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Issued December, 1923.

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

INVENTORY

OF

SEEDS AND PLANTS IMPORTED

BY THE

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION
DURING THE PERIOD FROM APRIL 1
TO JUNE 30, 1922.

(No. 71; Nos. 54969 to 55568.)



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GOVERNMENT PRINTING OFFICE.
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INVENTORY OF SEEDS AND PLANTS IMPORTED BY THE OFFICE OF FOREIGN SEED AND PLANT IN- TRODUCTION DURING THE PERIOD FROM APRIL 1 TO JUNE 30, 1922 (NO. 71; NOS. 54969 TO 55568).

INTRODUCTORY STATEMENT.

The migrations of cultivated plants are slow when compared with the spread of ideas or inventions, but it would surprise anyone who has not paid much attention to the subject to learn of the steady flow of new varieties which is going on from the old to the new countries. This inventory represents the stream which is reaching America through the carefully supervised Government channel.

As we look over the immigrants which have arrived during the last three months we are struck with the fact that most of those which are coming in will require a long period of acclimatization, and many of them will need to be bred with those varieties which we already have before they will prove their full value to the country. Just as the human immigrants who arrive at Ellis Island are amalgamating slowly but surely with those who came years ago, so these plant immigrants, many of them at least, will be known by the particular characters which they have contributed to the cultivated plants already here to which they are related; for, like all other living things, the cultivated plants on which we subsist are continually changing under the hands of the plant breeders and through the unconscious process of selection which is always going on.

The fact that these plants which are introduced need to be selected and bred simply emphasizes the lamentable circumstance that there are too few plant breeders in America and too little encouragement is given to those few to carry on this painstaking long-time work of breeding and selecting plants.

The general public has scarcely begun to realize the self-sacrifice and lifelong devotion to its study which the successful plant breeder must give to any plant before he brings about any permanent improvement in it or the ease with which years of effort may be wiped out in a single season of unfortunate occurrences. Neither has the public appreciated that the emoluments which come to the plant breeder are rarely sufficient to cover even the expenses of cultivation and the care which the plants have required, so that at the end of a life of devotion to this work the breeder often finds himself impoverished by the expenses of the upkeep of his collections. It is this condition more than any other which is retarding the development of our cultivated plants to-day, and it is a condition which should be remedied.

This inventory describes under Nos. 55031 to 55039 nine newly originated varieties of Finnish oats sent in from Helsingfors, some of which are reported to be improvements over the Guldregn variety, which is a standard in Finland, and others which are said to be particularly suited for cultivation on swampy land.

Sixty varieties of sorghum have been collected for Mr. Vinall, the sorghum specialist of the department, by the director of agriculture of the Sudan Government from all over the Anglo-Egyptian Sudan in the region tributary to Khartum (Nos. 55106 to 55165).

For the strawberry breeders the Irapuato variety (No. 54976) from the famous strawberry region of that name in Mexico will be of interest.

The search for varieties of corn which may furnish new characters to be incorporated into our American varieties has been extended to eastern Asia, and through our agricultural explorer, Mr. Rock, we have received from the slopes of Doi Chang Mountain, in upper Siam, a variety (No. 55045) which from time immemorial has been grown by the Miaos, those jungle natives who have long inhabited the high mountains of Siam and who are corn-eating people, despite the fact that all around them the Siamese and Chinese subsist on a diet of rice.

For the pear breeders and those particularly interested in the discovery of a better stock than the one we have for the cultivated pear Mr. Rock has secured seeds of *Pyrus pashia* (No. 54998) from the region of Kengtung, Burma, which, according to the information he could obtain, is used by the natives there as a stock for the sand pear. He has also sent in two new forms (Nos. 55497 and 55550) which he found cultivated near Talifu, in the Province of Yunnan.

Whether the sugar cane (No. 55501) which Mr. Rock found in cultivation in the dry arid region of Yunnan at 6,000 feet elevation will prove a shorter season variety than those we now have, only a trial will disclose.

Mr. Rock's discovery and introduction of the new species of cherry, *Prunus majestica* (Nos. 55417, 55476, 55498, and 55500), from this same region of Yunnan, where, he reports, it makes a tree 30 feet high on the exposed dry ridges 6,000 feet above sea level and produces its juicy bitter-fleshed fruits in great abundance in February and March, may mean the origination of cherries for our Southern States or it may mean a new stock for the cultivated cherry of the North which is more drought resistant than the mazzard or the mahaleb.

Whether one or other of these discoveries which Mr. Rock has made will, after the lapse of years, repay him in a measure for the months of hard work and discomfort and isolation which he has been through in his difficult journey into Yunnan from Siam over trails which have never been traveled before by botanists, or whether it will be the loveliness of his new flowering Cassia (No. 55049), which he discovered near Szemao and which in March he found covered with a mass of deep-pink flowers, time alone will show.

From peach seeds introduced several years ago from Valencia, Spain, there have originated at the Chico Plant Introduction Garden two new and, Mr. Morrow believes, particularly promising varieties of peaches for canning purposes (Nos. 55563 and 55564).

As a result of Mr. Popenoe's exploring work in Ecuador there have come in the seeds of two rather unusual varieties of potato from an altitude of 11,000 feet in the Ecuadorian Andes, in Carchi Province (Nos. 55557 and 55558).

From the new Republic of Czechoslovakia a collection of apple varieties (Nos. 55212 to 55232) has been received through the kindness of Josef Mazanek, but whether or not any of them will prove better than our commercial sorts will have to be determined. They are some of the noted sorts of that region.

The introduction of *Microcitrus inodora* from the Bellenden Ker Range of mountains of northern Queensland is of particular interest, inasmuch as this species, according to Doctor Swingle, the citrus specialist of the Bureau of Plant Industry, is the only one of the whole genus which bears fruit in its wild state of sufficiently good quality to make it of promise for cultivation without any improvement. We are especially indebted to C. T. White for the Russell River lime (No. 55447), as it is called in Queensland.

The matasano of Honduras, *Casimiroa tetrameria* (No. 55445), while not so hardy as its relative the white sapote, *C. edulis*, bears much larger fruit, and since it has shown its ability to grow well and fruit in southern Florida its wide dissemination there is considered a matter of importance.

In the category of secondary fruits of value to the housewife for preserves and for stewing appears to be the Indian jujube (*Ziziphus mauritiana*, No. 55485), bushes of which have borne heavily at Miami, Fla. Since in India there are cultivated forms of this fruit, which might be called a kind of southern crab apple, that seem to be superior, it has seemed important to get them.

Doctor Shantz during his explorations in South Africa was so impressed by the possibilities of the narras (*Acanthosicyos horrida*, No. 55486), a species of cucurbit which the Hottentots almost live upon during certain months of the year, that a new importation of the seeds has been made. This cucurbit, which forms spiny thickets in the Kalahari Desert, bears melonlike fruits, the seeds and flesh of which are keenly relished by the natives. If it can be established in our own southwestern deserts it may prove a very valuable acquisition.

The gum arabic of commerce constitutes a specialized industry in Arabia and the east coast of Africa, and although it is doubtful whether labor conditions would make it possible to develop the culture of the gum-yielding species of Acacias in our own deserts, their introduction for the trial seems worth making. Through the kindness of Mr. Massey, Government botanist of the Anglo-Egyptian Sudan, and of the director of the Wellcome Tropical Research Laboratories in Khartum, a collection of the best species has been made (Nos. 55419 to 55423).

The successful introduction by Mr. Rock of the true chaulmoogra-oil-producing species of tree has led to a search for all those other representatives of the Flacourtiaceæ from the seeds of which a similar oil is obtainable, with the result that from Sierra Leone we have secured *Oncoba echinata* (No. 55465), which Dr. F. B. Power assures us has been shown to bear seeds from the oily content of which the true chaulmoogric acid has been isolated. As this is a shrub

and not a forest tree its culture may be more easily accomplished than will be the culture of the Burmese and Siamese trees. Should this be the case the supply of this oil, which has proved so great a remedy for leprosy, may be more quickly insured. The seeds have been supplied by Mr. King-Church, the conservator of forests at Freetown, Sierra Leone, Africa.

In the Plant Introduction Garden at Miami one of the first introductions of the Guatemalan avocado was planted in 1906, and around it were planted other introductions, many of them belonging to the West Indian type. Mr. Simmonds has found this Collins variety a very good stock for our later introductions of Guatemalan avocados, and one of the first of these seedlings to come into bearing has yielded unusually good fruit and shows decided signs of being a hybrid. It has attracted the attention of the growers in Florida, and there has come a demand for it for orchard plantings. We have entered it as a new introduction (No. 55509), calling it the Collinson.

Although it is difficult to wean northerners from the vegetables of their childhood, the scarcity in the summer of green vegetables in the South has made those living there interested in getting forms which will give tender leafy material for greens throughout the hot months. The West Indian spinach (*Amaranthus viridis*, No. 55405) from Montserrat, which Mr. Thompson, of Antigua, assures us produces leaves the size of dessert plates and which throughout the recent severe drought on the island yielded greens twice a week for the table, may be one of these new and valuable summer vegetables.

Dr. Carlos Renson, of Salvador, the discoverer of a species of *Meibomia* which he states is very resistant to prolonged drought and is at the same time an excellent nitrogen gatherer, has sent in some seeds of this new cover crop (*Meibomia rensoni*, No. 55446) for trial, and it is to be hoped that it will do as well in other tropical regions as it does with him.

The wistaria has come to have so important a place in the ornamental horticulture of the temperate zone that we presume it is quite too much to hope that any of the wistarialike climbers will ever compete with it, although we must confess that *Petraea volubilis* as grown in Florida runs it a close second. Sir Hugh Dixson, of Abergeldie, New South Wales, has sent in seeds of *Millettia megasperma* (No. 55565), which bears sweet-scented wistarialike flower clusters of a darker hue than the Chinese wistaria and in his grounds has proved to be a most beautiful decorative vine.

The great similarity of the Atlantic coast of America to that of eastern and even parts of western China makes the trial of a large number of newly introduced species of ornamental perennials and flowering shrubs from Szechwan of unusual interest. Through the kindness of A. K. Bulley, of Neston, England, it is hoped to place in the hands of American amateurs a large collection of new and as yet unidentified species of *Anemone*, *Campanula*, *Caragana*, *Clematis*, *Delphinium*, *Deutzia*, *Euonymus*, *Fritillaria*, *Gentiana*, *Hemerocallis*, *Iris*, *Lilium*, *Lonicera*, *Rhododendron*, and others which have been gathered together by his collector, Dr. F. Kingdon Ward (Nos. 55253 to 55366).

The hibiscus in its various forms is one of the real glories of the Tropics, and through the work of breeding and selection of certain

American amateurs in Honolulu there have been brought into existence some superb varieties which are little known outside of the Hawaiian Islands. Through the kindness of Mrs. J. Rappe Myers, who has gathered together 54 varieties from her various friends, we are now in possession of an extensive collection of these superb forms and shall distribute them in the Tropics (Nos. 55057 to 55064 and 55166 to 55211).

To enrich the park collections of the country we have received from the firm of Vilmorin-Andrieux & Co. some of the rare flowering shrubs which Maurice L. Vilmorin gathered from various parts of the world into his arboretum (Nos. 55071 to 55098). Among them are rare species of *Berberis*, *Buddleia*, *Cotoneaster*, *Deutzia*, *Ligustrum delavayanum*, *Rosa omeiensis pteracantha*, and others.

The botanical determinations of seeds introduced have been made and the nomenclature determined by H. C. Skeels, and the descriptive matter has been prepared by Paul Russell, who has had general supervision of this inventory.

DAVID FAIRCHILD,
Agricultural Explorer in Charge.

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION,
Washington, D. C., February 10, 1923.

INVENTORY.¹

54969. MYRCIARIA CAULIFLORA (Mart.) Berg. Myrtaceæ. Jaboticaba.

From Minas Geraes, Brazil. Seeds turned over to this office by the Federal Horticultural Board. Received May 11, 1922.

