, with handsome, shining foliage. The fruits, which are deep orange in color and about 2 inches in diameter, are not edible, but are produced in such abundance as to make the tree of great value as an ornamental. The chief reason for the introduction of this species, however, lies in the possibility of its being used as a stock for the more tender mangosteen, *Garcinia mangostana*. Temperatures as low as 20° F. above zero have been recorded at Seharunpur; this species should, therefore, be sufficiently hardy to do well in south Florida and possibly in the warmest parts of California.”

36022. *EXCOECARIA BICOLOR* (Hassk.) Zoll.

“An ornamental shrub with copper-colored leaves.”

Distribution.—The islands of the Malay Archipelago.

36023. *CALLIANDRA HAEMATOCEPHALA* Hasskarl.

“A dwarf, woody shrub of very slow growth. Its flowers are bright crimson.”

“A most lovely shrub with us, but eventually forming a tree 30 to 40 feet high, according to Hasskarl; the native country does not appear to be known. A shrub with glabrous, terete, green branches and copious petiolate unijugate leaves; each pinna is about 5 inches long and paripinnulate, with 7 to 10 pairs of opposite pinnules, the lowest and shortest an inch long, gradually enlarging upward to 1½ inches long, all of them more or less spreading, oblong lanceolate, scarcely acuminate, two nerved, the base equally sided, some of them, especially the superior ones, slightly falcate. Stipules, small, green, from a broad base subulate. Petioles about an inch long. Peduncles as long as the petioles, bearing a capitulum of small flowers, of which the calyx and corolla are almost concealed by the quantity of rich-colored filaments of the stamens, which radiate from a center and form a ball of scarlet threads. Calyx minute, five lobed. Corolla small, infundibuliform. Stamens united into four bundles. Anthers minute, abortive. Ovary oblong. Style a little longer than the stamens.” (*Botanical Magazine, pl. 5181, 1860.*)

36024. *PETREA VOLUBILIS* L.

“A woody climber producing handsome sky-blue flowers. Considered one of the choicest climbing plants in Seharunpur.”

“There appear to be two varieties of this shrub, one with white, the other with violet-colored corollas, but the calyx in both is blue; Jacquin found it in Martinique, where he says it ascends to the top of trees 20 feet high. The corolla, which is five cleft and subbilabiate, is of very short duration, but as the calyx is a conspicuous part of the flower, the long racemes hanging pendant from the extremities of the branches make a handsome appearance for some time. It is a very ornamental shrub, blossoming in the West Indies in November.” (*Botanical Magazine, pl. 528, 1803.*)

Distribution.—Central America and South America, extending from Panama to Brazil, and in the West Indies.

36025. *HEIMIA MYRTIFOLIA* Cham. and Schlecht.

“A dwarf, compact, ornamental shrub, producing bright-yellow flowers.”

36018 to 36037—Continued.**36026. SARACA INDICA L.**

"A small, evergreen tree, with handsome glossy foliage and heads of brilliant red flowers. One of the finest of Indian ornamental trees. It is not generally considered very hardy, but the fact that it succeeds at Seharunpur would indicate that it is a possibility for south Florida."

Distribution.—From the western and central slopes of the Himalayas, in northern India, where it rises to an elevation of 2,000 feet, southward to Ceylon and Malakka, and generally throughout the islands of the Malay Archipelago.

36027. HIBISCUS SCHIZOPETALUS Hook. f.

"A shrub of rather open and scraggly growth, but producing handsome scarlet flowers of very peculiar form. In color the flowers resemble the common *Hibiscus rosasinensis*, but the petals are somewhat smaller, recurved, and finally divided, giving them a feathery appearance."

36028. BARLERIA STRIGOSA Willdenow.

"A handsome dwarf shrub, going under the vernacular name of *bansa*. Its flowers, which are produced in large heads, are of a brilliant blue color."

Distribution.—Common on the lower hills of Bengal up to an elevation of 4,000 feet, and generally cultivated in India and the islands of the Malay Archipelago.

36029 to 36037. MANGIFERA INDICA L.**Mango.**

Inarched trees of the following:

36029. "*Hains Sahib*. Said to have originated in Lahore, in the Punjab. The name is the Hindustani equivalent for 'Mr. Hains.' In general form this variety is oblong, the left shoulder very prominent, right shoulder almost none. Apex blunt to rounded, the nak prominent, situated about one-fourth inch above the longitudinal apex. Weight about 13 ounces. Skin smooth, light yellowish green in color, tinged with red on one side. Flesh light yellow in color, slightly fibrous around the seed, very juicy, but with a slight taste of turpentine. Seed rather large."

36030. "*Nayab*. A rather small, elliptical mango, weighing about 5 ounces. Left shoulder considerably higher than the right. Apex rounded, nak pointed, somewhat prominent, located one-half inch above the apex. Skin orange yellow in color. Flesh light orange, somewhat acid in flavor. The turpentine taste is very slight. Ripens in midseason and keeps well."

36031. "*Krishna bhog*. Name signifies 'Food of the God Krishna.' Nearly spherical in form, the left shoulder slightly higher than the right. Size large, the average weight being about 1 pound. Apex broadly pointed, nak not prominent. Skin smooth, yellowish green in color. Flesh deep yellow in color, slightly fibrous, firm and meaty, and very sweet in flavor. Ripens rather late and keeps well. Considered on the whole a very good variety."

36032. "*Alfonso of Lahore*. A good form of the famous Alfonso type. Originated in Lahore. Broadly oval or somewhat heart shaped, both shoulders equal in prominence. Weight average, about 10 ounces. Apex broadly pointed, the very prominent nak being located about one-half inch above it. Skin slightly undulating, greenish yellow in color, sometimes tinged with red on the cheek, flesh bright yellow, very juicy, and almost free from fiber, aromatic, and of a delicious flavor."

36018 to 36037—Continued.

- 36033.** "*Naspati*. Oblate and somewhat oblique in form, slightly flattened at both base and apex. Nak a slight point, situated one-half inch above apex. Weight about 10 ounces. Skin smooth, greenish yellow in color, and of good flavor. The variety ripens late and is a good keeper."
- 36034.** "*Sufaida No. 1*. Oval to elliptical in form, the left shoulder prominent, right shoulder falling. Apex broadly pointed and slightly beaked. Weight 1 pound and 4 ounces. Skin smooth, yellowish green in color. Flesh yellow, slightly fibrous around seed, firm and meaty, and of good flavor. Late in ripening and keeps well."
- 36035.** "*Kachamitha*. A small, ovate fruit, of about 5 ounces in weight. Left shoulder slightly higher than the right; apex rather sharply pointed. Skin smooth, greenish yellow, tinged with red on the cheek. Flesh deep yellow in color, juicy and sweet in flavor. Can be eaten even when unripe. A prolific bearer, ripening early in the season. Keeps well."
- 36036.** "*Chapta*. Ovate in form, stem inserted slightly to right side of base. Apex broadly pointed. Weight about 14 ounces. Skin smooth, light green in color. Flesh deep yellow, juicy, and of excellent flavor. Proportion of flesh to seed is unusually large."
- 36037.** "*Faizan*. Elongated in form, and of medium size. Skin yellowish green in color. A good keeper and of excellent flavor. Ripens in midseason."

36038 and 36039. MANGIFERA INDICA L.**Mango.**

From Mozufferpur, Behar, India. Procured by Mr. Wilson Popenoe, of the Bureau of Plant Industry.

Quoted notes by Mr. Popenoe.

"Mozufferpur produces some of the best mangos in India, and is said to possess some exceptionally choice varieties. These varieties were obtained from a Hindu nurseryman and werestated to be choice, but no description was furnished with them. Mozufferpur has a much heavier rainfall than Seharunpur, and for this reason it was thought desirable to obtain mangos from here, in the hope that they might be better adapted to the climate of south Florida than other Indian varieties."

36038. "Inarched tree labeled E." **36039.** "Inarched tree labeled K."

36040 to 36045.

From Seharunpur, India. Received from the Government Botanical Gardens, through Mr. Wilson Popenoe, of the Bureau of Plant Industry, May 7, 1913.

Plants of the following; quoted notes by Mr. Popenoe:

36040 and 36041. VITIS VINIFERA L.**Grape.**

36040. "*Bedana* grape, small variety. A seedless grape of excellent flavor, which is supposed to have come to Seharunpur from some point in the Punjab, and originally to have come from Afghanistan. It is perhaps too small to be of great value in America, but at Seharunpur it is highly esteemed as a table variety."

36041. "*Husseini* grape. A variety from Kabul, Afghanistan, of large size and excellent quality, but probably not superior to a number of varieties already growing in California."

36040 to 36045—Continued.

36042. LITCHI CHINENSIS Sonnerat.
(*Nephelium litchi* Cambess.)

Litchi.

"The *Bedana* litchi, famed throughout India. This is supposed to be a seedless variety, as the name indicates, but I am informed on good authority that the seed is usually present, but varies in size according to locality and culture, and is sometimes very small. It is a very choice variety, the plant being propagated by layering."

36043. EUGENIA EUCALYPTOIDES Mueller.

Gum rose-apple.

"This species of *Eugenia* has a leaf much resembling that of some species of *Eucalyptus* and is a handsome ornamental shrub. In addition, it produces a fruit somewhat less than an inch in diameter, highly valued in its native country (Australia) for the manufacture of wine."

Distribution.—Gravelly places along the Victoria River, in North Australia.

36044. HYMENODICTYON EXCELSUM (Roxb.) Wallich.

"A large ornamental tree, with copper-colored foliage. Should be hardy enough for south Florida and southern California."

36045. RIVINA LAEVIS L.

"A dwarf ornamental shrub, producing yellow berries, which remain on the plant for some time."

36046. ELAEOCARPUS BANCROFTII Muell. and Bailey.

Ebony-heart tree.

From Brisbane, Australia. Presented by Mr. William Soutter, secretary and manager, Queensland Acclimatisation Society. Received August 27, 1913.

"Sometimes called *Johnstone River almond*, or *ebony-heart tree of the Cairns*; is an evergreen tree of the linden family, often reaching a height of over 100 feet and a diameter of over 2 feet. Leaves simple; small white flowers in racemes, sepals and petals five, the stamens indefinite, inserted upon a swollen lobed disk, and having long, downy unequal-celled anthers, usually ending in a bristle. Ovary from two to five celled, the fruit containing a very hard, rough-shelled nut, divided into as many 1-seeded cells as the ovary, or sometimes all but one cell imperfect. The wood is hard and durable, light, with a darker color in the center; likely to prove useful for sheaves for blocks. It considerably resembles the American *lignum vitæ*, for which, indeed, it might form a good substitute." (*Soutter.*)

36047 and 36048.

From San Salvador, Salvador. Presented by Mr. Thomas Hinckley, American consul general. Received August 6, 1913.

36047. PASSIFLORA LIGULARIS Juss.

Granadilla.

"The granadilla has a fruit the size of a large egg, yellow when ripe, and within which the seeds are enwrapped in a mass of mucilage of delicate taste, which is neither food nor drink." (*Pittier, Las Plantas Usuales de Costa Rica.*)

36048. SOLANUM MURICATUM Aiton.

Pepino.

"The sweet pepinos procured were practically seedless, these 19 seeds being all that there were in eight large ripe ones. This plant is propagated in Salvador by cuttings." (*Hinckley.*)

36049 to 36051.

From Angola, Africa. Presented by Rev. William C. Bell, Lockport, N. Y.
Received August 1, 1913.