"The *jaboticaba* is one of the best indigenous fruits of southern Brazil, but like many of the others it has received little attention outside of its native home. Its habit of producing the fruit directly upon the trunk and larger limbs, together with the unusual beauty of its symmetrical and umbrageous head of pale-green foliage, make this a peculiarly striking tree. The tree reaches a height of 35 or 40 feet on rich soil, the leaves are narrowly oval, and the small white flowers are produced singly or in clusters on the bark of the trunk and limbs. The fruit is round, one-half to 1½ inches in diameter, maroon-purple in color, and with a rather thick, tough skin. The translucent juicy pulp, white or rose tinged, is of agreeable vinous flavor. These fruits are eaten fresh or as jelly. The tree would probably prove most suitable for our tropical dependencies, although perhaps it could be grown in favorable spots in southern California and southern Florida." (*Wilson Popenoe.*)

54970. PHLEUM PRATENSE L. Poaceæ. Timothy.

From Calgary, Alberta, Canada. Seeds presented by G. M. Stewart, district inspector, seed branch, Department of Agriculture. Received May 31, 1922.

"Produced by a grower in one of our irrigated districts. This grower has been producing from one to two carloads of timothy seed yearly and has been using the one strain of seed all the time." (*Stewart.*)

Locally grown seed introduced for experiments in timothy breeding.

54971. VICIA ERVILIA (L.) Willd. Fabaceæ. Vetch.

From Ariana, near Tunis, Africa. Seeds presented by F. Boeuf, chief, Botanical Service of Tunis. Received May 31, 1922.

Introduced for experiments in the use of vetches as forage crops.

54972. BRASSICA PEKINENSIS (LOUR.) Gagn. Brassicææ. Pai ts'ai.

From Min Hsien, Kansu, China. Seeds presented by Willis H. Ruhl. Received June 2, 1922.

A good variety of *Pai ts'ai* from Min Hsien, Kansu, China.

¹It should be understood that the varietal names of fruits, vegetables, cereals, and other plants used in this inventory are those under which the material was received when introduced by the Office of Foreign Seed and Plant Introduction and, further, that the printing of such names here does not constitute their official publication and adoption in this country. As the different varieties are studied, their identity fully established, their entrance into the American trade forecast, and the use of varietal names for them in American literature becomes necessary, the foreign varietal designations appearing in this inventory will be subject to change with a view to bringing the forms of the names into harmony with recognized American codes of nomenclature.

54973. HYLOCEREUS POLYRHIZUS (Weber) Britton and Rose. Cactaceæ.

From Guayaquil, Ecuador. Seeds presented by Dr. Frederic W. Goding, American consul general, Guayaquil. Received June 2, 1922.

"A triangular-stemmed cactus which is very abundant in the region about Guayaquil, where it may be seen climbing the trunks of various trees by means of aerial roots. It is also found in sandy places in the neighborhood of Riobamba, where it does not climb trees. The local name of this cactus is 'pitajaya.' The roundish fruits are 5 to 7 inches long, with a thin, strawberry-red skin inclosing a mass of reddish pulp containing many small black seeds. This pulp is of most delicious flavor, and from it is made a cooling drink, called locally 'refresco,' which is superior to any other I have ever tasted." (*Goding.*)

54974. VICIA FABA L. Fabaceæ. Broad bean.

From Granada, Spain. Seeds purchased from Don Juan Leyva, Granada, by Miss Ola Powell, States Relations Service, through Gaston Smith, American consul, Malaga, Spain. Received April 17, 1922.

"*Habas granadina.* A large, tender bean." (*Powell.*)

Introduced for experiments in the use of broad beans as forage.

54975. DIOSCOREA ESCULENTA (LOUR.) Burkill. Dioscoreaceæ. Lesser yam.

From Mayaguez, Porto Rico. Tubers presented by T. B. McClelland, horticulturist, Porto Rico Agricultural Experiment Station. Received May 4, 1922.

Potato. A small-tubered variety from Africa, resembling the Irish potato and known in Porto Rico as the *Potato* yam. In some places it is considered among the best for home planting, and in a few city markets it brings good prices.

The vines of this variety are slender and round stemmed, with short, strong, sharp spines; there are two longer spines at the base of each leaf petiole. The leaves appear alternately. The edible tubers develop near the crown of the plant much the same as sweet potatoes. They are oval and vary up to 8 inches in length and 2½ inches in diameter. As they are small and not easily injured, these roots can usually be kept longer after being harvested than the large-rooted kinds. They are smooth, dark grayish brown, and at a distance of a few feet are likely to be mistaken for Irish potatoes. The skin is very thin and tough and may, after being broken, be pulled off in strips resembling thin pieces of cherry bark. The interior of the tuber is white, brittle, and firm and practically free from fiber when not allowed to remain too long in the soil; it is over 23 per cent starch. However, tubers which are left in the soil until late in the winter sometimes have a few long and rather strong, longitudinal fibers. When cooked the tubers are fine-grained, tender, and sweeter in flavor than most other varieties.

Since the small yams develop in the surface soil and are not hindered by a compact subsoil, the *Potato* variety thrives best in rich soil and better than most other varieties in clays. It yields poorly in sandy soil and in compact soils produces angular or flattened tubers.

From experiments made in planting at different distances apart it is believed that 3 by 3 feet will give the best results. The variety grows well on ridges or on level land where the drainage is good and the soil is loosened to a good depth. (Adapted from C. F. Kinman in *Bulletin* 27, *Porto Rico Agricultural Experiment Station*, p. 13.)

54976. FRAGARIA sp. Rosaceæ. Strawberry.

From Irapuato, Guanajuato, Mexico. Plants presented by Luis Kan, through Arthur Stockdale, Mexico City. Received May 8, 1922.

"Irapuato is famous throughout Mexico for its strawberries, which supply the markets of Mexico City and many other towns of the highlands. Terry's 'Mexico' says: 'The rich soil of the enviroing country is favorable to the

growth of strawberries (*fresas*) which are on sale throughout the year. A score or more of venders frequent the railway station and offer the berries in small baskets. The best berries are always carefully arranged on the top; the lower layers are apt to be small, if not decayed, which shows that the Mexicans are not far behind their northern brethren in the matter of preparing their wares for sale. The elevation of Irapuato is 5,800 feet, the climate rather cool, sub-tropical. I have not been able to learn the history of the Irapuato strawberry fields; probably the first plants were brought here by the Spaniards in relatively recent times and are of European derivation. Only one variety seems to be grown; this is a rather small berry of excellent flavor. It is introduced into the United States for study by our strawberry breeders and for possible use in producing new forms by crossing." (*Wilson Popenoe.*)

54977 and 54978. CERATONIA SILIQUA L. Cæsalpiniaceæ. Carob.

From Valencia, Spain. Pods presented by J. D. Wright. Received May 4, 1922. Quoted notes by Mr. Wright unless otherwise specified.

"Carob pods obtained from 'Masia de Momo,' the estate of Sr. Pelegrin Contell, near Valencia, Spain, March 29, 1922."

54977. "*Matalafera*. Pods of this quality are borne by Sr. Contell's best trees, including his big tree 'El Capitan.'"

54978. "*Roches*. The pods of this variety are very sweet, but are not borne as abundantly as are those of the *Matalafera*."

54979. TRIFOLIUM REPENS L. Fabaceæ. White clover.

From Milan, Italy. Seeds purchased from Fratelli Ingegnoli. Received April 5, 1922.

"*Ladino giant white clover*. A forage plant of the first order, which will grow in any soil capable of being irrigated. It lives for several years if new seeds are sown occasionally. Four cuttings may be obtained, and it makes better hay than other forage plants; it is the best for fattening stock, and also tends to increase the production of milk." (*Fratelli Ingegnoli, Catalogue, 1922.*)

54980. TRIFOLIUM PRATENSE L. Fabaceæ. Red clover.

From Florence, Italy. Seeds obtained through W. Roderick Dorsey, American consul. Received April 5, 1922.

"Medium red-clover seed produced in the vicinity of Bologna, Italy." (*Dorsey.*)

Introduced for experimental work by specialists of the Department of Agriculture.

54981. SOLANUM TUBEROSUM L. Solanaceæ. Potato.

From Cambridge, England. Tubers presented by Prof. R. H. Biffen, School of Agriculture. Received April 7, 1922.

"*Edgecote Purple*. This variety is introduced for the breeding experiments being conducted by J. W. Lesley at Mills College in California. It bears pollen quite freely, and while it is susceptible to the wart disease, it appears to be resistant to the mosaic and leaf-curl diseases. It is also known as the *Wiltshire* variety." (*William Stuart.*)

54982. NYMPHÆA sp. Nymphæaceæ. Water lily.

From Livingston, Guatemala. Plant purchased from Louis Bull, United Fruit Co., through Harry Johnson, Hynes, Calif. Received April 11, 1922.

"This grows in the quiet bays near Jocolo, Izabal, Guatemala, and in general habit is similar to the *gracilis* type. The leaves have sinuate margins and red purple lower surfaces. The white, sweet-scented, diurnal flowers are produced in abundance throughout the year." (*Johnson.*)

54983. DIOSCOREA ALATA L. Dioscoreaceæ. Greater yam.

From Trinidad, British West Indies. Tubers presented by Claude Connell, through J. B. Rorer, Board of Agriculture, Port of Spain. Received April 20, 1918, and grown at the Plant Introduction Garden, Brooksville, Fla. Numbered April, 1922.

"This is an unidentified variety of yam from a mixed collection of varieties recorded under S. P. I. No. 45990. The individual tubers of this yam are club-shaped to cylindrical, and thus far in Florida have not much exceeded 4 pounds in weight. They remain perfectly white when cooked and are mealy and of very delicate flavor." (R. A. Young.)

54984 to 54987.

From Honolulu, Hawaii. Presented by Dr. H. L. Lyon, in charge, Department of Botany and Forestry, Experiment Station of the Hawaiian Sugar-Planters' Association. Received April 7, 1922. Quoted notes by Doctor Lyon unless otherwise stated.

54984. CASSIA NODOSA Buch.-Ham. Cæsalpiniaceæ.

"Seeds collected in Honolulu."

Pink-and-white shower. This magnificent flowering tree is one of the most commonly cultivated ornamental plants in Honolulu, where it is much used for street planting. It is a moderate-sized deciduous tree, with long drooping branches and glossy leaves; during May and June it bears a profusion of beautiful, bright-pink, rose-scented flowers in dense clusters on long stalks. It is native from the eastern Himalayas to the Malay Islands and the Philippines. (Adapted from *Rock, Ornamental Trees of Hawaii*, p. 106.)

For previous introduction, see S. P. I. No. 52797.

54985. KLEINHOVIA HOSPITA L. Stereuliaceæ.

"Seeds collected in Honolulu."

A handsome tree 25 to 45 feet or more in height, native to southern India and the East Indies, with heart-shaped leaves about 4 inches long and wide. The flowering panicles are large and full and bear small rose-colored flowers; the inflated papery pods are about an inch long. The tree thrives well in low moist places and is quite suitable for planting along avenues, for which purpose it is used considerably in Calcutta. (Adapted from *Rock, Ornamental Trees of Hawaii*, p. 155.)

54986. PINANGA INSIGNIS Beccari. Phenicaceæ.**Palm.**

"Seeds collected in the Philippines by F. X. Williams."

A rather small palm with a slender, smooth trunk about 6 inches in diameter, very graceful feathery leaves, and oval fruits 2 inches in length. The seeds are occasionally used as a substitute for betel nuts in preparing "būyo," the mixture of leaves of *Piper betle*, lime, and betel nuts, which, when chewed, colors the saliva a characteristic red and is held to be a tonic and general stimulant. (Adapted from *Brown and Merrill, Philippine Palms and Palm Products*, pp. 20, 112, and 117.)

For previous introduction, see S. P. I. No. 37607.

54987. UVARIA sp. Annonaceæ.

"Seeds collected in the Philippines by F. X. Williams."

54988 to 54990.

From Matania el Saff, Egypt. Seeds presented by A. Bircher, director, Middle Egypt Botanic Station. Received April 7, 1922. Quoted notes by Mr. Bircher.

54988. BARYXYLUM AFRICANUM (Sond.) Pierre. Cæsalpiniaceæ.
(*Peltophorum africanum* Sond.)

"A handsome evergreen tree with feathery leaves and yellow flowers."

For previous introduction, see S. P. I. No. 50125.

54988 to 54990—Continued.

54989. DIOSPYROS sp. Diospyracæ. Persimmon.

"This evergreen tree grows well in Egypt, bearing heavy crops of fruits the size of apples, with dark-brown, sweet flesh."

54990. VANGUERIA INFAUSTA Burchell. Rubiacæ.

"A small tree with sessile woolly leaves and bearing clusters of fruits known as 'Mispel' in South Africa. It resembles *Vangueria edulis*, but is better adapted to a continental climate than the latter, which is a native of Madagascar."

A tree 6 to 7 feet high with dense cymes of greenish flowers and edible globular fruits about an inch in diameter, known as "wild medlars" to the colonists in South Africa. (Adapted from *Sim, Forest Flora of the Cape of Good Hope*, p. 243.)

54991. PYRACANTHA CRENULATA YUNNANENSIS Vilm. Malacæ.

From Paris, France. Seeds purchased from Vilmorin-Andrieux & Co. Received April 7, 1922.

"A new variety received from Yunnan, China, by Maurice L. Vilmorin; it differs from the type in its greater vigor, longer spines, and less dentate leaves. The shrub attains a height of 1 to 3 meters (3 to 10 feet). As compared with the type, the fruits are a brighter coral red and are smaller but much more abundant; they hang on the shrub until January." (*Vilmorin-Andrieux & Co., 1920-1922 catalogue.*)

54992. CARICA PAPAYA L. Papayacæ. Papaya.

From Progreso, Yucatan, Mexico. Seeds presented by O. Gaylord Marsh, American consul. Received April 7, 1922.

"Dr. George F. Gaumer, an American scientist at Izamal, Yucatan, has furnished the following information regarding this variety of the papaya: 'The Maya name is *Chacalhaazput* and the English name *mammy* papaya, the latter name being derived from the fact that the edible part of the fruit is of the same color as that of the *mammy* [*Mammca americana* L.]. The fruit is from 10 to 12 inches long and 3 to 6 inches in diameter, with flesh of a very fine flavor. The milky juice of the unripe fruits contains a large amount of papain, an excellent digestive.'" (*Marsh.*)

For previous introduction, see S. P. I. No. 54330.

54993 and 54994. TRIFOLIUM REPENS L. Fabacæ. White clover.

From Aarhus, Denmark. Seeds presented by S. Sørensen, agricultural attaché, Danish Legation, Washington, D. C. Received April 11, 1922. Quoted notes by Mr. Sørensen.

"Two samples of our best strains of white clover, sent to me by a seed dealer, Fr. Drejer, from Aarhus, Denmark."

54993. "*Norso* (No. 348)."

54994. "*Stryno Hvidklöver* (No. 660)."

54995. PHASEOLUS LUNATUS L. Fabacæ. Lima bean.

From Kengtung, Burma. Seeds collected by J. F. Rock, Agricultural Explorer of the United States Department of Agriculture. Received April 4, 1922.

"(Kengtung, southeastern Shan States. February 1, 1922.) This variety is much cultivated; the green pods are eaten like string beans and the mature ones like Lima beans. These are greatly relished by the Shan people, as well as by Europeans. The seeds are planted in May, and mature pods are obtained in the cold season." (*Rock.*)

**54996. FRAGARIA VESCA SEMPERFLORENS (Duch.) Seringe. Rosaceæ.
Strawberry.**

From Edinburgh, Scotland. Seeds presented by Prof. Isaac Bayley Balfour. Royal Botanic Garden. Received April 14, 1922.

This variety differs from the type in the greater size of all its parts, the fruit in particular, and especially in its habit of producing flowers and fruit continuously throughout the summer. In its red color and delicate flavor the fruit is quite similar to that of the type. (Adapted from *Robinson, The Vegetable Garden*, p. 673.)

54997. PYRUS sp. Malaceæ. Pear.

From Chefoo, China. Presented by A. Sugden. Received April 4, 1922.

Pear seeds from Chefoo, China, which are to be grown for use as stock plants for cultivated varieties of apples and pears.

54998. PYRUS PASHIA Buch.-Ham. Malaceæ. Pear.

From Kengtung, Burma. Seeds collected by J. F. Rock, Agricultural Explorer of the United States Department of Agriculture. Received April 4, 1922.

"(No. 2253. Kengtung, Burma. February 6, 1922.) A large tree about 50 feet in height with a trunk about 2 feet in diameter, found in a bamboo grove on the plains of Kengtung two stages from the Chinese border, at an altitude of about 3,000 feet. The flowers of this variety are pure white without the pink center seen in those found on the slopes of Loi Mwe southeast of Kengtung, and the tree is an object of great beauty. The natives let the fruits get black on the tree, in which state they are sweet and are made into jam. The fruits of this variety are larger than usual. The native name is *Mai Kaw Ki Kai*. The sand pears of Yunnan are grafted on this species by the natives, according to a priest of the temple of Wat Ban Sao." (*Rock*.)

54999. TRIFOLIUM PRATENSE L. Fabaceæ. Red clover.

From Jesi, Department of Marches, Italy. Seeds purchased through Francesco Archibugi, New York, N. Y. Received April 14, 1922.

Introduced for comparison with American-grown seed.

55000. ARALIA CACHEMIRICA Decaisne. Araliaceæ.

From Stockholm, Sweden. Seeds presented by Dr. Robert E. Fries, director, Botanic Garden. Received April 15, 1922.

This Himalayan species of *Aralia* is introduced for comparison and breeding experiments with the udo (*Aralia cordata*). It is a lax shrub, 5 to 10 feet in height, with elongated flower panicles a foot in length.

For previous introduction, see S. P. I. No. 52788.

55001. GIRARDINIA PALMATA Gaud. Urticaceæ.

From Sibpur, near Calcutta, India. Seeds presented by Lieut. Col. A. T. Gage, director, Royal Botanic Garden. Received April 15, 1922.

A tall, stout, erect, tufted plant, 4 to 6 feet in height, growing commonly in the temperate and subtropical regions of the Himalayas, where it ascends to 5,000 feet above the sea. It is generally known as the "Nilghiri nettle" and is of considerable importance in its native country because of the fiber obtained from its stalks. This fiber is very long, white, soft, and silky and is used for making fine fabrics and for mixing with wool. While the plant is described as an annual, it has proved, under cultivation, to be a perennial; the young shoots are cut down twice a year for their fiber. The leaves of this species are used as a vegetable among the hills of the Northwest Provinces. (Adapted from *Watt, Dictionary of the Economic Products of India*, vol. 3, p. 500.)

55002. TRIFOLIUM PRATENSE L. Fabaceæ. Red clover.

From Riga, Russia. Purchased through John P. Hurley, American consul.
Received April 14, 1922.

"This seed originated in the former Province of Kurland, but was grown in the district of Doblen, about 40 miles southwest of Riga." (*Hurley.*)

Introduced for comparison with American-grown varieties.

55003. DIOSCOREA ALATA L. Dioscoreaceæ. Greater yam.

From Natal, Rio Grande do Norte, Brazil. Tubers presented by E. C. Green. Received April 12, 1922.

"These tubers weigh only a few ounces each and are presumably much below the average. The flesh darkens a little when cooked, but is mealy and of good flavor." (*R. A. Young.*)

55004 to 55024.

From Nishigahara, Tokyo, Japan. Seeds presented by H. Ando, director, Imperial Agricultural Experiment Station. Received April 15, 1922.

55004 to 55023. *ECHINOCHLOA CRUSGALLI EDULIS* Hitchc. Poaceæ.

Barnyard millet.

A collection of native varieties of barnyard millets introduced for cultural and breeding experiments.

55004. *Chonakubi.*

55014. *Kinshu.*

55005. *Chosen.*

55015. *Kurohic.*

55006. *Dango.*

55016. *Manshu.*

55007. *Esashi-shiro.*

55017. *Mochi-hic.*

55008. *Futagomochi.*

55018. *Hanumaki-kuro.*

55009. *Gamakashira.*

55019. *Nigiri.*

55010. *Hanumaki.*

55020. *Numakunai.*

55011. *Hida.*

55021. *Otsu.*

55012. *Hitokara.*

55022. *Yamanome 1.*

55013. *Kekanjo.*

55023. *Yamanome 2.*

55024. *PHLEUM PRATENSE* L. Poaceæ.

Timothy.

"Timothy seeds produced in Hokkaido." (*Ando.*)

Locally grown timothy introduced for breeding investigations.

55025 and 55026.

From Los Banos, Philippine Islands. Seeds presented by J. E. Higgins, College of Agriculture. Received April 15, 1922.

55025. *CASSIA SIAMEA* Lam. Cæsalpiniaceæ.

Kassod tree.

A medium-sized or sometimes a large tree with gray, nearly smooth bark and papery, glabrous leaflets. The small yellow flowers are borne in large pyramidal terminal panicles. The tree is probably native to Burma and is cultivated throughout India and many tropical countries for its hard heavy wood, which is very durable. The heartwood is dark brown to nearly black, in stripes of dark and light; it is used for mallets, walking sticks, for building, and for fuel. (Adapted from *Rock, Leguminous Plants of Hawaii, p. 81.*)

For previous introduction, see S. P. I. No. 54924.

55026. *CASSIA TIMORIENSIS* DC. Cæsalpiniaceæ.

A rather low tree with slender, downy branches, pale-green leaves up to 9 inches in length, bright-yellow flowers, and thin, glossy, flexible pods sometimes 6 inches long. The tree is distributed throughout the Malay Archipelago and the Philippines. (Adapted from *Hooker, Flora of British India, vol. 2, p. 265.*)

55027. PYRUS CALLERYANA Decaisne. Malaceæ. Pear.

From Nanking, China. Seeds purchased from J. L. Buck, acting dean, College of Agriculture, University of Nanking. Received April 15, 1922.

A wild pear from the mountains of western China, where it grows at altitudes of 1,000 to 1,500 meters (3,300 to 5,000 feet). This pear maintains a vigorous and healthy condition under the most trying situations and may prove to be a very valuable blight-resistant stock.

For previous introduction, see S. P. I. No. 49097.

55028. PASSIFLORA MALIFORMIS L. Passifloraceæ.

From Cartagena, Colombia. Seeds presented by H. C. Kluge. Received April 17, 1922.

"The flower of this vine is very beautiful, and the fruit is edible." (*Kluge.*)

55029. AELUROPUS REPENS (Desf.) Parl. Poaceæ. Grass.

From Algiers, Algeria. Seeds presented by Dr. L. Trabut, director, Service Botanique. Received April 17, 1922.

"Found at very salty places in the Sahara." (*Trabut.*)

A low, much-branched, rigid, perennial grass from the Mediterranean countries. It roots at the nodes and appears to be partial to sandy places, even close to salt water. (Adapted from *Muschler, Manual Flora of Egypt, vol. 1, p. 129.*)

55030. CITRUS sp. Rutaceæ.

From Holguin, Cuba. Seeds presented by Thomas R. Towns. Received April 11, 1922.

"I have used this shaddock, which is the nonedible white variety, as a stock for 20 years and would be lost without it. For grapefruit it is inclined to gum rather more than the sour orange or rough lemon, but my 10-year-old tangerines, worked on this stock, have 2,500 fruits on some of the trees, and the fruits are fine grained and of good commercial size. The Washington Navel on this stock is also very prolific and bears a full crop every year, and I have had equal success with other round oranges like the King, Valencia, Pineapple, and Lue Gim Gong." (*Towns.*)

55031 to 55039. AVENA SATIVA L. Poaceæ. Oats.

From Helsingfors, Finland. Seeds presented by Leslie A. Davis, American consul, through E. G. Montgomery, United States Department of Commerce. Received April 15, 1922. Quoted notes by Mr. Davis.

55031. "*Esa* (0644). A white oat."

55032. "*Jalostettu maatais* (0144). This variety was obtained by crossing the Kuopio 091 variety with the Guldregn variety. Its kernel is very dark brown, resembling that of the native stock. It has simple requirements and grows here just as well as native stock. The panicle is large and beautiful. The straw is of average length, somewhat better than that of native stock, but not so strong as that of the Guldregn variety. It ripens at the same time as central Finnish native stock, but five days earlier than the Guldregn variety. During experiments of many years it has often given a better crop than the Guldregn variety and a considerably better one than native stocks, with which it has been compared."

55033. "*Kultasade* (*Guldregn*). This variety from southern Finland thrives in northern Finland only in high warm places."

55034. "*Nopsa* (0206). This is a cross between the Norbotten and Ligovo oat varieties. It has a large black chaffy kernel of which the hull forms a considerable percentage. The panicle is not thick and the stalk is strong. It is very early, ripening two weeks before the Guldregn oat. The crop is good, considering its early ripening, but

55031 to 55039—Continued.

it can not compete with later varieties, such as the Guldregn. It does not appear to thrive well in dry places, but it yields well in swampy lands. It is especially suitable for cultivation on swampy lands on account of its maturing so early and because of its strong stalks. This oat must be sown profusely, owing to the large size of its kernel."