36049. *TRICHOLAENA ROSEA* Nees. **Natal grass.**
(*Panicum teneriffae* R. Br.)

“(No. 1.) Native name *Ohulongombo* or *ohulumgumbi*; found throughout central Angola. Grows in deserted fields and very rankly, even though the soil is poor and dry. Will grow in gardens among cultivated crops, but wants a sandy soil. It is much liked by oxen and makes good hay if cured early. Heads stripped from the stalks make good pillows and mattresses. It is almost impossible to kill it out when once established.” (*Bell.*)

36050. *SCIRPUS* sp.

“(No. 2.) Native name *Owangu wovosima*. Found all around Bailundo, Angola, where the growing or wet season extends from October 1 to the close of April; then, with the cessation entirely of all the rains and with cooler nights, vegetation dries up. These specimens were found in central Angola near a marshy spot where the cattle were constantly feeding. It is a low-growing plant, making large stools.” (*Bell.*)

36051. *MELINIS MINUTIFLORA* Beauv. **Gordura grass.**

“(No. 3.) Native name *Ongendangolo*. As the name indicates, this grass goes on its knees. It does not grow upright but more like a vine. It is said to have seeds, but I was unable to secure any. It is similar to No. 1 (S. P. I. No. 36049) in every respect.” (*Bell.*)

36052 and 36053. MANGIFERA INDICA L. Mango.

From Manila, Philippine Islands. Presented by Mr. O. W. Barrett, chief, Division of Horticulture, Bureau of Agriculture. Received August 11, 1913.

36052.

“*Pahutan mango*. A very high-flavored mango having a comparatively large seed; the color of the peel never assumes the bright yellow tints of the *Pico* and *Carabao* varieties. On account of the great vigor and size of the tree this variety will succeed best as a stock.” (*Barrett.*)

36053.

“*Pico*. This ranks next to the *Carabao* as the best mango in the Philippines. It has a more pronounced flavor, the flesh is of a salmon instead of yellowish color, the shipping and keeping qualities are as good, and the amount of fiber is very little greater.” (*Barrett.*)

36054. BRASSICA PEKINENSIS (LOUR.) Skeels. Pai ts'ai.

From Tientsin, China. Procured through Dr. Yamei Kin. Received August 12, 1913.

“The people had some trouble to get a sufficient quantity from reliable sources, for they say that at a distance of only 6 li (2½ miles) even, the character of the *pai ts'ai* changes. It is easily grown, but for some unexplained reason the abundance of the crop varies greatly, one year a head producing quite a little handful and again, although the conditions seem to be the same, they will get scarcely a cupful.” (*Kin.*)

36055. SECALE CEREALE L. Winter rye.

From Omsk, Siberia. Presented by Prof. N. E. Hansen, Agricultural Experiment Station, Brookings, S. Dak. Received August 12, 1913.

Hansen No. 1 winter rye.

36056 and 36057.

From Mount Silinda, Melsetter, South Rhodesia. Presented by Dr. W. L. Thompson, American Board Mission in South Africa. Received August 11, 1913.

36056. IPOMOEA BATATAS (L.) Poir.**Sweet potato.**

“(No. 1.) Very vigorous, and with us here a very satisfactory variety. They are the opposite of vineless, making exceptionally long vines. The tubers form more quickly than many of our varieties here, and are good size, good shape, and good eating qualities. One peculiarity I have not noticed in any other red sweet potatoes, if boiled and the thin skin stripped off, they are still red under the skin, though just below the surface they are a rich golden yellow.” (*Thompson.*)

36057. COLOCASIA sp.

“(No. 2.) An arum, called here *Amadumba*, which we prize as a vegetable. I suppose it must be of the same family as the dasheen. This is the best by far that we have here, though several other varieties are eaten.” (*Thompson.*)

“The plants of this dasheen are much like those of the Trinidad variety, except that the petioles of the former are shaded the entire length with maroon.” (*R. A. Young.*)

36058. NYPA FRUTICANS Wurm.**Nipa palm.**

From Manila, Philippine Islands. Presented by Mr. O. W. Barrett, chief, Division of Horticulture, Bureau of Agriculture. Received August 11, 1913.

“The nipa is an erect, stemless palm of which the leaves and inflorescence rise from a branched rootstock, the leaves running from 9 to 20 feet in length. It grows along the tidal marshes of rivers in low, wet lands subject to overflows of brackish water as the tides rise each day, and it will not thrive where either fresh or sea water alone is available. Nipa swamps of considerable size occur in practically all the Philippines, and inasmuch as they occur in lands which otherwise are useless or almost without value, the cultivation of nipa palms where they are cultivated, or the presence of nipa trees wild where not cultivated, affords a profitable crop on little original outlay.

“The nipa palm is one of the most useful plants in the Philippines or other tropical countries. Its uses are outlined in the report of the Philippine Internal Revenue, as follows: ‘Of the leaf, the leaflets are used in the manufacture of shingles for house building, hats, mats, and bags, pails for dipping water, and for coarse baskets; the mid-ribs for brooms, tying rice bundles, and for sewing nipa shingles; and the stalk for fuel, for floating logs, and as material for sewing shingles; the fruit is used as food and sweet meats; and the sap is used fresh as a drink, fermented (tuba) as a drink, and for the manufacture of sugar, alcohol, and vinegar.’

“The chief use of the plant, however, aside from the use of the fiber for hats and various articles, is in the use of the sap for the manufacture of alcohol and native drinks. From the sap come all the possibilities of sugar making. The report of the bureau shows the cost of producing alcohol from the nipa paka as 2.7 cents gold per liter (1.05 quarts) as compared with 5.8 cents per liter for alcohol from sugar beets at \$5 per ton; 5 cents for alcohol from sugar cane at \$3.25 per ton; 3.4 cents from cassava at \$5 per ton; 6.6 cents from corn at 70 cents per 56-pound bushel, and similar costs from other sources. The reports claim that alcohol can be made more cheaply from the nipa palm than from any other material. Moreover, the sap ferments with unusual rapidity, so that in less than 20 hours the liquor is ready to be poured into the stills. There is one distillery in the Philippines which is now producing 93 per cent alcohol 186 proof at a cost of 10 centavos, or 5 cents gold per liter on a 12-hour run at the distillery, and on a 24-hour basis with a little reorganization it is known that the alcohol can be manufactured at present in this establishment at 3.5 to 3.75 cents gold per liter.

"The sugar-making possibilities of these saps, considered commercially, seem to hinge largely upon conditions under which the sap can be gathered and handled. The saps of the three principal sugar-bearing palms, the nipa, the coco, and the buri [see S. P. I. No. 35689], run remarkably close together in composition. The average composition at 15/15 density runs about 17.5 per cent solids; 0.46 per cent ash; 0.54 per cent nitrogenous compounds, etc.; 16.5 per cent sucrose and traces of reducing sugars and acidity. As they exude from the trees these saps are generally neutral, but they ferment quickly, and one of the problems in sugar making would be the preservation of sap until it could be worked.

"The sap from these trees as a rule is obtained through the flower stalk. In the nipa the flower stalk is cut off immediately below the fruit. It is generally tapped the fifth year. Each day a thin slice is cut from the severed stem to keep the wound fresh and facilitate the flow of sap. The sap is collected in bamboo joints (Spanish, *bombones*) hung on the stem, generally having a capacity of about two liters. One stalk normally flows about three months, but it is not uncommon for it to be cut entirely away by the thin slices from day to day, long before the flow has ceased. In some districts the plant is cut before the fruit forms, and the flow of sap is increased thereby so far as daily output is concerned, but the length of the flow is shortened, the total yield of the plant apparently being about the same by either method. The plants are allowed to rest and put forth new fruit stalks after being thus exhausted. How long they continue to bear is uncertain, but all authorities agree that a plant will continue to produce sap for many years, probably for 50 years or more on an average. The yield of sap also is uncertain, and estimates vary between wide limits. An experienced distiller says that each plant will average about 1½ quarts daily, or 13.2 gallons for a season." (*George E. Anderson, in abstract of report by Dr. H. D. Gibbs on the Alcohol Industry in the Philippines, in Daily Consular and Trade Reports, December 4, 1911.*)

36059. *OLEA VERRUCOSA* (R. and S.) Link.

Wild olive.

From Simondium, near Paarl, Cape Province, Union of South Africa. Presented by Mr. C. W. Mally, entomologist, Department of Agriculture, Cape Town. Received August 11, 1913.

"A tree so like the European olive that where the two are growing alongside in cultivation it is difficult to find a distinction except the size of the fruit. Leaves lanceolate or linear lanceolate, 2 to 4 inches long, one-third to one-half inch wide, tapering somewhat to both ends, acute, coriaceous, shortly petioled, the under surface clothed with small, flat, scarious yellowish scales so closely adpressed as to give the appearance of a glabrous yellow surface, the upper surface and the twigs sometimes similarly clad at first and afterwards glabrous, in other cases almost glabrous from the first. Panicles axillary, trichotomous, not much branched, rather shorter than the leaves. Bracts deciduous. Fruit an oblong dry drupe about one-fourth inch long, shortly pointed. Usually a tree 20 to 30 feet high, 12 to 18 inches in diameter, branched a good deal, and with little clean timber; occasionally, however, trunks 3 feet in diameter, exceedingly gnarled and hollow, are to be found, even up in the Herechal district, which, considering its slow growth, must have taken a very long time to grow. The timber, which is of a dark gray or almost black color and often wavy in grain, is equal to *Ptaeroxylon utile* in durability as a fencing pole, and even the branches make good poles. Fourcade describes the wood as 'extremely heavy, very hard, very strong, moderately elastic, very close grained, and compact.' About 3,000 dry seeds go to 1 pound weight; the seeds, however, do not germinate quickly, and as hard-wood cuttings strike, that method of propagation is preferred. In cultivation it is found to be liable to attack by a mealy aphid. The European olive has been successfully budded upon young plants of this species." (*Sim, Forest Flora of Cape Colony.*)

36060. MEIBOMIA HIRTA (Guill. and Per.) Kuntze.*(Desmodium hirtum* Guill. and Per.)

From Kyimbila, German East Africa. Presented by Mr. Ad. Stolz. Received August 14, 1913.

"This plant has the great recommendation that one can take rooted cuttings of the plant, so that for propagation one does not need the long wait for seed, and with large 1 to 1½ meter cuttings one comes much more quickly to the desired end than with small seedlings. Crop plants, such as coffee, tea, rubber, lianas, cedars, etc., have taken a significant fresh appearance after having *D. hirtum* planted between them. This shows itself especially on this year's fresh powerful shoots of the plants; hence, the fertilizing value of this legume must be significant. It fertilizes not only other plants, but itself, for where after a space of 12 months a spindling plant wanders through the soil, it rises itself in the following year to an entirely different luxurious plant. On poor soils the shoots lie flat on the ground, reaching a height of 2 to 5 centimeters. On the other hand, on good soil the shoots in the first year attain a height of 30 centimeters. I have observed it at elevations of 500 to 1,600 meters above sea level. *D. hirtum* is also not to be underrated as forage, for asses and sheep eagerly eat the shoots. It is indeed a typical meadow plant, with scanty growth and runner formation between the high-grass haulms. Here I found it with other legumes, of which our meadows produce enough. I made a test of all the species, of which *D. hirtum* turned out to be the best, for on loosened soil the plant could show its possibilities.