55035. "*Osmo 1* (0537). This variety was obtained by crossing Kuopio 091 with the Guldregn variety. The kernel is full, dark brown, and of the size of the Guldregn. The panicle is straight and the straw strong. The straw is not quite so hard as that of the Guldregn, but stands up about as well. It is a little earlier than the first variety here mentioned. It ripens a week before the Guldregn, so that it can well be cultivated in central and northern Finland. It also grows well in swamps."

55036. "*Osmo 2*."

55037. "*Tuotto* (101). This variety comes from the foreign Clydesdale oat. It has a large, full kernel. The color of the kernel, however, is not satisfactory, since it is brownish gray. The panicle is not thick, but is stiff, and the stalk is somewhat short and strong. The *Tuotto* variety is a late one and ripens four or five days later than the Guldregn variety. It gives good crops and has given better ones than the Guldregn and Veikko varieties. It can be grown profitably only in southern Finland."

55038. "*Veikko* (052). This variety has descended in a direct line from the Piffelbacher variety. Its kernel is large, white, and full and has quite a thin hull. Its panicle is straight, and its stalk is strong and of average length. It ripens at the same time as the Guldregn and in experiments has sometimes given better and sometimes poorer crops than the latter, so that it may be considered of about the same value as the Guldregn. It requires perhaps a somewhat better quality of soil than the Guldregn."

55039. "*Voitto* (*Sejer*). This variety from southern Finland thrives in northern Finland only in high warm places."

55040. *ERYTHRINA POEPPIGIANA* (Walp.) O. F. Cook. Fabaceæ.
(*E. micropteryx* Poepp.)

From Mayaguez, Porto Rico. Seeds presented by T. B. McClelland, horticulturist, Porto Rico Agricultural Experiment Station. Received April 17, 1922.

An ornamental red-flowered leguminous tree, 40 to 50 feet in height and covered with short, conical spines. It is a native of the lower Andes of Peru, but is cultivated as a shade tree on coffee plantations in Porto Rico, where it is known as *bucare* and also as *palo de boyo*. (Adapted from *Cook and Collins, Economic Plants of Porto Rico, Contributions from the National Herbarium, vol. 8, p. 139.*)

For previous introduction, see S. P. I. No. 43049.

55041. *SABINEA CARINALIS* Griseb. Fabaceæ.

From Dominica, British West Indies. Seeds presented by Joseph Jones, curator, Botanic Gardens. Received April 19, 1922.

"This tree is known locally as *Bois Charibe* and is one of the most showy of our native plants. It is a very fine flowering tree, and I have seen nothing in the Tropics to surpass it as a mass of color. If grown on fairly good land, it will not make a good show; but if planted on a dry, rocky hillside, where it will be scorched by the sun for a period of three or four months each year, it makes a marvelous display of flowers." (*Jones.*)

"Mr. Jones's description of the marvelous color of the *Bois Charibe* and of the rocky hillsides where it grew attracted my attention at once, and I planted a few young seedlings on a dry coral reef in front of my house at Coconut Grove, Fla. They have grown unusually well, and during the first week of

March last year one of them flowered. I have never seen a more beautiful scarlet flower, and Mr. Jones says he has seen nothing in the Tropics to surpass it as a mass of color. The chances seem good that in the *Bois Charibe* we have a small tree which is going to add splashes of red color to the landscapes of southern Florida and one which will thrive on the dry rocky ledges." (*David Fairchild.*)

For previous introduction, see S. P. I. No. 46026.

55042. COFFEA LAURENTII Wildem. Rubiaceæ. Coffee.
(*C. robusta* Hort.)

From Kingston, Jamaica. Seeds presented by W. S. Goodman, acting superintendent, Hope Gardens. Received April 17, 1922.

This species, which is native to the Belgian Congo, is introduced for the use of specialists in the Department of Agriculture. It is commonly known as "robusta" coffee.

For previous introduction, see S. P. I. No. 51481.

55043 and 55044.

From Tangier, Morocco. Seeds presented by Jules Goffart, Société d'Horticulture. Received April 17, 1922.

55043. LIMONIUM BRASSICAEFOLIUM × IMBRICATUM. Plumbaginaceæ.
(*Statice brassicaefolium × imbricatum.*)

This is a hybrid between *Limonium brassicaefolium*, which has flowers with yellowish white corollas and smooth purple calyces, and *L. imbricatum*, which has flowers with yellowish white corollas and rather hairy calyces. Both of these species are shrubby plants about a foot and a half in height, with more or less velvety lobed leaves and winged branches, and both are natives of the Canary Islands.

55044. LIMONIUM FRUTICANS (Webb) Kuntze. Plumbaginaceæ.
(*Statice fruticans* Webb.)

An ornamental shrubby plant, native to the Canary Islands, with rigid, much-branched flower stalks about 2 feet in height, rising from a loose rosette of oval, crisply wrinkled leaves. It bears large flat clusters of bicolored flowers; the snowy white corollas and bright-violet calyces are made more vivid by the small red bracts and the bright-green wings of the flower stalks. (Adapted from *Flore des Serres et des Jardins de l'Europe*, vol. 4, p. 525.)

For previous introduction, see S. P. I. No. 51148.

55045. ZEA MAYS L. Poaceæ. Corn.

From Doi Chang, Siam. Seeds collected by J. F. Rock, Agricultural Explorer of the United States Department of Agriculture. Received April 4, 1922.

"(Doi Chang, near Chiengmai, Siam, January 10, 1922.) This corn was found at an altitude of 4,500 feet on Doi Chang, the Elephant Mountain; it was grown by the Miao tribe, a jungle people who inhabit the high mountains from northern Siam northward to the Province of Kweichow, China. They are a very primitive people of Chinese origin and do not eat rice but use corn exclusively." (*Rock.*)

55046. BOUEA OPPOSITIFOLIA (Roxb.) Meissn. Anacardiaceæ.
(*B. burmanica* Griffith.)

From Bangkok, Siam. Seeds presented by Y. S. Sanitwongse. Received May 4, 1922.

"The fruit of the *maprang* is of very inferior quality everywhere except at a certain locality north of Bangkok." (*Sanitwongse.*)

An evergreen tree of moderate height, with hard, gray wood which is very durable. It is a relative of the mango and is often cultivated for its edible fruits. It is native to Burma and the Andaman Islands. (Adapted from *Gamble, Manual of Indian Timbers*, p. 108.)

55047 and 55048. ZEA MAYS L. Poaceæ. Corn.

From Prague, Czechoslovakia. Seeds presented by Basil Benzin. Received April 19, 1922. Quoted notes by Mr. Benzin.

Native Czechoslovakian varieties of corn, introduced for cultural and breeding experiments.

55047. "*Bankutka*. A flint variety derived from dent corn by selection, 1917-1921, Levice, Czechoslovakia."

55048. "*Florentinka*. An extra early variety of flint corn, Levice, Czechoslovakia."

55049. CASSIA sp. Cæsalpiniaceæ.

From Szemao, Yunnan, China. Seed collected by J. F. Rock, Agricultural Explorer of the United States Department of Agriculture. Received May 4, 1922.

"(No. 2827. Szemao, Yunnan. March 11, 1922.) A deciduous tree 40 to 50 feet in height, found in the foothills of Szemao at an altitude of 5,000 feet. During March the tree is one mass of large, deep-pink flowers which are 2 inches wide and borne in short racemes all along the branches. It is a most striking tree and can be seen from quite a distance. It is very different from *Cassia nodosa*, which is evergreen, and from *C. bakeriana*, which occurs in northern Siam." (Rock.)

55050. ERANTHEMUM PURPUREUM Hort. Acanthaceæ.

From Manila, Philippine Islands. Cuttings presented by P. J. Wester, agricultural adviser, Bureau of Agriculture. Received April 19, 1922.

"A plant with variegated, mostly purplish foliage, grown on the Moro graves in Lanao. The flowers are whitish and inconspicuous. It could probably be used as a bedding plant as far north as Washington or possibly New York." (Wester.)

"No place of publication has been found. It may be *Odontonema nitidum* Kuntze. To be grown for identification." (H. C. Skeels.)

55051 and 55052.

From Cuzco, Peru. Seeds presented by Prof. Fortunato L. Herrera. Received April 17, 1922.

55051. CHENOPodium QUINOA Willd. Chenopodiaceæ. Quinoa.

"One of the plants cultivated by the native inhabitants of the highlands of Peru and Bolivia is a species of *Chenopodium* (*C. quinoa*), and so far as foliage is concerned it is not very unlike our ordinary 'goosefoot' in general appearance. Its seeds, however, are white, or nearly so, and fully three times as large as those of *C. album*. In pre-Columbian times this plant was one of the main foods of the Indians, evidently ranking with the potato and corn in this respect. None of the Old World cereals being known before the discovery, it was only natural that the cultivation of this plant should have extended over a considerable area. In addition to Peru and Bolivia it was probably grown in some parts of Argentina and is known with certainty to have been cultivated in Chile; in fact, there even appears to have been an Araucanian or Mapuche name for it. Doubtless its cultivation at the present time is less extensive than formerly, due in part to the diminished Indian population and in part to an apparent ignorance or indifference on the part of the white population to its real merits as a food. At present it is probably most commonly grown on the Titicaca plateau. It is said to yield abundantly, though it does not seem to have occurred to anyone to measure the yield of a given area. In late April and May some of the fields are red with compact panicles, for this seems the only part of the plant visible from a short distance. Other fields have a greenish cast, there being two or possibly more varieties. On the island of Chiloe, southern Chile, the plant grows taller than any seen about Lake Titicaca, and the foliage is more abundant, though

55051 and 55052—Continued.

whether the latter condition is due to the difference in season or to the lower altitude and more abundant rainfall is uncertain. The grain is used by the Indians in the same manner as rice, being put in soups and made into porridge. It appeals to a North American primarily as a breakfast food and should rank with oatmeal and some of the better wheat preparations. It may be cooked and served in a manner similar to oatmeal, but it becomes even more appetizing if spread out in a tray about an inch deep after steaming and then browned in the oven." (*W. F. Wight.*)

For previous introduction, see S. P. I. No. 46658.

55052. LUPINUS sp. Fabaceae. Lupine.

"*Tarhui.* The seeds are consumed in large quantities in this locality and are of great importance as a foodstuff, having been used since the time of the conquest." (*Herrera.*)

55053 to 55056.

From Chefoo, Shantung, China. Budwood presented by A. Sugden. Received April 17, 1922. Quoted notes by Mrs. Myers. Sugden.

55053. MALUS sp. Malaceae. Crab apple.

"A white-fruited crab apple."

55054. MALUS sp. Malaceae. Crab apple.

"A red-fruited crab apple."

55055. PYRUS sp. Malaceae. Pear.

"A wild pear."

55056. ZIZIPHUS JUJUBA Mill. Rhamnaceae. Jujube.
(*Z. sativa* Gaertn.)

"The dragon's-claw 'date.'"

An ornamental variety of the jujube with gnarled, twisted branches. It is said to be quite rare in China.

For previous introduction, see S. P. I. No. 22914.

55057 to 55064. HIBISCUS spp. Malvaceae. Hibiscus.

From Honolulu, Hawaii. Seeds presented by Mrs. J. Rappe Myers. Received April 17, 1922. Quoted notes by Mrs. Myers.

"Collected in Honolulu, March 14, 1922."

55057. HIBISCUS sp.

"A very choice mixed collection."

55058. HIBISCUS sp.

"Apricot colored, single."

55059. HIBISCUS sp.

"Single, copper shade, very choice, from Gerrit P. Wilder's garden."

55060. HIBISCUS sp.

"A delicate straw-colored single variety from the Oahu Country Club."

55061. HIBISCUS sp.

"Single, creamy pink, shading to a very dark center."

55062. HIBISCUS sp.

"A beautiful, large, soft-pink single variety."

55057 to 55064—Continued.**55063. HIBISCUS sp.**

"A large single white variety from Robbins B. Anderson. This plant produced more and larger flowers than any other white variety on the island."

55064. HIBISCUS sp.

"A beautiful single yellow variety from the experiment station."

55065 to 55067.

From Paris, France. Seeds purchased from Vilmorin-Andrieux & Co. Received April 27, 1922.

55065. BASELLA RUBRA L. Basellaceæ. Malabar nightshade.

Common white variety. An East Indian plant with creeping stems up to 6 feet in length and oval or heart-shaped, fleshy green leaves. These leaves, which may be eaten like spinach, are abundantly produced throughout the summer, growing in greater profusion as the weather becomes warmer. The plant is cultivated as an annual, the seeds being sown in early spring and the seedlings planted out late in May. (Adapted from *Robinson, The Vegetable Garden, p. 451.*)

For previous introduction, see S. P. I. No. 2006.

The following grasses are introduced for forage-crop experiments:

55066. FESTUCA HETEROPHYLLA Lam. Poaceæ. Fescue.

"This European grass is used in mixtures for sterile or sandy soil, especially in mixtures for lawns; the stem blades are flat." (*A. S. Hitchcock.*)

55067. PHALARIS BULBOSA Jusl. Poaceæ. Grass.

A perennial tufted grass whose roots penetrate the soil to a depth of nearly 3 feet. It is a native of the Mediterranean countries, but is now cultivated in New South Wales, where it has been found to endure dry conditions remarkably well. It will stand a considerable amount of pasturing; it also makes excellent hay if cut as soon as the flower heads begin to appear. (Adapted from *Agricultural Gazette of New South Wales, vol. 28, p. 715.*)

For previous introduction, see S. P. I. No. 53241.

55068. MANISURIS EXALTATA (L. f.) Kuntze. Poaceæ. Grass.
(*Rottboellia exaltata* L. f.)

From Salisbury, Rhodesia. Seeds presented by H. G. Mundy, chief agricuturist and botanist, Department of Agriculture. Received April 24, 1922.

"*Kokoma grass.* This grass, which is a native of Rhodesia, is an extremely vigorous, free-seeding, leafy annual. It hardly withstands drought as well as Sudan grass, but gives a considerably larger yield of fodder. Owing to the freedom with which the seeds are shed it is inclined to volunteer very freely, and in rich, low-lying, arable land it may become a troublesome weed. The rather harsh, stringing hairs on the lower culms are an objection, but not a very serious one." (*Mundy.*)

For previous introduction, see S. P. I. No. 46983.

55069 and 55070. SOJA MAX (L.) Piper. Fabaceæ. Soy bean.
(*Glycine hispida* Maxim.)

From Omagari, Akita-Ken, Japan. Seeds presented by Isabura Nagai, director of substation, Rikuu Branch, Agricultural Experiment Station. Received April 29, 1922.

"It has been our experience that the smooth, or 'Hadaka,' varieties of soy beans from Japan do not shatter their seed nearly so easily as the hairy sorts." (*W. J. Morse.*)

"The pods of the first variety are smooth and of the second variety slightly hairy. Both varieties were grown at our experiment station." (*Nagai.*)

55069. Hadaka No. 3.

55070. Hadaka No. 260.

55071 to 55098.

From Paris, France. Seeds presented by Vilmorin-Andrieux & Co. Received April 17, 1922.

55071 to 55075. BERBERIS spp. Berberidaceæ.

Barberry.

55071. BERBERIS AGGREGATA PRATTII C. Schneid.

(Wilson No. 1300.)

A hardy shrub 6 to 10 feet in height, with slender, 3-parted spines, oval leaves, narrow panicles of yellow flowers, and egg-shaped salmon-red fruits about one-fourth of an inch in length. It is a native of western China and grows very freely under cultivation at Kew, England. (Adapted from *Curtis's Botanical Magazine*, pl. 8549.)

For previous introduction, see S. P. I. No. 44527.

55072. BERBERIS DIELSIANA Fedde.

"(Purdum No. 543.) A spreading, loosely branched, Chinese shrub often 10 feet high, with elliptic leaves that are whitish beneath. The beauty of the red fruits is accentuated by the bronze color of the leaves in the fall." (*Steeles*.)

For previous introduction, see S. P. I. No. 54066.

55073. BERBERIS POIRETI C. Schneid.

(Purdum No. 35.) Forma *weichangensis*. A form of the above species from Weichang, Chihli, China; it differs slightly from the type in the size of the bracts and in spine characters.

55074. BERBERIS sp.

(M. Vilmorin No. 4775.)

55075. BERBERIS sp.

(Wilson No. 135.)

55076. BETULA MEDWEDIEWI Regel. Betulaceæ.

Birch.

A lofty tree, native to Mount Somlia, Transcaucasia, where it is found in forest borders at an altitude of 6,800 feet. The papery, oval leaves, smooth and olive green on the upper surface, are paler below. (Adapted from *Gartenflora*, vol. 36, p. 383.)

For previous introduction, see S. P. I. No. 52933.

55077. BUDDLEIA JAPONICA Hemsl. Loganiaceæ.

A deciduous shrub 3 to 5 feet in height, sparsely branched and of an open habit. The very narrow dark-green leaves are up to 8 inches in length, and the pale-lilac flowers are densely crowded in terminal branched panicles. This shrub is a native of Japan and is rather striking in autumn with its long, dense, drooping panicles of fruit. (Adapted from *Bean, Trees and Shrubs Hardy in the British Isles*, vol. 1, p. 272.)

55078. CALLICARPA GIRALDIANA Hesse. Verbenaceæ.

(Wilson No. 439.)

An ornamental shrub from western China, with membranous bright-green dentate leaves and many-flowered cymes of purple flowers followed by dense clusters of round violet-purple fruits. (Adapted from *Sargent, Plantae Wilsonianae*, vol. 3, p. 366.)

For previous introduction, see S. P. I. No. 44076.

55079. CASTANEA SATIVA Mill. Fagaceæ.

Chestnut.

Variety *heterophylla*. A form with leaves of various shapes.

55080 to 55086. COTONEASTER spp. Malaceæ.

55080. COTONEASTER ADPRESSA Bois.

A dwarf Cotoneaster from China which does not exceed 10 inches in height, but forms a clump several feet in diameter, with the

55071 to 55098—Continued.

stems rooting easily where they touch the ground. It has solitary flowers with pink-tipped petals and bright-red fruits. (Adapted from *Vilmorin and Bois, Fruticetum Vilmorinianum*, p. 116.)

For previous introduction, see S. P. I. No. 27407.

55081. COTONEASTER MOUPINENSIS Franch.

The common cotoneaster in the thickets and margins of woods throughout western Szechwan at altitudes of 4,000 to 7,500 feet. It is 6 to 15 feet high, with white flowers and jet-black fruits. (Adapted from *Sargent, Plantae Wilsonianae*, vol. 1, p. 163.)

For previous introduction, see S. P. I. No. 53688.

55082. COTONEASTER MULTIFLORA Bunge.

A deciduous shrub or small tree 10 to 12 feet high, with slender, arching branches, papery leaves, branched clusters of white flowers, and roundish red fruits. This elegant cotoneaster is native to the northwestern borders of China and makes a most charming appearance when the branches are wreathed with the abundant flowers in May and June. (Adapted from *Bean, Trees and Shrubs Hardy in the British Isles*, vol. 1, p. 413.)

For previous introduction, see S. P. I. No. 40168.

55083. COTONEASTER SALICIFOLIA RUGOSA (E. Pritz.) Rehd. and Wils.

"A very handsome Chinese shrub having long pendulous branches covered with much-wrinkled lanceolate leaves which have the under-surface covered with down. The berries are small, globular, and bright scarlet. They are borne in clusters and combined with the autumn tints of the foliage produce a very pretty effect." (*Journal of the Royal Horticultural Society*, vol. 38, p. cclii.)

For previous introduction, see S. P. I. No. 53694.

55084. COTONEASTER sp.

Received as *Cotoneaster myrtiflora*, for which a place of publication has not been found.

55085. COTONEASTER sp.

(M. Vilmorin No. 4690.)

55086. COTONEASTER sp.

(M. Vilmorin No. 5015.)

55087. DEUTZIA SCHNEIDERIANA LAXIFLORA Rehder. Hydrangeaceæ.

(Wilson No. 767.)

A shrub about 6 feet in height from western China. The flowers, nearly half an inch in length, are borne in broadly pyramidal but rather loose clusters. (Adapted from *Gardeners' Chronicle of America*, vol. 24, p. 273.)

For previous introduction, see S. P. I. No. 52640.

55088. DEUTZIA sp. Hydrangeaceæ.

(M. Vilmorin No. 7264.)

55089. LIGUSTRUM DELAVAYANUM Harlot. Oleaceæ.

Privet.

(Wilson No. 1290.)

This hardy shrub was first discovered by Abbé Delavay in the mountains of Yunnan, China. In habit it is prostrate-spreading, except for a few perfectly upright branches which rise from the center of the shrub to a height of about 10 feet. The shining dark-green foliage, which is remarkably persistent, reminds one of a myrtle and, with the

55071 to 55098—Continued.

white flowers and blue-black fruits, makes this plant a very attractive ornamental. (Adapted from *Sargent, Plantae Wilsonianae, vol. 2, p. 601*, and from *Revue Horticole, vol. 73, p. 495*.)

For previous introduction, see S. P. I. No. 49677.

55090. PRUNUS sp. Amygdalaceæ.

Plum.

Received as *Prunus korolkowii*, for which a place of publication has not been found.

55091. PYRACANTHA sp. Malaceæ.

(M. Vilmorin No. 6257.)

55092. RIBES MEYERI TURKESTANICUM Jancz. Grossulariaceæ.

A shrub 3 to 4 feet in height, native to Turkestan, with blunt-pointed leaves, reddish purple flowers, and deep-purple, shiny, juicy fruits of no pronounced flavor. (Adapted from *E. Janczewski, Monographie des Groseilliers, p. 297*.)

For previous introduction, see S. P. I. No. 32761.

55093. RIBES sp. Grossulariaceæ.

(M. Vilmorin No. 7947.)

55094 and 55095. ROSA OMEIENSIS PTERACANTHA (Franch.) Rehd. and Wils. Rosaceæ. Rose.

55094. A shrub 3 to 9 feet tall, with white flowers and red fruits having usually a shorter stalk than in the type. Very common on the wind-swept mountain sides of western Szechwan. (Adapted from *Sargent, Plantae Wilsonianae, vol. 2, p. 332*.)

For previous introduction, see S. P. I. No. 53738.

55095. Variety *fructu rubra*. A bushy rose about 3 feet in height, with large oval prickles, small thickly set leaves, solitary single white flowers, and rather large red fruits. It is native to Yunnan, China. (Adapted from *Vilmorin and Bois, Fruticetum Vilmorinianum, p. 99*.)

55096. SORBARIA ARBOREA SUBTOMENTOSA Rehder. Rosaceæ.

A variety with the lower surfaces of the leaflets densely hairy; similar to the type, but with larger flowers. It is native to western Szechwan, China, where it forms a shrub up to 20 feet in height with rather small white flowers. (Adapted from *Sargent, Plantae Wilsonianae, vol. 1, p. 47*.)

55097. SORBARIA sp. Rosaceæ.

Received as *Sorbaria pallasii grandiflora*, for which a place of publication has not been found.

55098. VITIS DAVIDII (Carr.) Foex. Vitaceæ.

Grape.

A luxuriant climber, native to central China, with the young shoots covered with spiny, somewhat-hooked bristles. The shining dark-green leaves are heart shaped, toothed, and up to 8 inches in width, and the fruits are said to be black, about two-thirds of an inch in diameter, and of pleasant flavor. (Adapted from *Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 667*, under *Vitis armata*.)

For previous introduction, see S. P. I. No. 41877.

55099. GOSSYPIUM sp. Malvaceæ.

Kidney cotton.

From Yeungkong, Kwangtung, China. Seeds presented by Dr. W. H. Dobson. Received April 18, 1922.

A kidney cotton with fiber of medium length.

55100 to 55104.

From Kisantu, Belgian Congo. Seeds presented by Père J. Gillet, S. J., Jardin d'Essais de Kisantu. Received April 29, 1922.

55100. *COFFEA* sp. Rubiaceæ.

Coffee.

"Coffee-hybrid Le Roy." (*Gillet.*)

55101. *MUSA ARNOLDIANA* Wildem. Musaceæ.

Banana.

The plant grows to a height of 12 to 15 feet without suckering, and the leaves are about 7 feet in length. The inflorescence is short and drooping, and the fruits are nearly 4 inches long. The plant is native to the Belgian Congo. (Adapted from *Fawcett, The Banana, p. 278.*)

55102. *PIMENTA OFFICINALIS* Lindl. Myrtaceæ.

Allspice.