Cultivation.—The seed should be sown broadcast in a well-prepared seed bed, which must, above all, be kept moist, in order that the seed shall not dry out and that the young plants shall grow more quickly; since where the plants stand too closely together it is necessary to thin them to 10 centimeters, it is well, as soon as the runners reach a length of 10 to 20 centimeters, to plant the young plants in groups one-half by 1 meter or 1 by 1 meter in well-loosened soil. The looser and better the soil is so much the quicker *D. hirtum* develops, and puts forth shoots during the year from 1 to 1½ meters long, which quickly root in loose soil and furnish cuttings for transplanting. In growing from seed it is worth while, above all, to grow quickly good strong runners, which as soon as they have rooted should be planted in the rainy season, and easily increase. In order to further the growth, the land must above all be kept clean of weeds. Later the long shoots hinder the growth of weeds. After seed production the plant dies down almost two-thirds; from the rootstock and the still living shoots spring forth runners, which grow over the dead parts and reach a height of from 2 to 30 centimeters." (*Stolz.*)

36061. LANSIUM DOMESTICUM Jack.**Duku.**

From Buitenzorg, Java. Presented by the director, Department of Agriculture. Received August 14, 1913.

See S. P. I. No. 35906 for previous introduction.

36062. LEUCADENDRON REPENS L.**Sugar bush.***(Protea mellifera* Thunb.)

From South Rhodesia, Africa. Received from Mr. G. P. Rixford, of the Bureau of Plant Industry, who secured them from Mr. George T. Ruddock, San Francisco, Cal. Received August 11, 1913

"*Veldt plant.* A shrub of from 4 to 6 feet high. Before opening, the bud resembles a globe artichoke. Flowers white; beautiful for parks." (*Rixford.*)

"A glabrous shrub or small tree, having narrowly lanceolate and rather blunt leaves, 3 to 5 inches long, one-third inch wide above, tapering gradually to the base. Head 4 inches long, cup shaped, 3 inches wide, red and pretty; the inner bracts rather longer

than the pistils, oblong lanceolate, pointed, the outer wide and short; all glabrous and viscid. Perianth segments glabrous, ciliated below. bearded on the face above. Ovary bristly." (*Sim, Forest Flora of Cape Colony.*)

36063 and 36064.

From Hawaii. Received from Mr. G. P. Rixford, of the Bureau of Plant Industry, who secured them from Mr. George T. Ruddock, San Francisco, Cal. Received August 11, 1913.

36063. PSIDIUM GUAJAVA L.

Guava.

"Gathered on the island of Hawaii on the road from Hilo to the volcano, at an elevation of 3,000 feet. Probably the same as lemon guava." (*Rixford.*)

36064. RUBUS sp.

"Native thimbleberry. Picked December 15, on the road from Hilo to the volcano, on the island of Hawaii. A shrub about 18 inches high. Fruit of a beautiful scarlet color and of a delicious flavor." (*Rixford.*)

36065. PISTACIA INTEGERRIMA Stewart.

Kaka.

From Lahore, India. Presented by Mr. W. R. Mustoe, superintendent, Government Agricultural Horticultural Gardens. Received August 15, 1913.

Introduced as possible stocks for the true pistache (*Pistacia vera*).

"A deciduous tree with rough, gray bark. Wood very hard, sapwood white, heartwood yellowish brown, beautifully mottled with yellow and dark veins. Annual rings marked by a belt of large pores. Pores in the rest of the wood very small, forming irregular patches, which are frequently arranged in zigzag lines. Medullary rays fine, very numerous. It is chiefly found on dry slopes and in valleys along the rivers, Suliman and Salt Ranges, and outer Himalayas, ascending to 6,500 feet and extending as far east as Kumaon.

"Growth moderate, eight to nine rings per inch of radius. Weight 54 pounds per cubic foot. The wood is used for furniture, carvings, and all kinds of ornamental work. It is usually sold in the hill bazaars and particularly at Simla, in the form of thick, short planks. The leaves are lopped for fodder for buffaloes and camels and the galls are used in native medicine. Brandis says that in Kangra, under native rule, the tree was a 'badshahi,' or royal tree. The young leaves are red, and the tree, if well grown, is graceful and pretty." (*Gamble, Manual of Indian Timbers.*)

36066. LITCHI CHINENSIS Sonnerat.

Litchi.

(*Nephelium litchi* Cambess.)

From Mozufferpur, Behar, India. Procured through Mr. Wilson Popenoe, of the Bureau of Plant Industry. Received May 7, 1913.

"Rose. Mozufferpur is considered to produce the best litchis in India; whether this is due to the superiority of the varieties or to the especially favorable conditions of soil or climate, I am unable to ascertain. Certain it is, however, that the Rose litchi is one of the best Indian varieties, and on this account it is well worthy of trial in south Florida." (*Popenoe.*)

Layered plants.

36067 and 36068.

From Epsom, Auckland, New Zealand. Presented by Mr. D. Petrie. Received August 25, 1913.

36067. NOTOSPARTIUM CARMICHAELIAE Hooker.

"A beautiful broomlike leafless leguminous plant of our flora. Gathered near the mouth of the Clarence River, Marboro, South Island." (*Petrie.*)

36067 and 36068—Continued.

"This shrub or small tree is a native of New Zealand and is known by the colonists as the *pink broom*. The plant was discovered on Christmas, 1853, by the late Dr. Munro, on the sandy and rocky banks of the Waihopai River, in Nelson Province. This plant succeeds best in peaty soil, but it can also be grown well in turfy loam. It is a moderate-sized shrub in cultivation in England and produces weeping, cordlike, leafless branches, from which the short racemes of pink or purplish flowers are freely produced." (*Gardener's Chronicle, August 24, 1907; Hooker, New Zealand Flora.*)

36068. PITOSPORUM DALLII Cheeseman.

"An ornamental small tree, gathered on the mountains of South Island. The specimen is part of the only parcel of seed that has so far been secured. Sent me by a botanical friend." (*Petrie.*)

"This is a remarkably distinct plant, with very different foliage from that of any other New Zealand species. The flowers are quite unknown. This species came from the mountains near Collingwood, South Island. It is apparently a small tree with stout branches, the youngest of which are glabrous and are covered with a yellow bark." (*T. F. Cheeseman, Manual of the New Zealand Flora.*)

36069. CARICA CANDAMARCENSIS Hook. f. **Mountain papaya.**

From Peradeniya, Ceylon. Presented by Mr. H. F. Macmillan, superintendent, Royal Botanic Gardens. Received August 28, 1913.

"*Mountain papaw.* A small semiherbaceous tree with a crown of large, coarse, palmate leaves, native of Colombia and Ecuador, similar to the papaw 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 state about up-country bungalows. The ovoid angular fruit is in season all the year round; 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." (*Macmillan's Handbook of Tropical Gardening and Planting.*)

36070. MANGIFERA INDICA L.**Mango.**

From Beira, Mozambique. Presented by the Director of Agriculture. Received August 30 and September 2, 1913.

"Cuttings of the *Diamond* mango obtained from the island of Chiloane in this territory."

These are supposed to be the same as the Lathrop mango, described under S. P. I. Nos. 9486 and 9669.

36071. RUBUS PHOENICOLASIUS Maxim.**Bramble.**

From Cambridge, England. Presented by Mr. R. Irwin Lynch, curator, Cambridge Botanic Gardens. Received August 29, 1913.

"A conspicuous and unique-looking Japanese bramble, the young shoots and leaf stalks of which are densely clothed with long bright-red setæ and very long stalked glands of the same color. As the plant matures, the deep color gives way to a paler shade. The papery leaves, the under surfaces of which are of almost a snowy whiteness, are trifoliolate on both the barren and fertile stems, the long-stalked terminal leaflets being much the largest. The compact panicles of the fruit are borne on short branches given off at right angles from the main stem, thus forming a compact pillar almost from the ground. When ripe, the fruit is of a beautiful bright coral red." (*Gardener's Chronicle, 1879.*)

36072. PSIDIUM sp.**Guava.**

From San Marco, Cuba. Presented by Mr. Robert Reid. Received September 3, 1913.

"*Peruvian*. A pear-shaped fruit; some specimens I have seen 5 inches in length; thick meat, and very small seed cavity; a teaspoon will hold all the seeds and pulp they are embedded in." (*Reid*.)

36073 to 36086.

From China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received at the Plant Introduction Field Station, Chico, Cal., August 13, 1913.

Quoted notes by Mr. Meyer, except as indicated.

36073. TRITICUM AESTIVUM L.**Wheat.**

"(No. 1858a. Pie Shan, Chihli Province, China. May 25, 1913.)"

"A mixture of red and white wheat, the red predominating. Probably a winter wheat." (*C. E. Leighty*.)

36074 to 36077. HOLCUS SORGHUM L.**Sorghum.**

(*Sorghum vulgare* Pers.)

36074. "(No. 1859a. San Tun Ying, Chihli Province, China. May 30, 1913.) A variety of sorghum growing very strong and tall, having brown-red seed. Mostly used mixed with chopped straw as food for cattle and horses; also much used in spirits manufacture. Chinese name *Hong gao-liang*."

36075. "(No. 1860a. San Tun Ying, Chihli Province, China. May 31, 1913.) A rare local variety of sorghum, having its grain half white and half red. Mostly used for human consumption. Chinese name *Kuan tung ching gao-liang*."

36076. "(No. 1861a. San Tun Ying, Chihli Province, China. May 30, 1913.) A variety of sorghum growing tall and strong, bearing large white grains. Mostly used as a human food in the form of gruel or porridge with the grain coarsely broken. Chinese name *Pei gao-liang*."

36077. "(No. 1862a. San Tun Ying, Chihli Province, China. May 31, 1913.) A rare variety of sorghum of which the grains are of a glutinous quality. These grains are served boiled, in the form of little cakes, over which some coarse sugar is sprinkled. They are relished by the rural people in North China. Chinese name *Mien gao-liang*."

36078. VIGNA SINENSIS (Torner) Savi.**Cowpea.**

"(No. 1863a. San Tun Ying, Chihli Province, China. May 31, 1913.) A variety of cowpea, of which the seeds are half white and half reddish, used as a human food boiled with rice or in soups. Chinese name *Pan hong pan pai chiang tou*."

36079. SOJA MAX (L.) Piper.**Soy bean.**

(*Glycine hispida* Maxim.)

"(No. 1864a. San Tun Ying, Chihli Province, China. May 30, 1913.) A local variety of soy bean of a dull-yellow color, used in the making of bean curd and bean sauce. Requires only a short season to mature. Chinese name *Huang tou*."

36073 to 36086—Continued.

36080. PHASEOLUS ANGULARIS (Willd.) W. F. Wight. Adzuki bean.

“(No. 1865a. San Tun Ying, Chihli Province, China. May 31, 1913.) A gray, mottled variety called *Ghæc hsiào tou*. Used boiled with rice and in soups. Supplies also an excellent winter vegetable in its bean sprouts.”

36081. PANICUM MILIACEUM L. Proso.

“(No. 1866a. San Tun Ying, Chihli Province, China. May 31, 1913.) A glutinous variety of proso, the seeds of which are served boiled as little triangular cakes, wrapped in bamboo leaves or corn husks. They are eaten with some coarse brown sugar sprinkled over them and are greatly relished by the rural people of North China as cheap and nourishing sweetmeats. Chinese name *Shu chi*.”

36082. JUGLANS REGIA SINENSIS DC. Walnut.

“(No. 1868a. June, 1913.) A large quantity of Chinese walnuts coming from Changli, Chihli Province, North China. Obtained through the efforts of the Hon. Samuel S. Knabenshue, American consul general at Tientsin. These Changli walnuts have erroneously been called Manchurian walnuts by some people, because they come from near the Great Wall, and this nomenclature has given rise to newspaper reports that fine walnuts were grown in Manchuria. There is, however, a wild walnut in Manchuria, *Juglans mandshurica*, which grows into a stately tree, of which the wood is valuable, but the nuts are not fit for human consumption. From preliminary experiments, it seems that these North China walnuts are of a decidedly hardier nature than the forms which occur in western and southern Europe and in northwestern Asia.”

36083. VIGNA SINENSIS (Torner) Savi. Cowpea.

“(No. 1869a. Tientsin, China. June 12, 1913.) A small variety of cowpea, bearing small white seeds, with a dark-colored eye. Used as a human food boiled with rice and in soups. Chinese name *Hsiao pai ching tou* or *Par tou*.”

36084 and 36085. PHASEOLUS ANGULARIS (Willd.) W. F. Wight. Adzuki bean.

36084. “(No. 1870a. Tientsin, China. June 12, 1913.) A small white-seeded bean, used when ground up with sugar as a stuffing in little cakes. The sprouts are also much consumed as a winter vegetable and are of a better, juicier quality than those from mung beans. From experiments made at the Office of Forage-Crop Investigations, it seems as if some of these oriental beans might supply very tasteful and wholesome food when ground up and baked in the form of croquettes, and they deserve to become much more known than they are at present. Chinese name *Pai hsiao tou*.”

36085. “(No. 1871a. Tientsin, China. June 14, 1913.) A larger variety than the preceding one (S. P. I. No. 36084); otherwise the same remarks apply to it. Also called *Pai hsiao tou*.”

36086. PRUNUS TOMENTOSA Thunb. Bush cherry.

“(No. 1872a. Tientsin, China, June 12, 1913.) About 42,000 stones of the Chinese bush cherry. A fruit eminently suited for the home garden in the colder, semiarid sections of the United States. The Chinese usually bud or graft this bush cherry on the remarkably thrifty wild peach (*Amygdalus davidiana*), on which stock it makes a much more vigorous growth and is also better able to withstand drought and adverse conditions than when left on its own roots. Seeds and scions formerly sent under S. P. I. Nos. 16918, 17732, 17733, 20075,

36073 to 36086—Continued.

20240, 20287, 20288, 21924, 30317, 30318, and 30362. These bush cherries deserve especially to be tried at the Mandan garden. Chinese name *Ying tau'r.*"

36087. BRASSICA NAPUS L.**Rape.**

From New York, N. Y. Purchased from the Nungesser-Dickinson Seed Co. Received September 4, 1913.

36088. ANTIDESMA BUNIUS (L.) Spreng.**Bignai.**

From Manila, Philippine Islands. Presented by Mr. O. W. Barrett, chief, Division of Horticulture, Bureau of Agriculture. Received August 30, 1913.

"The bark of *Antidesma bunius*, which is a native of Java and the adjacent isles, affords a fiber from which ropes are made. The fruits are of a bright-red color, ripening into an intense black, with a subacid taste. They are used in Java for preserving, principally by Europeans, bringing about twopence per quart. The leaves are used as a remedy against snake bites, and in syphilitic affections. The wood, when immersed in water, becomes black and as heavy as iron. All the parts of the plant have a bitter taste." (*A. A. Black, in Lindley's Treasury of Botany.*)

36089. MEDICAGO SATIVA VARIA (Mart.) Urb.**Sand lucern.**

From New York, N. Y. Purchased from the Nungesser-Dickinson Seed Company. Received August 18, 1913.

36090 to 36092.

From Lal Bagh, Bangalore, India. Presented by the Government Botanic Gardens, Lal Bagh, through Mr. Wilson Popenoe, of the Bureau of Plant Industry. Received September 5, 1913.

36090. MICHELIA CHAMPACA L.**Champac.**

"This is a tall, handsome evergreen tree, known under the vernacular name of *champac*. Its flowers are pale yellow and very fragrant. May be of value as an ornamental tree for extreme southern Florida." (*Popenoe.*)

"A beautiful tall evergreen tree, much cultivated about Jain and Hindu temples and prized on account of its scented flowers. In the forest it has a cylindrical stem and reaches 8 to 10 feet in girth. The wood is very durable; in northern Bengal it is used for planking, door panels, and furniture; in Assam for building and canoes; elsewhere for house and carriage building and native drains. The bark is said to have been used as a febrifuge, but is now rarely used; the flowers and seeds also are occasionally used in medicine. The flowers are used in religious ceremonies. The wood is made into beads, and necklaces of the beads are sold to pilgrims at Hardwar." (*Gamble, Manual of Indian Timbers.*)

36091. CORDIA SEBESTENA L.

"A handsome arborescent shrub; the leaves are large and coarse. Its flame-colored flowers are borne in large trusses." (*Popenoe.*)

Distribution.—An evergreen shrub or small tree found on the Florida keys, in the West Indies, and in the northern part of South America.

36092. SARACA INDICA L.

"One of the handsomest of Indian ornamental trees, producing large heads of the most brilliant scarlet flowers imaginable. While restricted to the tropical sections of India, it may be sufficiently hardy to succeed in south Florida." (*Popenoe.*)

- 36093. SOLANUM sp. Bitter potato.**
 From La Paz, Bolivia. Presented by Mr. G. M. McBride, through Mr. W. F. Wight, of the Bureau of Plant Industry. Received September 9, 1913.
 "Tubers of the bitter potato, grown near Lake Titicaca and sold in the markets after being frozen." (*Wight*.)
- 36094. TIPUANA TIPU (Benth.) Lillo. Tipa.**
 (*Tipuana speciosa* Benth.)
 From Buenos Aires, Argentina. Presented by Mr. H. M. Curran. Received September 6, 1913.
 "Good lumber tree and very ornamental shade tree. Much used here. Stands frost." (*Curran*.)
 "Beautiful, tall, straight, stout tree with reddish wood and yellowish sapwood, soft and fibrous, difficult to saw, but sometimes used for lumber. The tree furnishes a reddish resin which easily hardens." (*Lillo, Trees of Argentina*.)
- 36095. GARCINIA MANGOSTANA L. Mangosteen.**
 From Jamaica, British West Indies. Presented by Mr. W. Harris, Superintendent of Public Gardens, Hope Gardens, Kingston. Received September 6, 1913.
- 36096. PHOENIX DACTYLIFERA L. Date.**
 From La Guaira, Venezuela. Presented by Mr. Thomas W. Voetter, American consul. Received September 10, 1913.
 "The fruit of this date is somewhat like that imported into the United States, but varies slightly in flavor and texture. The seed is much larger in proportion, as a general rule." (*Voetter*.)
- 36097. SACCHARUM OFFICINARUM L. Sugar cane.**
 From Berja, Paraguay. Presented by Mr. C. F. Mead. Received September 9, 1913.
 "*Tucuman*. Imported from Argentina. This is by far the best of all canes growing here in both yield and sugar content, and is a well-known variety." (*Mead*.)
- 36100. VICIA VILLOSA Roth. Vetch.**
 From Schkudy, Kovno Province, Russia. Presented by Mr. H. Judelmann. Received September 5, 1913.
- 36101. BUNCHOSIA COSTARICENSIS Rose. Cereza.**
 From San Jose, Costa Rica. Presented by the Department of Agriculture. Received September 3, 1913.
 "Fruits of medium quality and in no way comparable with the true cherry (*cereza*) of Europe. The tree is indigenous and often cultivated in gardens. The fruit is often called *tereza*, which is but a corruption of the name *cereza*." (*Pittier, Plantas Usuales de Costa Rica*.)
- 36102. ATALANTIA RACEMOSA Wight.**
 From Gaganbavda, Kolhapur District, via Bombay, India. Presented by Mr. R. R. Dhavle. Received September 8, 1913.
 "A small tree or shrub, differing from the other species of *Atalantia* in that it is always unarmed. It is found in the lower mountain regions of Ceylon, in southern

India, and in the western peninsula from the Konkan to Travancore. In February the plant produces its white flowers, which are arranged in short but distinct racemes with peduncles a little less than a quarter of an inch in length. The berry is globular ovoid, three-fourths of an inch wide, with a long apiculus, four celled, four seeded." (*H. Trimen, Handbook of the Flora of Ceylon, vol. 1, p. 226; Hooker's Flora of British India, vol. 1, p. 512.*)

Introduced for the citrus-breeding work of the Office of Crop-Physiology and Breeding Investigations.

36103. PENNISETUM PURPUREUM Schumacher. Elephant grass.

From Salisbury, Southern Rhodesia. Presented by the Assistant Government Agriculturist, Department of Agriculture. Received September 12, 1913.

"This plant seeds very shyly, but grows readily from either slips or roots."

Distribution.—A tall grass with long spikes, found in Guinea and Kamerun in West Africa and from Zanzibar to Mozambique on the east coast.

36104. SOLANUM sp. Wild potato.

From the island of Conejos, off the coast of Chile. Presented by Mr. R. Christie, through Mr. W. F. Wight, of the Bureau of Plant Industry. Received September 11, 1913.

"Wild potatoes. There are two kinds, or perhaps more. The stems of one kind grow to a height of over 2 meters. This kind does not come to maturity until the month of June, as I was informed by an old Indian, the other kind I think is the same that you found on the west coast. I send them just as I got them out of the earth, without washing them, as it may be of advantage for you to examine the earth in which they have grown. I have no doubt that they are the true indigenous potato." (*Christie.*)

36105. LATHYRUS sp.

From Castro, Chile. Presented by Mr. R. Christie, through Mr. W. F. Wight, of the Bureau of Plant Industry. Received September 11, 1913.

"Wild peas. They grow in sandy soil, about 10 inches high, and give an abundance of pretty blossoms in bunches and have the peculiarity that when they are ripe the pods do not open, but fall entire upon the ground." (*Christie.*)

36106. (Undetermined.)

From Concepcion, Chile. Collected by Mr. W. F. Wight, of the Bureau of Plant Industry. Received May 7, 1913.

36107 to 36121.

From China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received September 9, 1913.

Quoted notes by Mr. Meyer, except as indicated.

36107 and 36108. PRUNUS sp.

36107. "(No. 1873a. Peking, China. May 22, 1913.) A small, red, sweet cherry, bearing from one to six fruits on its forked little tomentose peduncles. Locally named *ying tau'r*. May be *Prunus pauciflora*. Probably the same species as No. 1840a [S. P. I. No. 35640]."

36108. "(No. 1874a. Peking, China. May 21, 1913.) A small, red, sweet cherry of large size and of finer taste than the preceding number, 1873a [S. P. I. No. 36107], otherwise the same remarks apply to it."

36107 to 36121—Continued.**36109 to 36111.** PRUNUS TOMENTOSA Thunb.**Bush cherry.**

36109. "(No. 1875a. Tientsin, China. June 18, 1913.) A variety of the Chinese bush cherry bearing fruits of a pale-red color. For further remarks, see No. 1872a [S. P. I. No. 36086]."

36110. "(No. 1876a. Tientsin, China. June 18, 1913.) A variety of the Chinese bush cherry bearing white fruit. Chinese name *pai ying tau'r*. See remarks under No. 1872a [S. P. I. No. 36086]."

36111. "(No. 1877a. Peking, China. June 25, 1913.) About 15,000 stones of the Chinese bush cherry. The size of the fruit of this lot was somewhat smaller and the taste slightly sourer than those of which the stones were sent under No. 1872a, probably on account of its coming from a less favorable locality; otherwise the same remarks apply to it. Local name *suan ying tau'r*, meaning sour cherry."