A small tree, native to tropical America, whose dried, unripe berries constitute the allspice of commerce. It prefers a hot and rather dry climate, with alluvial, well-drained soil. Jamaica is the source of our supply of allspice at the present time.

For previous introduction, see S. P. I. No. 44824.

55103. *PSIDIUM* sp. Myrtaceæ.

"A small shrub." (*Gillet.*)

55104. *VOANDZEIA SUBTERRANEA* (L.) Thouars. Fabaceæ.

A creeping annual leguminous plant which matures its fruits in the same manner as the peanut, whence its common name "groundnut." It is native to tropical Africa and is extensively grown in that continent, as well as in other tropical countries, for its edible seeds.

For previous introduction, see S. P. I. No. 54704.

55105. *GARCINIA TINCTORIA* (DC.) W. F. Wight. Clusiaceæ.

(*G. xanthochymus* Hook. f.)

From Honolulu, Hawaii. Seeds presented by Gerrit P. Wilder. Received April 4, 1922.

Introduced for testing as a stock for the mangosteen (*Garcinia mangostana* L.).

For previous introduction, see S. P. I. No. 40103.

55106 to 55165. *HOLCUS SORGHUM* L. Poaceæ.

Sorghum.

(*Sorghum vulgare* Pers.)

From Khartum, Anglo-Egyptian Sudan. Seeds presented by W. A. Davie, Director of Agriculture, Sudan Government, through H. N. Vinall, agronomist, Office of Forage-Crop Investigations, United States Department of Agriculture. Received April, 1922.

"Samples of local varieties collected by the Sudan Department of Agriculture throughout Anglo-Egyptian Sudan in the region tributary to Khartum." (*Vinall.*)

55106. *Gassabi.*

55116. *Wad el Nebehi.*

55107. *Feterita.*

55117. *Um Ghorirrat.*

55108. *El Medcek el Abiad.*

55118. *Shallouft el Naga.*

55109. *Khamis Wad Gah.*

55119. *Mogd Wad Fadl.*

55110. *Asfar Homasi.*

55120. *Wad Abu Gutta.*

55111. *Kaliko.*

55121. *Baid el Wiz.*

55112. *Gusiri.*

55122. *Ankolib Gassab.*

55113. *Feterita.*

55123. *Hemaise.*

55114. *Hamisi.*

55124. *Kalm Ahmer.*

55115. *Abu Khammeir.*

55125. *Higiri.*

55106 to 55165—Continued.

55126. <i>Feterita</i> .	55146. <i>Mugood</i> .
55127. <i>Abu Shanab</i> .	55147. <i>Asfar</i> .
55128. <i>Banan Tokar</i> .	55148. <i>Wad Fahal</i> .
55129. <i>Wad Brageh</i> .	55149. <i>Wad bahana</i> .
55130. <i>Mogd Abagro Abiad</i> .	55150. <i>Wad Akhar</i> .
55131. <i>Neili Neili</i> .	55151. <i>Nugood</i> .
55132. <i>El Safra</i> .	55152. <i>No. 40</i> .
55133. <i>Ahamar</i> .	55153. <i>No. 12</i> .
55134. <i>Shikari</i> .	55154. <i>Hegeira</i> .
55135. <i>Kargi</i> .	55155. <i>Abu Koliga</i> .
55136. <i>Abgara</i> .	55156. <i>No. 8</i> .
55137. <i>Kalam</i> .	55157. <i>Abu Tarakish</i> .
55138. <i>Abu Homeer</i> .	55158. <i>Moru</i> .
55139. <i>No. 15</i> .	55159. <i>Naggad Abiad</i> .
55140. <i>Ganie</i> .	55160. <i>Laben el Shah</i> .
55141. <i>El hacherag</i> .	55161. <i>Makway Abiad</i> .
55142. <i>Gussiri Tokar</i> .	55162. <i>Khass</i> .
55143. <i>Shamsham</i> .	55163. <i>Waga</i> .
55144. <i>Balyani</i> .	55164. <i>Wad Byota</i> .
55145. <i>Beid el Tor</i> .	55165. <i>Mogd Khamgan Asfer</i> .

55166 to 55211. *HIBISCUS* spp. Malvaceæ.**Hibiscus.**

From Honolulu, Hawaii. Cuttings secured by Mrs. J. Rappe Myers, in Honolulu, and sent in by J. M. Westgate, agronomist in charge, Agricultural Experiment Station. Received March 27 and 30, 1922. Quoted notes by Mrs. Myers, unless otherwise stated.

The Chinese hibiscus is one of the most popular and useful decorative plants of tropical gardens and is cosmopolitan in its distribution. Probably in no other region, however, has so extensive a series of choice horticultural forms been brought together as in Hawaii. In most parts of the Tropics only two or three varieties are seen, usually the single scarlet and the double scarlet. In recent years some excellent sorts have been distributed by Florida nurserymen, yet it is felt that much more can and should be done to popularize the newer delicately colored varieties, and toward this end the following collection has been secured in Honolulu by Mrs. J. Rappe Myers. They should prove of real value in southern Florida and in Porto Rico, the Canal Zone, and the American Tropics generally.

"Most of these varieties are the productions of Gerrit P. Wilder."

55166 to 55192. "Collected March 11, 1922."

55166 to 55170. "Collected in Mrs. George Sherman's garden."

55166. *HIBISCUS SYRIACUS* L.

"(No. 1.) A lavender variety; originally from Japan."

55167. *HIBISCUS* sp.

"(No. 2.) Single pink, shading white to the center."

55168. *HIBISCUS* sp.

"(No. 3.) Single orange."

55169. *HIBISCUS* sp.

"(No. 4.) Single, light pink."

55170. *HIBISCUS* sp.

"(No. 5.) 'Laurita Sherman.'"

55166 to 55211—Continued.

55171. HIBISCUS sp.

"(No. 6.) A most beautiful, single, buff variety from Mrs. W. Woon's garden."

55172. HIBISCUS sp.

"(No. 7.) Fringed single red. From Haugh's garden."

55173. HIBISCUS sp.

"(No. 8.) A red-and-pink Fuchsia variety from Mrs. Rosa's garden."

55174. HIBISCUS sp.

"(No. 9.) Buff, single, with red center; from Helen Rosa's garden."

55175. HIBISCUS sp.

"(No. 10.) Single and double, light yellow; from Country Club grounds."

55176 to 55179. "From John Walker's garden."

55176. HIBISCUS sp.

"(No. 11.) Single, buff, light-red center."

55177. HIBISCUS sp.

"(No. 12.) 'Agnes Gault' variety."

55178. HIBISCUS sp.

"(No. 13.) Double yellow."

55179. HIBISCUS sp.

"(No. 14.) 'Mrs. Hassinger.'"

55180 to 55182. "From Mr. Anderson's garden."

55180. HIBISCUS sp.

"(No. 15.) Double red."

55181. HIBISCUS sp.

"(No. 16.) Bright red; double."

55182. HIBISCUS sp.

"(No. 17.) Largest, single white."

55183 to 55192. "From L. A. Thurston's garden."

55183. HIBISCUS sp.

"(No. 18.) Single, reddish mahogany banded in cream."

55184. HIBISCUS sp.

"(No. 19.) Single, rose pink; very fine."

55185. HIBISCUS sp.

"(No. 20.) Single, corn color, deep-red center."

55186. HIBISCUS sp.

"(No. 21.) Cerise pink, single."

55187. HIBISCUS sp.

"(No. 22.) Single, lavender buff."

55188. HIBISCUS sp.

"(No. 23.) Single, orange, crimson center."

55189. HIBISCUS sp.

"(No. 24.) Double. American Beauty shade."

55166 to 55211—Continued.

55190. HIBISCUS sp.

“(No. 25.) Single, flame red.”

55191. HIBISCUS sp.

“(No. 26.) Single, orange pink.”

55192. HIBISCUS sp.

“(No. 27.) Double, cerise.”

55193 to 55211. “Collected March 14, 1922.”

55193 to 55207. “From Gerrit P. Wilder's garden.”

55193. HIBISCUS sp.

“(No. 28.) ‘Nora Swanzy Sport,’ unnamed, single, copper colored.”

55194. HIBISCUS sp.

“(No. 29.) Single, yellow with red center; not named.”

55195. HIBISCUS sp.

“(No. 30.) Double yellow. Very difficult to grow; no name.”

55196. HIBISCUS sp.

“(No. 31.) ‘Lita Wight’ or ‘Jamaica.’ Single yellow.”

55197. HIBISCUS sp.

“(No. 32.) ‘Queen Kashumanu.’ Single, salmon pink and orange.”

55198. HIBISCUS sp.

“(No. 33.) ‘Nora Swanzy.’ Single, copper colored.”

55199. HIBISCUS sp.

“(No. 34.) ‘Auata Focke.’ Single, lavender.”

55200. HIBISCUS sp.

“(No. 35.) ‘Lillian Nordica.’ Single, pink with white center.”

55201. HIBISCUS sp.

“(No. 36.) ‘Lillian Wilder.’ Single pink.”

“Strong growth, erect, freely branching, light-gray bark, brownish twigs. Leaves ovate, serrate, slightly pubescent, shiny, dark green, 2 to 3½ inches wide, 3½ to 5¼ inches long, petiole 2 inches. Flower 7 inches wide, delicate crimson pink with darker veins and crimson eye; column crimson, 3½ inches; peduncle 2¼ inches; bracts six to eight, slender, spreading, green. Sometimes self-seeds; crosses freely.” (*E. V. Wilcox and V. S. Holt, Hawaii Agricultural Experiment Station, Bulletin No. 29, p. 38.*)

55202. HIBISCUS sp.

“(No. 37.) ‘Helen Kimball.’ Single.”

55203. HIBISCUS sp.

“(No. 38.) ‘Wilhelmina Tenny.’ Single, orange yellow.”

55204. HIBISCUS sp.

“(No. 39.) Hybrid; almost double.”

55205. HIBISCUS sp.

“No. 40.) Hybrid; cross between white and pink.”

55166 to 55211—Continued.

55206. HIBISCUS sp.

“(No. 41.) Yellow single.”

55207. HIBISCUS sp.

“(No. 42.) Hybrid.”

55208. HIBISCUS sp.

“(No. 43.) Single, light pink; from Punahou school grounds.”

55209. HIBISCUS sp.

“(No. 44.) Single coral; from Punahou school grounds.”

55210. HIBISCUS sp.

“(No. 45.) ‘Eleanor Atherton.’ Single, light pink; from F. C. Atherton’s garden.”

55211. HIBISCUS sp.

“(No. 46.) Double cerise from Frank Atherton’s garden.”

55212 to 55245.

From Gitschin, Bohemia, Czechoslovakia. Plants presented by Josef Mazanek. Received June 10, 1920. Numbered June, 1922.

These Czechoslovakian varieties of apples and pears are introduced for the use of specialists in this country.

55212 to 55232. MALUS SYLVESTRIS Mill. Malaceæ.

Apple.

(*Pyrus malus* L.)

55212. (No. 1.) *Ananasová reneta* (*Reinette Ananas*).55213. (No. 2.) *Citronové zimní* (*Citron d’hiver*).55214. (No. 3.) *Červené tvrdé* (*Cousinotte rouge d’hiver*).55215. (No. 4.) *Holovouské malinové* (Raspberry apple from Holovous).55216. (No. 5.) *Mazánkovo malinové* (Raspberry apple of Mr. Mazanek).55217. (No. 6.) *Kminová reneta* (*Reinette du Canada*).55218. (No. 7.) *Kožená reneta* (*Reinette grise française*).55219. (No. 8.) *Limburské* (*La Limbourgeoise*).55220. (No. 9.) *Mišenské* (*Edelborsdorfer*).55221. (No. 10.) *Panenské* (*Rothcr Jungfern Apfel*).55222. (No. 11.) *Parména zlatá* (*Reine de Reinettes*).55223. (No. 12.) *Prince Albert* (*Lanc’s Prince Albert*).55224. (No. 13.) *Reneta Pomfelic* (*Reinette de Pomphelia*).55225. (No. 14.) *Řehtáč soudkovitý* (*Prinzenapfel, Pomme melon*).55226. (No. 15.) *Štrymka* (*Gros-Bohn*).55227. (No. 16.) *Šalove* (*Cardinal blanc flamhaut*).55228. (No. 17.) *Šampaňska reneta* (*Reinette blanche de Champagne*).55229. (No. 18.) *Šmitbergrova reneta* (*Smitberger’s Reinette*).55230. (No. 19.) *Štětinské* (*Stetting Rouge*).55231. (No. 20.) *Haglee Crab*.55232. (No. 21.) *Holovouské malinové* (Raspberry apple from Holovous).