36112. PRUNUS TRILOBA Lindley.**Plum.**

"(No. 1878a. Peking, China. July 18, 1913.) A flowering plum much cultivated in the gardens in North China and existing in a great many varieties. The color of its flowers ranges from pale pink to a dark violet-rose, while as regards size, degrees of doubleness, profusion, difference in time of opening, and lasting qualities a very great variation exists. The Chinese in the north always graft or bud this flowering plum on the wild peach (*Amygdalus davidiana*). This is mostly down in the ground, but one also finds specimens budded high up and trained as standard trees. In this way a specimen looks fine when planted in a formal courtyard. This flowering plum is also a great favorite with the Chinese for forcing. Thousands of dollars' worth of them are disposed of every winter. The few fruits that these bushes bear possess no value, being the size of a cherry covered with an inedible hairy skin of a yellowish red color when ripe and having a large stone. This shrub is much recommended for ornamental purposes all over the temperate parts of the United States, and especially for the drier sections when grafted on *Amygdalus davidiana*. For forcing purposes when budded on the last-named stock it may give surprising results for earliness. Chinese name *yu ye mei hua*, which means elm-leaved flowering plum."

For an illustration of the elm-leaved flowering plum, as found growing in China, see Plate IV.

36113. BRASSICA PEKINENSIS (Lour.) Skeels.**Pai ts'ai.**

"(No. 1879a. Peking, China. July 18, 1913.) A large variety of Chinese winter cabbage coming from near Tientsin, called *ta pai ts'ai*. Chinese winter cabbage is a vegetable of first-class quality, having a rich flavor all of its own. It is said to be very much more easily digested than the ordinary cabbage and to emit no offensive odors when being boiled. It can be served in many different ways and may be eaten boiled or stewed, raw, pickled, or salted. To obtain the best results a rich well-worked soil is needed. The plants should have a space about 2 feet in all directions and should be regularly cultivated, and they must never suffer for lack of soil moisture. The best time for sowing the seed is about the end of July or early in August; for regions with a very long summer even later will suffice. To keep them during the winter the Chinese proceed in this way: After the first heavy night frost the cabbages are pulled out by a twist of the hand, the earth roughly shaken off the roots, and the plants left lying in the field for a day or so to dry them off; then the outer leaves are pulled off, the dry soil beaten from the roots, and the cabbage brought, to dry dug-out cellars, where they are neatly stored, layer on layer, with the heads facing the entrance. Dry straw is now put over them and the whole covered with a heavy

36107 to 36121—Continued.

coat of soil. When stored carefully they last until late next spring. The roots must never be cut off, as otherwise the plants begin to rot. When grown for seed the roots with just an inch or so of the leaf stumps left on them are planted out in the spring on a special piece of land where the soil is not too heavy. They soon form new rootlets, and in a short time stalks rise up, with but very scanty foliage and bearing pale-yellow flowers. The process of setting seeds takes but little time, and when all goes well one has fresh seed again in early or middle July. From the nature of the climate of North China one might predict that this cabbage will do well in those parts of America where in the late summer and fall the days are warm and dry but the nights are cool and where the soil is a trifle saline and is irrigated."

36114. BRASSICA PEKINENSIS (Lour.) Skeels. Pai ts'ai.

"(No. 1880a. Peking, China. July 18, 1913.) A large, quick-maturing variety of Chinese cabbage, which needs to be treated as to cultivation like the preceding, No. 1879a (S. P. I. 36113), but it being an autumn variety, does not possess any long-keeping qualities. It is, however, earlier matured, and therefore sooner available for the table. Chinese name *Pai ts'ai*."

36115. RAPHANUS SATIVUS L. Radish.

"(No. 1881a. Peking, China. July 18, 1913.) A fine variety of the long, green winter radish called *Ching loba*. Especially recommended for its stomachic properties. As a winter vegetable, especially for those doing hard manual labor, this Chinese winter radish will be of inestimable value, and special effort should be made to make the American public acquainted with it. For further information, see the extensive notes under S. P. I. No. 31697."

36116. SOJA MAX (L.) Piper. Soy bean.
(*Glycine hispida* Maxim.)

"(No. 1882. San Tung Ying, Chihli Province, China. May 31, 1913.) A rare variety of soy bean, of an olive color, found among seeds of the ordinary yellow variety. Chinese name *Ma chan tou*."

36117. ERODIUM sp. Crane's-bill.

"(No. 1884a. Near Tientsin, China. June 16, 1913.) A vigorously growing species of the crane's-bill, apparently possessing value as a forage plant. May prove to be of special value to the western parts of the United States, and in particular to the Pacific coast region. Sow in late summer or early fall."

36118. TRICHOSANTHES KIRILOVII Maxim.

"(No. 1885a. Peking, China. June 28, 1913.) A rare perennial gourd cultivated in and near Peking for ornamental purposes and also for medicine. Chinese name *Kua lu*."

Distribution.—The Provinces of Chihli, Kiangsu, Kiangsi, Fokien, Hupeh, and Kwangtung, in China, and in Mongolia and Chosen (Korea).

36119. HESPERIS sp.

"(No. 1886a. Tientsin, China. June 14, 1913.) An ornamental biennial crucifer having fairly large blue-violet flowers, which are among the earliest of the harbingers of spring. The Chinese do not cultivate this plant, as it easily takes care of itself, but they appreciate the flowers, as they come so early and are so attractive. The leaves and general looks of this crucifer offer nothing special, neither do the square pods, but the plant deserves to be naturalized in the United States as a beautiful harmless weed. Collected at the grounds of Mr. C. Y. Sun, at Tientsin. Sow these seeds in late summer or early fall in somewhat shady places."

36107 to 36121—Continued.**36120.** ZEA MAYS L.**Corn.**

“(No. 1887a. Peking, China. July 18, 1913.) The ordinary flint maize as sold in the markets and in the grain shops of Peking. Chinese name *Yu mi*.”

36121. COLOCASIA sp.**Taro.**

“(No. 23b. Peking, China. June 23, 1913.) A small dry-land dasheen much esteemed by the Chinese as a vegetable, either boiled or served stewed with fish. Chinese name *U-to*.”

“This dasheen, or taro, is of the same type as the other North China and most of the Japanese varieties previously introduced, and is not of high quality.” (R. A. Young.)

36122 to 36124.

From Chile. Collected by Mr. W. F. Wight, of the Bureau of Plant Industry. Received May 7, 1913.

36122. ESCALLONIA PULVERULENTA (Ruiz and Pavon) Persoon.

“(No. 45. Concepcion, Chile.) A tree about 25 feet high, which, as it withstands considerable dry weather, may prove of value in the Southwest.” (Wight.)

“An evergreen shrub 10 to 12 feet high, with downy, viscid, varnished branchlets. Leaves very viscid, oblong, with a rounded end and tapering base; 2 to 4 inches long, three-fourths inch to 1½ inches wide; finely toothed, bristly hairy on both surfaces, the upper one with a varnished appearance. Flowers white, densely crowded on slender, cylindrical racemes, 4 to 9 inches long, three-fourths to 1 inch through; sometimes branched at the base.

“Native of Chile, introduced early in the nineteenth century, but now uncommon. It is not hardy in any but our warmest districts, although in colder ones it may live and thrive for many years on a wall. From all the other white-flowered escallonias in cultivation, this is readily distinguished by its long, slender racemes.” (W. J. Bean, *Trees and Shrubs Hardy in the British Isles*, vol. 1, p. 530.)

36123. AEXTOXICON PUNCTATUM Ruiz and Pavon.**Palo muerto.**

“(No. 48. Lago Villarica, Chile.) *Tecke (tique)*. A tree sometimes reaching a height of 40 feet or more. The foliage resembles that of the *Elaeagnus*, although of a darker green. It is widely distributed in southern Chile and seems to thrive almost equally well in the dry summers of Concepcion and the moist climate of Chiloe. It perhaps reaches its greatest development in the Province of Valdivia.” (Wight.)

36124. (Undetermined.)

“(No. 49.) An ornamental vine with foliage resembling smilax. The flowers had fallen, but they are evidently borne in large clusters, and there is little doubt that this will prove an exceedingly attractive vine.” (Wight.)

36125 to 36127. AMYGDALUS PERSICA L.**Peach.**

Plants grown at the Chico (Cal.) Field Station.

Quoted notes by Mr. Peter Bisset.

36125. “*Sutter Creek* on common peach, P. I. G. No. 5537. A peach of large size and good quality; ripens a little later than the well-known Elberta, which it resembles. Its chief value, however, is its remarkable resistance to peach leaf-curl.”

36125 to 36127—Continued.

36126. "*Bolivian Cling* on common peach, P. I. G. No. 4466. A peach of good size, fine quality, and attractive appearance. Raised from seed sent in by Mr. Edward M. Ehrhorn. Collected in Bolivia from trees planted by the Franciscan padres."

36127. "*Bolivian Freestone* on common peach, P. I. G. No. 4466. A peach of good size, fine quality, and attractive appearance. Raised from seed sent in by Mr. Edward M. Ehrhorn. Collected in Bolivia from trees planted by the Franciscan padres."

36128. TROPAEOLUM SPECIOSUM Poepp. and Endl.

From Chile. Collected by Mr. W. F. Wight, of the Bureau of Plant Industry. Received May 7, 1913.

"(No. 70. February 6, 1913.) An herbaceous vine with deeply lobed rather delicate foliage and very attractive red flowers, somewhat smaller than *T. majus*. It grows readily in some shade. Found on the hills near San Vicente." (Wight.)

36129 to 36131.

From San Jose, Costa Rica. Presented by Mr. Carlos Wercklé, Department of Agriculture. Received September 13, 1913.

36129 and 36130. SOLANUM COLUMBIANUM Dunal.

Potato.

36129. "Violet flowers. From La Palma. The plants which I have here are in bloom and have white flowers, though they came from La Palma, where I have never seen the white variety; those I sent you came from the same original plant, which I brought here as a small seedling from that place; now I do not know if the plant changes in different climates or if there are a few of the white-flowered variety, whose fruits are much inferior at La Palma." (Wercklé.)

36130. "Violet flowers. From La Palma." (Wercklé.)

36131. BAMBOS sp.

Bamboo.

"Very dwarf, very graceful; cold, near frost line." (Wercklé.)

36132 to 36135.

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

Quoted notes by Mr. Wight.

36132 and 36133. UGNI MOLINAE (Barn.) Turcz.
(*Myrtus molinae* Barn.)

Murta.

36132. "(No. 42.) *Murta, murtilla*. A shrub 4 to 8 feet high with rather ornamental foliage, but esteemed in Chile for its berries, which are from one-fourth to one-half inch in diameter and very palatable. They are often gathered and sold on the market in various towns, and a dulce is made from them that is considered excellent. No attempt has so far been made to cultivate this shrub in Chile, but by careful selection no doubt the size and quality of the fruit could be improved and something of value developed. It is rather widely distributed, growing in the region of dry summers as well as in Chiloe."

36133. "(No. 102.)" For description, see No. 42 (S. P. I. No. 36132). For previous introduction and description, see S. P. I. No. 35992.

36132 to 36135—Continued.**36134.** CALYDOREA SPECIOSA (Hook.) Herbert.

“(No. 104.) A species resembling *Sisyrinchium* which may prove valuable as an ornamental. It was past the blooming period when seen. Found in the forest some distance south of Lago Villarica.”

36135. SOPHORA TETRAPTERA J. Miller.**Pelu.**

“(No. 105.) A small leguminous tree with ornamental foliage, superior to the well-known *Sophora japonica*. The flowers were not seen, but they are said to be large and yellow.”

36136. MEDICAGO ARABICA (L.) All.**Bur clover.**

From Kingsboro, N. C. Purchased from Mr. J. C. Killibrew. Received August 29, 1913.

36137 to 36159.

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

Quoted notes by Mr. Wight, except as indicated.

36137. (Undetermined.)

“(No. 114. February 17, 1913.) A shrub about 8 feet high of rather spreading habit and with dark-green foliage. It produces an abundance of reddish flowers about one-half to three-fourths inch long. Found in a moist situation close to the shore of Lago Villarica.”

36138. (Undetermined.)

“(No. 118. March 5, 1913.) A small shrub from 1½ to 6 feet high, belonging to the family Myrtaceæ. The foliage is ornamental, but it is particularly striking when loaded with white berries, which vary from three-eighths to five-eighths inch in diameter and are edible. The berries, however, lack character, though by selection it is possible the quality could be improved.”

36139. PERNETTIA MUCRONATA (L. f.) Gaud.

“(No. 120.) A small shrub from 1½ to 6 feet high belonging to the family Ericaceæ. The foliage is ornamental, but the shrub is particularly striking when loaded with pink fruits, which are from three-eighths to five-eighths of an inch in diameter and are edible. The berries, however, lack character, though by selection it is possible the quality could be improved.”

For previous introduction and description, see S. P. I. No. 35990.

36140. UGNI MOLINAE (Barn.) Turcz.**Murta.**

(*Myrtus molinae* Barn.)

“(No. 123. Concepcion, Chile.) An ornamental shrub with edible red berries, from the east end of Lago Rinihue. For further notes, see No. 42 [S. P. I. No. 36132].”

For previous introduction and description, see S. P. I. No. 35992.

36141. (Undetermined.)

“(No. 137. Lancotrara, Chile.) An ornamental shrub with handsome red berries.”

36137 to 36159—Continued.**36142 to 36144.** TRITICUM spp.**Wheat.****36142.** TRITICUM sp.

“(No. 148. Panguipulli, Chile.) Chilean wheat brings a higher price in the European market than that of Argentina. Several varieties may often be found in the same field, and some of these may prove of interest, as they have doubtless been grown in the country for a long period.”

36143. TRITICUM sp.

“(No. 149. Llifén, Chile. March 8, 1913.) Wheat. For further notes, see No. 148 (S. P. I. No. 36142).”

36144. TRITICUM AESTIVUM L.*(Triticum vulgare Vill.)*

“(No. 150. Llifén, Chile. March 8, 1913.) For further notes, see No. 148 (S. P. I. No. 36142).”

36145. SOPHORA TETRAPTERA J. Miller.**Pelu.**

“(No. 151. Llifén, Chile. March 8, 1913.) For description, see No. 105 (S. P. I. No. 36135).”

“A shrub or small tree, varying from 15 to 40 feet high in a wild state, the trunk 6 inches to 2 feet in diameter. It is deciduous or nearly so in the open, but evergreen in a greenhouse. Branches of young specimens very zigzag, slender, and often interlacing; on older ones the branches become short jointed, or even stunted. Branchlets, leaf stalks, flower stalks, and especially the calyx, all covered with a short, tawny down. Leaves pinnate, $1\frac{1}{2}$ to $4\frac{1}{2}$ inches long; leaflets, one-eighth to three-fourths inch long, narrow, oblong to roundish; their number is very variable; on young plants there are only 7 or 9, but on plants that have reached the flowering stage they are much more numerous, and up to as many as 80. Flowers somewhat tubular, golden yellow, 1 to 2 inches long, pendulous, clustered, from 4 to 8 in each raceme. Calyx obliquely bell shaped, one-half inch or more across, shallow toothed. Pod 2 to 8 inches long, four winged, with constrictions between the seeds.” (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 521.*)

36146 and 36147. (Undetermined.)

36146. “(No. 153. March 6, 1913.) An ornamental shrub found between the pass Llifén and Baños Chihuic.”

36147. “(No. 184.) A tree 20 to 30 feet high with dark-green linear leaves and very handsome red flowers about 2 inches long. This grew in a very dense, moist forest on the west coast of the island of Chiloe, in a region not heretofore visited by any collector. It should make a very fine ornamental.”

36148. ALEXTOXICON PUNCTATUM Ruiz and Pavon.**Palo muerto.**

“(No. 187. Quilan, Chile.) A tree growing to a height of 40 or more feet; the foliage resembles that of *Elaeagnus*, but darker green.”

See description under S. P. I. No. 36123.

36149. (Undetermined.)

“(No. 193.) A shrub with red berries.”

36137 to 36159—Continued.

- 36150 and 36151.** UGNI MOLINAE (Barn.) Turcz. **Murta.**
(*Myrtus molinae* Barn.)
- 36150.** "(No. 194. Valdivia, Chile.) A shrub 4 to 8 feet high, with rather ornamental foliage, but esteemed in Chile for its berries, which are from one-fourth to one-half inch in diameter and very palatable. They are often gathered and sold in the markets in various towns, and a dulce is made from them that is considered excellent."
For further notes, see No. 42 [S. P. I. No. 36132].
- 36151** "(No. 190. March 27, 1913.)"
For further notes, see Nos. 42 [S. P. I. No. 36132] and 194 [S. P. I. No. 36150].
- 36152.** (Undetermined.)
"(No. 234. Quilan, Chile.) A shrub with white berries. For description, see No. 118 [S. P. I. No. 36138]."
- 36153.** SOPHORA TETRAPTERA J. Miller. **Pelu.**
"(No. 228.) See No. 105 [S. P. I. No. 36135] for description."
- 36154.** SPONDIAS LUTEA L. **Hog Plum.**
"(No. 583.) This is a yellowish fruit, oblong, an inch or more in length. It is, at least at this season of the year (April-May), rather rare."
- 36155.** LUCUMA sp. **White sapote.**
"(No. 320.) These fruits were about the size of a navel orange and excellent in quality."
- 36156.** DAUCUS CAROTA L. **Carrot.**
"(No. 296.) Seeds of the carrot as grown by the Indians."
- 36157.** PSIDIUM sp. **Guava.**
"(No. 103. Lancotrara, Chile. February 19, 1913.) For description, see No. 181 [S. P. I. No. 35973]."
- 36158.** ZEPHYRANTHES sp.
"(No. 53a.)"
- 36159.** TIGRIDIA sp.
"(No. 55a.)"

36160 to 36162. VIGNA SINENSIS (Torner) Savi. Cowpea.

From Zaria, Northern Nigeria. Presented by Mr. P. H. Lamb, Director of Agriculture. Received September 3, 1913.

36160. "*Farrin wake.*"

36162. "*Kananco.*"

36161. "*Zako.*"

36163. LARIX SIBIRICA Ledeb. Siberian larch.

From southern Ural Mountains, Russia. Received from Mr. S. T. Dana, Forest Service, Washington, D. C., who secured them through Count von Sivers, Roemershof, via Riga, Russia. Received September 16, 1913.

"Collected in the fall of 1912." (*Dana.*)

"Although closely allied to the common larch, this may be distinguished by the earlier growth in spring, the longer, more slender leaves, and in the more concave scales of the cone. It appears to have no value in this country [England]. Its early growth renders it very subject to injury by late spring frosts. I have only seen



A NEW PARAGUAYAN FRUIT (EUGENIA SP.) AT ALTADENA, CAL. (S. P. I. No. 36167.)

This fruit was introduced into Santa Barbara, Cal., as *Myrciaria edulis affinis*, by that remarkable enthusiast for plant introduction, Dr. F. Franceschi, and has proved unusually frost resistant there. The bush has fruited at 3 years of age, and the fruit resembles the guava in flavor and has, according to Mr. Wilson Popenoe, a delightful aroma. (Photographed by W. Popenoe, November 5, 1914; P16229FS.)



BEDS OF GINSENG (S. P. I. No. 36175) AT SONGDO, CHOSEN (KOREA).

The culture of this medicinal root, ginseng, which plays so important a rôle in Chinese medicine, is nowhere more extensive than it is around Songdo. Its cultivation in America has been repeatedly attempted, with varying degrees of success, and the description of the culture in Korea of the Korean variety should prove of value to American growers. (Photograph from Rev. C. H. Deal, Songdo, Chosen; P13920FS.)

plants a few feet high." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 7.*)

36164. *POUPARTIA AXILLARIS* (Roxb.) King and Prain.

From Augusta, Ga. Presented by the P. J. Berckmans Co. Received September 18, 1913.

"Collected by Mr. E. H. Wilson in China and sent to the P. J. Berckmans Co., from whom this seed was obtained. (*Peter Bisset.*)

"This is a rather common tree at low altitudes in western Hupeh and in Szechwan and is chiefly confined to the valleys. It grows from 15 to 25 meters tall and the trunk is often a meter in diameter near the base. The branches are massive and form an oval or rounded head; the bark is gray, deeply fissured, and persistent; the leaves are deciduous. The flowers are polygamo-dioecious; the male and female flowers are borne in many-flowered panicles which spring from the axils of scales and also from the axils of the lower leaves. The hermaphrodite flowers are much larger than the unisexual flowers and are borne in short racemes which are commonly one flowered by abortion and never more than three or four flowered. The leafy shoots bearing panicles of unisexual flowers look very much like branches of *Rhus succedanea* Linnæus. The fruit is yellow, oval, from 2.5 to 3 centimeters long, rounded on the summit; it is eaten by the Chinese. The vernacular name of this tree is *Hsuan tsao.*" (*Plantae Wilsonianae, Part IV, p. 172.*)

36165. *PASPALUM BERTONII* Hackel.

From Puerto Bertoni, Paraguay. Presented by Dr. Moisés S. Bertoni, Estacion Agronomica.

"A densely cespitose perennial grass, growing among rocks and sand on the banks of the Parana River, near Puerto Bertoni and Salto Guaira. The species resembles *P. eucomum* and *P. guttatum*, but differs in its flat leaves, its 2-eared ligula, and very pointed spikelets." (*Hackel, in Fedde, Repertorium, vol. 10, p. 165, 1911.*)

36166. *DIOSPYROS TEXANA* Scheele. **Mexican persimmon.**

From San Antonio, Tex. Presented by Mr. R. E. Blair, of the Yuma Experiment Farm, Bard, Cal. Received September 16, 1913.

"Collected near San Antonio, Tex., August, 1912." (*Blair.*)

Distribution.—A shrub or small tree found in river valleys in Texas and the northern part of Mexico.

36167. *EUGENIA* sp.

From Altadena, Cal. Presented by Mr. F. O. Popenoe. Received September 16, 1913.

This was received as *Myrciaria edulis* var. *affinis*, but does not agree with material of this species brought from Brazil, and seems rather to belong to the genus *Eugenia*.

"A shrub introduced from Paraguay by Dr. F. Franceschi, of Santa Barbara, Cal. Of open, rather wiry growth, with small elliptical to lanceolate leaves. At Altadena it withstood the cold weather of January, 1913, better than the Mexican avocado. The plant that produces these fruits is about 3 years old and is fruiting this season for the first time. The fruit is round, slightly less than an inch in diameter, and of a beautiful deep-orange color. The skin, though thin, is tough and not easily broken. Surrounding the one to four large seeds is a small quantity of soft pulp, very acid and somewhat resembling the guava in flavor. The aroma of the fruit is delightful." (*Wilson Popenoe.*)

For an illustration of this new Paraguayan fruit as grown in California, see Plate V.