55212 to 55245—Continued.

- 55233 to 55245. *PYRUS COMMUNIS* L. Malaceæ. Pear.
55233. (No. 2.) *Amanlisova máslovka* (*Beurré d'Annalis*).
55234. (No. 4.) *Avranska* (*Bonne Louise d'Avranches*).
55235. (No. 6.) *Anansiva česká* (Bohemian ananas pear).
55236. (No. 9.) *Dielora* (*Beurre Diel*).
55237. (No. 11.) *Kozačka Stutgartská* (*Rousslet de Stuttgart*).
55238. (No. 12.) *Křivice* (*Beurre Clairgeau*).
55239. (No. 13.) *Pastornice* (*Poire de Curé*).
55240. (No. 15.) *President Mas*.
55241. (No. 16.) *Pstružka* (*Forelle*).
55242. (No. 17.) *Solanka*.
55243. (No. 18.) *Wienská* (*Triomphe de Vienne*).
55244. (No. 19.) *Hardenpontova* (*Beurré Hardenpont*).
55245. (No. 20.) *Ratajská*.

55246 to 55252. *MUSA PARADISIACA SAPIENTUM* (L.) Kuntze. Mu-
saceæ. Banana.

From Honolulu, Hawaii. Shoots presented by Willis T. Pope, horticulturist, Hawaii Agricultural Experiment Station. Received April 10, 1922.

55246. (No. 4490.) *Chamaluco*. The plant is from 10 to 15 feet in height with medium-sized leaves; when grown in fertile soil the bunches of fruit are rather large. There are two types—one with green and the other with gray fruits. The greater part of these fruits are eaten cooked at the time when other varieties are ripe. (Adapted from *Bulletin 25, Departamento de Agricultura y Trabajo, Porto Rico, p. 19.*)

For previous introduction, see S. P. I. No. 19303.

55247. "(No. 4489.) *Ice Cream*. This banana is said to have been introduced into the Hawaiian Islands from the Malay region of Asia. It was first grown at the Hawaii Station, Honolulu, in 1900, offshoots having been obtained from William Chamberlain, of Honolulu.

"Description of the plant: A 1-year old clump grown from a single offshoot usually consists of 8 or 10 plants, varying from a size suitable for transplanting up to full-grown plants maturing fruit. The average height of the full-grown plant is about 20 feet. Each mature plant usually has 10 or 12 light-green leaves at one time. The trunk is light green with parts of the outer leaf sheaths varying from light green to dark brown. The light brown often has a slight tinge of pink. The leaf blades are shiny light green above with a frosty lighter green below, due to a powdery bloom which does not rub off easily. The young leaves often have the under side of the midrib tinged with pink. Small offshoots have leaves with both margin and midrib of a delicate pink. The bases of the petioles of the larger leaves have abrasionlike marks of brown to dark brown such as are not uncommon on older plants of several other varieties.

"Fruit: The bunch of the *Ice Cream* variety is medium in size, varying in weight from 30 to 60 pounds. In color it is strikingly different from most other yellow bananas. It has a whitish or bluish green color before maturity, which is due to the powdery bloom covering the entire fruit. This powdery bloom remains quite evident after the yellowing and full ripening of the fruit. The bananas usually ripen irregularly on the bunch. After ripening, the bananas very soon

55246 to 55252—Continued.

become soft and have a tendency to fall from the bunch. The hands of bananas are usually seven or eight in number and average about 14 bananas to the hand. Each fruit is from 5 to 7 inches in length and from 2 to 2½ inches in diameter, with a weight of 7 or 8 ounces. The skin of the ripe fruit is of medium thickness, and tender, and separates, leaving a portion of its inner lining on the pulp of the fruit when peeled. The pulp is rather spongy and white or creamy white in color, suggestive of ice cream, hence its name. The flavor is slightly tart and applelike." (Pope.)

55248. "(No. 4499.) *Iholena*. The plant is of low growth, petioles about 9 feet to the top of the leaves as an average. The petioles are rather stout, light green with pink on the edges; leaves slightly bronze colored on the under surface when young. The bunch is rather small. The fruits are arranged loosely and stand out almost at right angles from the axis of the bunch. The skin of immature fruits is light green, turning to yellow before ripening. The form of the fruit is angular; when thoroughly ripe, beginning to turn black, it is regarded as one of the best of the native bananas for eating raw. It is also good for cooking. The flesh is pink." (J. E. Higgins, *Bulletin 7, Hawaii Agricultural Experiment Station*.)

For previous introduction, see S. P. I. No. 22064.

55249. "(No. 4731.) *Kona Maimaile* or *Miamai*, as it is sometimes called, is, I believe, the best cooking banana in these islands, and I believe it has commercial possibilities in a locality like Kona, where much good land may be had with sufficient rainfall, little wind, and rich soil overlying a most favorable underdrainage." (Pope.)

55250. "(No. 4497.) *Largo*. Introduced into Hawaii from Mexico. The plant is of medium height, and the fruits, borne in long-stemmed bunches, have buttery pinkish flesh of fair flavor." (J. E. Higgins, *Bulletin 7, Hawaii Agricultural Experiment Station*.)

55251. "(No. 4495.) *Porto Rico*. This variety was introduced from Porto Rico by the Hawaii station in 1904.

"Description of the plant: Average height about 25 feet. Mature trunks become about 10 or 12 inches in diameter at the base. Each trunk supports 10 or 12 green leaves about 12 feet long. The color of the trunk sheath varies from a shade of pink to dark brown. The color of the leaves is dull green above and light green below, with abrasionlike markings at the base of the petioles where they begin to extend from the sheath.

"Description of the fruit: The bunch is small to medium in size, weighing 25 to 40 pounds, and usually consists of five or six hands. The banana is smooth with angle ridges not prominent, apex or blossom end somewhat beaked, and not well filled, even on bunches which show plump fruit from good culture. The skin is bright yellow and peels well when fruit is ripe. The flesh is light yellow and rather juicy, sweet, with a pleasant flavor somewhat like that of the apple. The fruit ripens uniformly and holds well on the bunch.

"The *Porto Rico* is a very desirable banana for growing in the home garden, as most of its qualities are such as are desired in a fresh fruit for home use." (Pope.)

55252. "(No. 4492.) *Red Cuban*. This is the proper name of the largest sized variety of the various red bananas; large both as to plant and fruit. A well-grown bunch has 8 to 10 hands and individual fingers of from 2 to 2½ inches in diameter. This is the red banana of commerce." (Goldsmith H. Williams, *Crescent City, Fla.*)

55253 to 55366.

From Neston, Cheshire, England. Seeds presented by A. K. Bulley. Received April 20, 1922. Quoted notes by Mr. Bulley, unless otherwise stated.

"Collected by Dr. F. Kingdon Ward in Szechwan, China."

55253. *ANDROSACE SPINULIFERA* (Franch.) Kunth. Primulaceæ.

"(No. 4042.) An erect plant with rose-pink flowers."

A hairy alpine plant with narrowly oval leaves and a scape up to 8 inches high bearing heads of purplish flowers. It is native to the mountains of central China. (Adapted from *Engler, Das Pflanzenreich, vol. 22, p. 184.*)

55254. *ANDROSACE* sp. Primulaceæ.

"(No. 4388.) Rose pink, darker eye."

55255. *ANEMONE RUPICOLA* Cambess. Ranunculaceæ.

"(No. 4276.)"

A robust Chinese anemone about a foot in height which produces an abundance of showy flowers that are pure white with the outer sepals rosy lilac. (Adapted from *The Garden, vol. 79, p. 272.*)

For previous introduction, see S. P. I. No. 38999.

55256. *CAMPANULA* sp. Campanulaceæ.

"(No. 4605.) A dwarf plant with violet flowers."

55257. *CAMPANULA* sp. Campanulaceæ.

"(No. 4805.) A plant with pale-blue flowers."

55258. *CARAGANA* sp. Fabaceæ.

"(No. 4147.) Flowers sulphur yellow."

55259. *CARDAMINE* sp. Brassicaceæ.

"(No. 4483.) Collected at 13,000 to 14,000 feet altitude. A plant growing a foot high with fragrant purple flowers."

55260. *CLEMATIS* sp. Ranunculaceæ.

"(No. 4585.) Purple flowers with silver stamens."

55261. *CLEMATIS* sp. Ranunculaceæ.

"(No. 4877.) Clusters of straw-yellow flowers."

55262. *CODONOPSIS* sp. Campanulaceæ.

"(No. 4446.) A plant 15 inches in height with purple flowers."

55263. *CODONOPSIS* sp. Campanulaceæ.

"(No. 4618.) Collected at 13,000 to 14,000 feet elevation. A plant 8 to 12 inches high with pale lavender-blue flowers."

55264. *CREMANTHODIUM* sp. Asteraceæ.

"(No. 4210.) A plant with nodding purple flowers."

55265. *CREMANTHODIUM* sp. Asteraceæ.

"(No. 4619.) Sulphur-colored flowers."

55266. *CREMANTHODIUM* sp. Asteraceæ.

"Nodding yellow flowers."

55267. *CREPIS* sp. Cichoriaceæ.

"Collected at 13,000 feet elevation."

55268. *CYNOGLOSSUM* sp. Boraginaceæ.

"(No. 4093.) A plant with deep-blue flowers."

55253 to 55366—Continued.

55269. DELPHINIUM sp. Ranunculaceæ. Larkspur.
 "(No. 4570.)"
55270. DEUTZIA sp. Hydrangeaceæ.
 "(No. 4537.) A plant with white flowers."
55271. DRABA sp. Brassicaceæ.
 "(No. 4150.) Tufted golden yellow flowers."
55272. EUONYMUS sp. Celastraceæ.
 "(No. 4526.) A plant growing from 10 to 15 feet in height."
55273. FRITILLARIA sp. Liliaceæ.
 "(No. 4030.) Flowers dull yellowish green, spotted and speckled with chocolate."
- 55274 to 55279. GENTIANA spp. Gentianaceæ.
55274. GENTIANA DETONSA Rottb.
 "(No. 4757.)"
 A gentian native to the cold regions of northeastern Asia, with a very short stem and oblong leaves arranged more or less in a basal rosette. The flowers, borne singly, are deep blue with the corolla lobes wavy at the tips. (Adapted from *Turczaninow, Flora Baicalensi-Dahurica, No. 13, p. 322.*)
55275. GENTIANA sp.
 "(No. 4637.) Deep-blue flowers."
55276. GENTIANA sp.
 "(No. 4859.) Bright-blue flowers; plant more or less prostrate."
55277. GENTIANA sp.
 "(No. 4941.) Steel-blue flowers."
55278. GENTIANA sp.
 "(No. 4968.) Bright-violet flowers."
55279. GENTIANA sp.
 "(No. 4992.) Violet flowers."
55280. HEDYCHIMUM sp. Zinziberaceæ.
 "(No. 3792.) A plant growing 6,000 to 7,000 feet above A-lu-shih."
55281. HEMEROCALLIS sp. Liliaceæ.
 "(No. 4776.) A plant 8 to 12 inches in height with fawn-orange flowers."
55282. INCARVILLEA sp. Bignoniaceæ.
 "(No. 4197.) A tall plant with sulphur-yellow flowers."
- 55283 to 55292. IRIS spp. Iridaceæ. Iris.
55283. IRIS sp.
55284. IRIS sp.
 "(No. 3791.)"
55285. IRIS sp.
 "(No. 4025.) Deep-violet, almost black, flowers."
55286. IRIS sp.
 "(No. 4073.) A dwarf plant with violet flowers; collected at 13,000 to 14,000 feet elevation."

55253 to 55366—Continued.