36168. PARKINSONIA ACULEATA L.**Jerusalem thorn.**

From Buenos Aires, Argentina. Presented by Mr. H. M. Curran, forester.
Received September 15, 1913.

"Small tree much used here as a hedge. Ornamental when grown as a tree."
(*Curran.*)

"*P. aculeata*, called in Jamaica the Jerusalem thorn and in the French West Indies *genet épineux*, though originally a native of some part of the American continent, is now found in nearly all tropical countries, where, from its spiny nature, it is used for making hedges, while in Mexico the Indians employ it as a febrifuge and sudorific, and also as a remedy in epilepsy. It grows from 12 to 15 feet high and has sweet-smelling flowers and leaves with winged stalks and blunt leaflets, by which it is distinguished from the Cape of Good Hope species, which has round, unwinged stalks and sharp-pointed leaflets." (*A. Smith, in Lindley's Treasury of Botany.*)

36170. SWIETENIA MAHAGONI Jacq.**Mahogany.**

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

"*Venadillo* seed, which produces a tree of immense height and about 18 inches to 2 feet in diameter. The lumber from this tree is used for the manufacture of chairs, beds, and all kinds of furniture. It has a beautiful grain and is everlasting; polishes beautifully." (*Osuna.*)

36171 and 36172.

From San Ramon, Costa Rica. Presented by Mr. Frederick Hopkins, through Mr. G. Carlton Worthen, of the Department of Agriculture. Received June 6, 1913.

36171. ANNONA CHERIMOLA Miller.**Cherimoya.**

"Edible fruits." (*Hopkins.*)

36172. CARICA PAPAYA L.**Papaya.****36173. CARICA PAPAYA L.****Papaya.**

From Pago Pago, Samoa. Presented by Commander C. D. Stearns, Governor of American Samoa. Received September 15, 1913.

36174. RHIZOPHORA CANDELARIA DC.**Mangrove.**

From Manila, Philippine Islands. Received from Maj. George P. Ahern, Director of Forestry, Department of Interior. Received September 12, 1913.

This shipment consisted of a Wardian case containing 200 plants of four species, as follows: Langarai (*Bruguiera parviflora*), bacauan (*Rhizophora candelaria*), pototan (*Bruguiera eriopetala*), and tabigi (*Xylocarpus obovatus*). The tags had in some way become detached in transit, making it impossible to determine the varieties, therefore they were given one S. P. I. number. Only 70 plants were alive and in fair condition.

36175. PANAX QUINQUEFOLIUM L.**Ginseng.**

(*Aralia quinquefolia* Decne. and Planch.)

From Songdo, Chosen (Korea). Presented by Rev. C. H. Deal, Anglo-Korean School, at the request of Mr. Noble, of the Northern Methodist Mission in Korea.
Received September 19, 1913.

"This is, perhaps, the most famous section in the world for the cultivation and production of ginseng. A few years ago its cultivation dropped out, but now, if anything,

it is being cultivated more widely than ever. These seeds are fresh and as yet are not thoroughly dried. As you know, when they are dry they are very hard, so hard that they must be soaked in water until thoroughly wet and planted where they will freeze, so as to burst open the shell.

"The largest roots of ginseng weigh about 160 grams. There seems to be but one variety, or if there are more, they are not recognized by the Korean farmers. When the roots are first dug they are all white, but when they are marketed there is a variety of appearances:

"*First*, white ginseng is the peeled and dried roots. This is used mostly by the Koreans and does not constitute the first quality of roots.

"*Second*, red ginseng is the best and most expensive of the roots. The color is given by a thorough steaming, and it is sold chiefly to the Chinese.

"*Third*, root ginseng, or perhaps a better translation of the Chinese character would be rootlet ginseng, is used chiefly in the form of tea. As the name implies, it is composed of the dried rootlets only.

"*Fourth*, sweet ginseng is composed of the faulty roots of the first, second, and third years' growth. It is usually put up in the form of preserves.

"*Fifth*, ginseng sirup is a by-product produced by boiling down to a sirup the condensed steam which was used in coloring the red ginseng. This is a modern development, or possibly an innovation from America. This, it seems, is one of the great sources of profit in the ginseng business.

"When the ginseng comes up it has only one stem with 5 leaflets. No more leaflets come out the first season, but in the fall it puts out a stem and a bunch of blooms, ranging from 10 to 20. One or two seeds form on each bloom. The second year the plants are put out 10 leaflets are formed, the third year 15, and the fourth year 20, etc. One can know the age of the plant by counting the leaflets and dividing the total by 5.

"If the seeds are to be planted in the spring, the land must be plowed two or three times in the late summer and sprayed well with formalin. The soil should be thoroughly stirred and loosened up, so that the sun may penetrate it. The land must be plowed again in the spring and then worked up into beds 8 inches high, 3 or 4 feet wide, and as long as the field will permit. The beds are covered by a roof 3 or 4 feet high, made from rice or other straw, and should be screened in all around with coarse grass or sorghum. The roof need not be very heavy in the early spring, but in the hot summer time it must be thick enough to keep out much of the heat and all of the sunlight. The beds are edged with flat pieces of slate, to keep them in shape and also to prevent the expensive fertilizer from being wasted.

"The soil is prepared as follows: In the fall planting, disintegrated granite is dug up fresh from the ground, sifted, and the coarser gravel thrown away. The sifted granite is piled out where the air will penetrate it, and where freezing and other weather forces will act upon it. In the fall, leaves are piled up and allowed to rot over winter. In the spring they are dried and ground into powder and mixed half and half with the gravel and then spread over the beds, 5, 6, or 7 inches deep. This would mean about 4½ bushels of mixture to a plat containing 17 square feet.

"The seeds are planted here between the twentieth and the twenty-fifth of March. They are placed an inch apart each way in the bed and buried about three-eighths of an inch. A mixture of creek or river sand and leaf mold, as above described, two parts of sand to one of mold, is spread over the bed three-eighths of an inch deep and covered with straw. The bed is spread twice a day with water. The roof is not built over the bed until the plants starts to peep out. The straw is then removed and the roof above mentioned built over the bed, where it remains until the ginseng is gathered, seven years later. The most important thing is to keep out the rain and sunlight. The beds must be kept moist with pure well or spring water. About the twentieth of May the same mixture of creek sand and leaf mold is spread over the bed, this time from three-

eighths to one-half inch deep. At this time plenty of water must be given it. There must not be the least sign of other plant life in the beds, which must be kept absolutely clean of grass, etc.

"After one year, about the 10th of April, the plants are dug up and only the healthiest plants reset in soil like the original setting. This time they are planted about 10 inches apart each way. The plants are placed in a horizontal position in the soil and covered to a depth of 2 inches. All but the most healthy plants are thrown away. The beds are covered with straw as before until the plants begin to come up; then the roof, as above explained, is built. The soil for this planting is prepared as before, which makes it impossible for the plants to be reset in the same beds, since they must be well plowed and aired out the previous summer before planting. The soil must be well loosened up around the plants three or four times a year.

"About May 20 the fertilizer is spread over the beds. This fertilizer can not be obtained in America, for it is composed of the mud walls of the old Korean houses, perhaps a hundred years old, and the soot and wood ashes scraped out of the flues of torn-down houses. This is not a flue as we have at home, but simply a smoke passage under the floor of the house, which is cleaned out once every decade by tearing up the floor or tearing down the house.

"Then a spread of acidum phosphoricum is given the beds. The flowers are not allowed to remain and produce seed, but are broken off before they bloom. Until the plants are 4 years old they are not allowed to produce seed. After 2 years the plants are again reset in new soil as before and then allowed to stay until they are 7 years old.

"Last year in Songdo, 13,000 Korean pounds, which are equal to about 17,500 of our pounds, valued at \$40 gold per pound (Kr.) were produced. This was the red ginseng. There was also produced about 50,000 Korean pounds of the white ginseng. The production of ginseng is quite an industry in this old city." (*Extract from letter of Rev. C. H. Deal, of the Anglo-Korean School, Songdo, Chosen (Korea), February 5, 1914.*)

For an illustration of the method of bedding ginseng as practiced at Songdo, Chosen (Korea), see Plate VI.

36176 to 36182.

Collected by Mr. W. F. Wight, of the Bureau of Plant Industry. Received July 7, 1913.

36176 and 36177. PISUM SATIVUM L.

Pea.

"From Talcahuano, Chile. Selected from No. 238." (*Wight.*)

36178 to 36182. PHASEOLUS VULGARIS L.

Bean.

From Talcahuano, Chile.

36178. Selected from other lots by Dr. D. N. Shoemaker.

36179. Mixed lot selected from other numbers by Dr. Shoemaker.

36180. Selected from other lots by Dr. Shoemaker.

36181. Selected from other lots by Dr. Shoemaker.

36182. Selected from other lots by Dr. Shoemaker.

36183. PHOENIX DACTYLIFERA × FARINIFERA.

Date.

From Matania El Saff, Egypt. Presented by Mr. Alfred Bircher, Middle Egypt Botanic Gardens. Received September 18, 1913.

"It has a scanty pulp. The fruit ripens very early in summer, and the female tree, *Phoenix farinifera*, is only 5 years old." (*Bircher.*)

36184. SYZYGium OPERCULATUM (Roxb.) Niedenzu.

Rai-jaman.

(*Eugenia operculata* Roxburgh.)

From Lahore, India. Presented by Mr. W. R. Mustoe, superintendent, Government Agricultural Horticultural Gardens. Received September 20, 1913.

"This is a very big-fruited variety of *E. jambolana*, commonly called the *Rai-jaman*. It has fruits as big as good-sized damsons, which are very nice if put between two plates with a pinch of salt and shaken a few times: this takes away the astringent taste from them. They come fairly true from seed." (*Mustoe*.)

Distribution.—A large tree found from the lower slopes of the Himalayas in India, eastward and southward to China and the islands of the Malay Archipelago.

36185 to 36195.

Collected by Mr. W. F. Wight, of the Bureau of Plant Industry. Received July 7, 1913.

Quoted notes by Mr. Wight.

36185 to 36195. *ZEA MAYS* L.

Corn.

- 36185. "(No. 297.) Arequipa, Peru. White."
- 36186. "(No. 298.) Arequipa, Peru. Yellow."
- 36187. "(No. 299.) Cuzco, Peru. Striped red and yellow."
- 36188. "(No. 300.) Cuzco, Peru. White."
- 36189. "(No. 301.) Cuzco, Peru. Dark red."
- 36190. "(No. 327.) Peru. *Urpito*, favorite corn of the Indians for roasting."
- 36191. "(No. 328.) Cuzco, Peru. Yellow."
- 36192. "(No. 333.) Oruro, Bolivia. Dark brown."
- 36193. "(No. 367.) La Paz, Bolivia."
- 36194. "(No. 368.) La Paz, Bolivia. Gray."
- 36195. "(No. 360.) Cuzco, Peru. Dark red."

36196. *AVENA SATIVA* L.

Oats.

From Tulun, Irkutsk, Russia. Presented by Mr. Victor Pissareff, director, Tulun Experiment Station. Received September 9, 1913.

"Local oats, cultivated at the station since 1908. Succeed better than all imported sorts. Seed of 1912 killed by frost on July 28 (old style)." (*Pissareff*.)

36197 to 36209. *ZEA MAYS* L.

Corn.

Collected by Mr. W. F. Wight, of the Bureau of Plant Industry. Received July 7, 1913.

Quoted notes by Mr. Wight.

- 36197. "(No. 378.) Cuzco, Peru. Red."
- 36198. "(No. 382.) Oruro, Bolivia. Strawberry."
- 36199. "(No. 384.) Oruro, Bolivia. Red."
- 36200. "(No. 392.) Oruro, Bolivia. Large white."
- 36201. "(No. 393.) Oruro, Bolivia. Red."
- 36202. "(No. 585.) Oruro, Bolivia. Speckled."
- 36203. "(No. 587.) Oruro, Bolivia. Light strawberry."
- 36204. "(No. 594.) Oruro, Bolivia. Black."
- 36205. "(No. 596.) Cuzco, Peru. Very dark red."
- 36206. "(No. 397.) Cuzco, Peru. White."
- 36207. "(No. 598.) Cuzco, Peru. Yellow."
- 36208. "(No. 599.) Cuzco, Peru. White."
- 36209. "(No. 600.) Cuzco, Peru. Yellowish brown."

36210. ERIOBOTRYA JAPONICA (Thunb.) Lindl.**Loquat.**

From Rome, Italy. Presented by Dr. Gustav Eisen, California Academy of Sciences, San Francisco, Cal. Received September 24, 1913.

"Apple loquat from Boscotrecase. It is very early, as it matures in Rome in May. It is only a week later than the pear loquat and must be classed as one of the very early desirable fruits." (*Eisen.*)

Cuttings.

36211 to 36253. ZEA MAYS L.**Corn.**

Collected by Mr. W. F. Wight, of the Bureau of Plant Industry. Received July 7, 1913.

Quoted notes by Mr. Wight.

36211. "(No. 601.) Cuzco, Peru. Pink."
 36212. "(No. 602.) Cuzco, Peru. White."
 36213. "(No. 603.) Cuzco, Peru. Light yellow."
 36214. "(No. 604.) Cuzco, Peru. Red and yellow striped."
 36215. "(No. 605.) Cuzco, Peru. Yellow."
 36216. "(No. 606.) Cuzco, Peru. Yellow."
 36217. "(No. 607.) Cuzco, Peru. Yellow with red stripes."
 36218. "(No. 609.) Cuzco, Peru. Yellow."
 36219. "(No. 610.) Cuzco, Peru. Striped."
 36220. "(No. 611.) Cuzco, Peru. White."
 36221. "(No. 612.) Cuzco, Peru. Yellowish brown."
 36222. "(No. 613.) Cuzco, Peru. Dark red; grains tipped with yellow."
 36223. "(No. 614.) Cuzco, Peru. Yellowish red."
 36224. "(No. 615.) Cuzco, Peru. Bluish gray."
 36225. "(No. 616.) Cuzco, Peru. Yellow."
 36226. "(No. 617.) Cuzco, Peru. Light yellow."
 36227. "(No. 618.) Cuzco, Peru. White."
 36228. "(No. 621.) Cuzco, Peru. Yellow."
 36229. "(No. 622.) Cuzco, Peru. Purple and white mottled."
 36230. "(No. 623.) Cuzco, Peru. Striped."
 36231. "(No. 624.) Cuzco, Peru. White with red stripes."
 36232. "(No. 625.) Cuzco, Peru. Light yellow, striped with red."
 36233. "(No. 626.) Cuzco, Peru. Light yellow."
 36234. "(No. 627.) Cuzco, Peru. Brown."
 36235. "(No. 628.) Cuzco, Peru. Yellow."
 36236. "(No. 629.) Cuzco, Peru.
 36237. "(No. 630.) Cuzco, Peru. Purple and white speckled.
 36238. "(No. 631.) Cuzco, Peru. Reddish brown."
 36239. "(No. 632.) Cuzco, Peru. Light yellow."
 36240. "(No. 633.) Cuzco, Peru. Brownish yellow."
 36241. "(No. 633a.) White."
 36242. "(No. 634.) Cuzco, Peru. White."
 36243. "(No. 635.) Cuzco, Peru. White."
 36244. "(No. 636.) Cuzco, Peru. Red and yellow striped."

36211 to 36253—Continued.

- 36245.** "(No. 637.) Cuzco, Peru. White and purple speckled."
36246. "(No. 638.) Yellow."
36247. "(No. 639.) Dark red."
36248. "(No. 640.) Pinkish white."
36249. "(No. 641.) Speckled, small grains."
36250. "(No. 642.) Brownish yellow."
36251. "(No. 332.) Sweet."
36252. "(No. 391.) Yellow."
36253. "(No. 584.) Large yellow."

36254. HOLMSKIOLDIA SANGUINEA Retzius.

From Seharunpur, India. Received from the Government Botanical Gardens, through Mr. Wilson Popenoe, of the Bureau of Plant Industry. Received May 7, 1913.

"A handsome shrub, producing brick-red flowers." (*Popenoe.*)

Distribution.—A straggling shrub found on the subtropical slopes of the Himalayas up to an elevation of 4,000 feet, in northern India,

"A nearly glabrous, large straggling shrub, 10 to 30 feet high. Leaves stalked, cordate, ovate, about 3 by 2 inches, toothed or entire. Flowers very conspicuous, scarlet tinged with orange, crowded in axillary, stalked cymes. Calyx colored like the corolla, funnellike, persistent." (*Gamble, Manual of Indian Timbers, and Collett, Flora Simlensis.*)

36255. CHLORIS PARAGUAIENSIS Steud. Australian Rhodes grass.

From Sydney, New South Wales. Purchased from Anderson & Co. Received September 20, 1913.

"This seed should be sown the same way as the ordinary Rhodes grass, in the spring or early autumn, spring preferably. In its earliest stages of growth it is stoloniferous, that is, it roots from the joints, and when growing vigorously reaches some 5 feet high, averaging 4 feet; each plant stools out and has twice the amount of hay yielded by the ordinary variety, *Chloris gayana*, and is much softer feed." (*Anderson & Co.*)

36256. ARTOCARPUS ODORATISSIMA Blanco. Marang.

From Lamac, Bataan, Philippine Islands. Presented by Mr. P. J. Wester, horticulturist, Division of Horticulture, Lamac Experiment Station. Received September 23, 1913.

"These seeds were collected in Zamboanga during my recent trip to Mindanao. This is my second opportunity to test the marang, and I have no hesitation to declare it one of the coming tropical fruits, even in its present undeveloped state. It is very sweet and rich in flavor, and has the unique quality of having a flesh that separates readily and absolutely from the seeds and the skin. As far as I have been able to ascertain, the marang occurs only on the south coast of Mindanao and in the Sulu Archipelago. On my return to Manila I met on the steamer a missionary who had lived in Borneo for three years, part of which time was spent in Sandakan; she had neither heard of nor seen the fruit before. The marang will probably not succeed except where the climate is warm and humid throughout the year and the atmosphere close and still." (*Wester.*)

"*Marang*, also known as *madang*. A medium-sized tree with large dark-green leaves, entire or more or less conspicuously trilobate, 45 to 60 centimeters long and 25 to 30 centimeters broad, similar in habit to the breadfruit, found in the south coast of

Mindanao and the Sulu Archipelago, and first described from Mindoro. The fruit is large, 16 centimeters long and 13 centimeters in equatorial diameter, roundish oblong, regular, thickly studded with soft, greenish yellow spines about 7 millimeters long on the outside; rind thick and fleshy; flesh white, sweet, rich, juicy, aromatic, and of good flavor, separated into segments of about the size of a grape clinging to the core, each segment containing a seed; seeds many, whitish, 8 by 15 millimeters, smooth, separating readily from the flesh. When the fruit is ripe, by passing a knife around and through the rind with a little care, the two halves separate from the flesh, leaving this like a bunch of grapes. Ripe fruits were obtained in August. The marang is far superior to its relatives, the jak and the ordinary breadfruit found in the Philippines, and already in its present form is a remarkably good and attractive fruit. The tree was noted by the writer in Zamboanga and Davao." (*Wester, The Philippine Agricultural Review, November, 1912.*)

36257. DAHLIA sp.

Mexican wild dahlia.

From Contreras, Federal District of Mexico, Mexico. Presented by Mr. William Brockway, superintendent, Hotel Imperial Gardens. Received September 22, 1913.

"From information given me by Prof. Pringle, who collected extensively for many years in Mexico, I am led to believe that the wild dahlia growing on both sides of Ajusco Mountain along the line of the Cuernavaca Division of the Mexican National Railway is the variety from which the cultivated dahlia originated. On the east side of the mountain they are found at Kilos 37, 38, and 39, and on the west side, both above and below the station of El Parque, between Kilos 87 and 97. Elevation about 6,000 feet. During the dry season these plants die down, and they commence their growth again about June 1, flowering about the month of September, although I have several specimens growing in my garden that are now beginning to flower (July), having been irrigated a little. All the varieties I have noted here are single flowered and none inclined to the cactus type. I have found at least 20 different colors and note some tending to the collarette type; they are mostly self colors ranging from various shades of red to orange, lemon, violet, and white. Some varieties are of very robust growth, mostly growing to a straight single stalk, branching out on all sides exactly like a young specimen fruit tree. They are very floriferous, and I have often dug clumps of a mass of tubers that would weigh up to 10 pounds. Several of these varieties would prove of value on account of the size, strength, and beauty of the full-grown plant." (*Brockway.*)

36258. NYMPHAEA STUHLMANNII (Engl.) Schwfth. and Gilg.

Water lily.

From German East Africa. Presented by the Usumbwa Company, Nyombe-Bulungwa, Port Tabora. Received September 24, 1913.

"Sepals yellowish green, petals bright sulphur yellow, stamens orange yellow, with sulphur-yellow anther. Stigma orange. Receptacle brown. Flowers 10 to 15 centimeters across, sweet scented ('duftet sehr aromatisch'). Sepals four, obovate, broadly rounded above, with numerous longitudinal veins, 8.3 centimeters long by 2.5 centimeters wide. Petals about 22, broadly obovate, with one to several longitudinal veins. Stamens about 125, stout and thick, all appendaged, the innermost very shortly so. Carpels about 23, stigma shallow, flat. Leaf orbicular ovate, entire, 21 centimeters wide by 25.5 centimeters long; sinus margins nearly straight, lobes diverging, obtuse; green on both sides; veins prominent; primary veins seven; principal area 7 centimeters long. Collected by Stuhlmann, No. 410, July 16, 1890, at 'Uniamweni, Gunda mkali, bei Bibisande,' Africa, altitude 1,200 meters in hb. Berlin." (*Henry S. Conard, A Monograph of the Genus Nymphaea.*)

BOTANICAL NOTE AND PUBLICATION OF A NEW NAME.

35674. *Achradelpha viridis* (Pittier) O. F. Cook.

(*Calocarpum viride*, Pittier, Contr. U. S. Nat. Herb., vol. 18, p. 84, 1914.)

A tree related to the sapote, but producing fruit of superior quality. It was described originally as *Calocarpum viride* Pittier. A larger quantity of seed of this species was secured afterward from Guatemala by Mr. O. F. Cook, who refers to this tree as *Achradelpha viridis* (S. P. I. Nos. 38478 to 38481, 38566, and 40906). The reason for changing the name is stated by Mr. Cook as follows:

“The injerto is undoubtedly a close relative of the true sapote of Mexico and Central America, which is the type of the genus *Achradelpha*. The generic name *Calocarpum* used by Pierre and other recent writers for the sapote is not considered available on account of its previous application to other plants.”

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