55287. IRIS sp.
 "(No. 410L.) Lemon and black crests."
55288. IRIS sp.
 "(No. 4193.) Collected at 13,000 feet elevation."
55289. IRIS sp.
 "(No. 4243.) Violet fold markings on falls."
55290. IRIS sp.
 "(No. 4433.) Slate-blue flowers."
55291. IRIS sp.
 "(No. 4434.) Violet fold markings."
55292. IRIS sp.
 "(No. 5000a.) Collected at 9,000 to 10,000 feet elevation."
- 55293 to 55295. LILIUM spp. Liliaceæ. Lily.
55293. LILIUM sp.
 "(No. 4074.) Solitary nodding canary-colored flowers."
55294. LILIUM sp.
 "(No. 4242.) Plant 3 to 4 feet high with pale-purple flowers."
55295. LILIUM sp.
 "(No. 4245.) Flowers brownish yellow with trumpets finely spotted over a white ground."
55296. LONICERA sp. Caprifoliaceæ. Honeysuckle.
 "(No. 4134.) Large, scarlet, translucent fruits."
55297. LONICERA sp. Caprifoliaceæ. Honeysuckle.
 "(No. 4192.) A plant 6 to 10 inches high with pale-purple flowers."
55298. LYCHNIS sp. Silenaceæ.
 "(No. 4236.) Very small white or pinkish flowers; calyx bladderly, pale green striped with chocolate."
55299. LYCHNIS sp. Silenaceæ.
 "(No. 4964.) A dwarf plant with pale purplish pink flowers."
- 55300 to 55304. MECONOPSIS spp. Papaveraceæ.
55300. MECONOPSIS ACULEATA Royle.
 "(No. 4171.)" A biennial Himalayan plant with hairy stems and rosettes of blunt-pointed leaves. The flowers, bright blue with golden yellow throats, are borne in spikelike racemes, the flowers opening from the top of the raceme downward. (Adapted from *The Garden*, vol. 75, p. 226.)
55301. MECONOPSIS PRIMULINA Prain.
 "(No. 4008.)"
 A plant found in stony places in the eastern Himalayas, at 12,000 to 14,000 feet altitude. The leaves are narrow and the flowers bright blue. (Adapted from *Annals of Botany*, vol. 20, p. 350.)
55302. MECONOPSIS PSEUDOINTEGRIFOLIA Prain.
 "(No. 4169.)" A stemless hairy plant from southwest Tibet, China, with narrow leaves and 1-flowered scapes; the flowers are bright yellow and up to 3 inches in diameter. (Adapted from *Annals of Botany*, vol. 20, p. 353.)
- For previous introduction, see S. P. I. No. 51750.

55253 to 55366—Continued.

55303. *MECONOPSIS* sp.
 "(No. 4164.) A plant growing a foot high, with sky-blue flowers."
 55304. *MECONOPSIS* sp.
 "(No. 4640.) Violet flowers."
 55305. *OREOCHARIS* sp. Gesneriaceæ.
 "(No. 3995.) Yellow drooping flowers."
 55306. *PHLOMIS* sp. Menthaceæ.
 "(No. 4644.) Pale-pink flowers."
 55307. *PICEA* sp. Pinaceæ. Spruce.
 "(No. 3954.) A graceful tree 50 feet in height, growing at 9,000 to 11,000 feet altitude."
 55308 to 55351. *PRIMULA* spp. Primulaceæ. Primrose.

55308. *PRIMULA BELLA* Franch.
 "(No. 4082.) Violet or purple flowers."

In damp, sandy, mountain pasture land on the Mekong-Salwin Divide, western Yunnan, China, this attractive primrose was originally collected. It is little more than 2 inches in height, but bears beautiful pale-rose or deep bluish rose flowers with greenish white eyes, fairly fragrant. (Adapted from *Notes from the Royal Botanic Garden, Edinburgh, vol. 4, p. 225.*)

For previous introduction, see S. P. I. 48353.

55309. *PRIMULA BLATTARIFORMIS* Franch.
 "(No. 4520.)"

A primrose from limestone regions in Yunnan, China; in general appearance it resembles the smooth mullein, *Verbascum blattaria*, hence its name. The leaves form a close rosette, and the lilac flowers are borne in spikelike racemes. (Adapted from *Journal of the Royal Horticultural Society, vol. 39, p. 145.*)

55310. *PRIMULA BREVIFOLIA* Forrest.
 "(No. 4173.)"

From a rosette of bright-green, oblong leaves rises a purplish scape which ends in a cluster of a half dozen or more drooping flowers; each has a dark-purple calyx and a fringed, blue-purple corolla. The plant is native to Yunnan, China. (Adapted from *Gardeners' Chronicle, 3d ser., vol. 57, p. 207.*)

55311 and 55312. *PRIMULA DRYADIFOLIA* Franch.

A somewhat shrubby Chinese primrose with small leaves and large, drooping, rose-colored flowers with dark-purple bracts. (Adapted from *Journal of the Royal Horticultural Society, vol. 39, p. 165.*)

For previous introduction, see S. P. I. No. 48359.

55311. "(No. 4100.)" 55312. "(No. 4109.)"

55313 and 55314. *PRIMULA MALVACEA* Franch.

A primrose from the mountains of Yunnan, China, densely covered with short hairs, with bright-green leaves about 3 inches in length and thick scapes which bear two or three umbels of reddish flowers. (Adapted from *Engler, Das Pflanzenreich, vol. 22, p. 26.*)

55313. "(No. 4351.)" 55314. "(No. 4181.)"

55253 to 55366—Continued.

55315 to 55319. PRIMULA MUSCARIODES Hemsl.

A primrose with rather fleshy light-green leaves 4 or 5 inches in length. The scapes, twice as long as the leaves, bear the heads of deep purple-blue or almost violet flowers. The plant inhabits moist open places on the edges of forests in Yunnan, China. (Adapted from *Curtis's Botanical Magazine*, pl. 8168.)

55315. "(No. 4436.)" 55318. "(No. 4225.)"

55316. "(No. 4180.)" 55319. "(No. 4748.)"

55317. "(No. 4077.)"

55320 to 55332. PRIMULA NIVALIS Pall.

This species is found in every part of the world where primroses grow excepting South America; it varies considerably according to its geographic location. The rather thick, ribbon-shaped leaves are often coated with silver or golden meal, and the flowers, usually blue or purple but sometimes white, are borne in large clusters. (Adapted from the *Journal of the Royal Horticultural Society*, vol. 39, p. 160.)

For previous introduction, see S. P. I. No. 48369.

55320. "Deep Tyrian purple with an eye almost black."

55321 and 55322. "(No. 4055.)"

55323 and 55324. "(No. 4080.)"

55325. "(No. 4141.)"

55326 and 55327. "(No. 4176.)"

55328 to 55330. "(No. 4385.)"

55331. "(No. 4911.)"

55332. "(No. 5000 K.)"

55333 and 55334. PRIMULA POISSONI Franch.

"(No. 4024.)"

A stout, smooth Chinese primrose with rigid, leathery, oblong, pale-green leaves 2 or 3 inches long and a solitary flower stalk which bears one or more whorls of pink flowers. (Adapted from *Curtis's Botanical Magazine*, pl. 7216.)

55335 and 55336. PRIMULA SECUNDFLORA Franch.

"(No. 4175.)"

This is one of the finest Chinese primroses; it is a native of the Likiang Mountains in northwestern Yunnan, China, where it ascends almost to snow level, 15,000 feet above the sea. On the lower plateaus, at 11,500 feet altitude, this plant forms dense colonies with scapes up to 14 inches in height. The fragrant flowers are a beautiful shade of deep crimson, faintly tinged with purple, and droop gracefully from the scapes. The calyxes are ruddy purple, marked with white lines along the margins. (Adapted from *Gardeners' Chronicle*, 3d ser., vol. 51, p. 281.)

For previous introduction, see S. P. I. No. 48375.

55337 and 55338. PRIMULA SIKKIMENSIS Hook.

A robust primrose from rather wet situations in the Himalayas at altitudes of 12,000 to 17,000 feet. It sends up strong flower stems a foot or two in height, which bear numerous bell-shaped pale-yellow fragrant flowers. This species is hardy in England. (Adapted from *Robinson, English Flower Garden*, p. 739.)

For previous introduction, see S. P. I. No. 48378.

55337. "(No. 4930.)" 55338. "(No. 4179.)"

55253 to 55366—Continued.

55339. PRIMULA SINOPURPUREA Balf. f.

“(No. 4181.)”

This is one of the most striking primroses of the *nivalis* group. It is native to Yunnan, China, and is a stout herbaceous plant usually about 4 inches high. The narrow leaves are thinly papery, with yellow mealy lower surfaces, and the stout scapes bear deep-violet flowers. (Adapted from *Curtis's Botanical Magazine*, pl. 8777.)

For previous introduction, see S. P. I. No. 48379.

55340. PRIMULA VINCIFLORA Franch.

“(No. 4172.)”

A rather tall Chinese primrose, sometimes over a foot in height, with beautiful flowers of a deep indigo-purple shade; the calyx tube is yellowish at the base. In its native home it grows in masses of 20 to 30 plants in one clump. (Adapted from *Gardeners' Chronicle*, 3d ser., vol. 46, p. 344.)

For previous introduction, see S. P. I. No. 48381.

55341. PRIMULA sp.

“(No. 3920.) Flowers pinkish crimson with a yellow eye.”

55342. PRIMULA sp.

“(No. 3951.) Orange-colored flowers.”

55343 and 55344. PRIMULA sp.

“(No. 5000 J.) A plant growing at 8,000 feet altitude, with purplish crimson flowers.”

55345. PRIMULA sp.

“(No. 4445.)”

55348. PRIMULA sp.

“(No. 4181.)”

55346. PRIMULA sp.

“(No. 4225.)”

55349. PRIMULA sp.

“(No. 4174.)”

55347. PRIMULA sp.

“(No. 4275.)”

55350. PRIMULA sp.

“(No. 4081.)”

55351. PRIMULA sp.

“A plant 8 to 10 inches high, growing at 9,000 to 10,000 feet altitude.”

55352. PYROLA sp. Pyrolaceæ.

“(No. 4262.) Cream-colored flowers.”

55353. RHEUM sp. Polygonaceæ.

“(No. 3794.)”

55354 to 55359. RHODODENDRON spp. Ericaceæ.

55354. RHODODENDRON sp.

55355. RHODODENDRON sp.

“(No. 4160.) A snowy white, dwarf alpine plant.”

55356. RHODODENDRON sp.

“(No. 4170.) Bell-shaped, lemon flowers.”

55357. RHODODENDRON sp.

“(No. 4177.) A plant 6 to 8 feet in height; flowers pink with dark spots.”

55253 to 55366—Continued.

55358. RHODODENDRON sp.

“(No. 4456.) A bush 2 to 3 feet in height.”

55359. RHODODENDRON sp.

“(No. 4486.) A plant 5 feet in height.”

55360 to 55364. SAXIFRAGA spp. Saxifragaceæ.

55360. SAXIFRAGA sp.

“A yellow variety found in woods.”

55361. SAXIFRAGA sp.

55362. SAXIFRAGA sp.

“(No. 4628.) Orange-colored flowers; plant 6 to 9 inches in height.”

55363. SAXIFRAGA sp.

“(No. 4654.) Flowers yellow.”

55364. SAXIFRAGA sp.

“(No. 4905.) A plant 6 to 9 inches in height with chocolate-colored flowers.”

55365. SWERTIA sp. Gentianaceæ.

“(No. 4977.) A plant 2 to 4 inches high.”

55366. VERATRUM sp. Melanthiaceæ.

“(No. 4832.) An erect plant 12 to 15 inches in height with violet flowers.”

55367. CUCURBITA PEPO L. Cucurbitaceæ.**Squash.**

From Paris, France. Seeds presented by Vilmorin-Andrieux & Co. Received May 8, 1922.

The “Naples squash” has trailing stems, usually about 10 feet long, and dull-green leaves with grayish white veins and spots. The cylindrical fruit is up to 2 feet in length, with smooth dark-green skin which becomes yellow when the fruit is ripe. The orange-colored flesh is abundant and sweet. This variety is very productive, and the fruit is of excellent quality, keeps well, but ripens rather late. (Adapted from *Robinson, The Vegetable Garden, p. 326.*)

55368. TRIFOLIUM PRATENSE L. Fabaceæ.**Red clover.**

From Lodi, Italy. Seeds purchased from Consorzio Agrario Cooperativo Lodigiano, through William H. Stevenson, International Agricultural Institute, Rome, Italy. Received May 8, 1922.

Introduced for cultural experiments and comparison with American-grown varieties.

55369. CROTALARIA JUNCEA L. Fabaceæ.**Sunn hemp.**

From Honolulu, Hawaii. Seeds presented by J. M. Westgate, agronomist in charge, Agricultural Experiment Station. Received May 9, 1922.

Introduced for testing as a green manure, for which purpose it is used in India. It is, however, also used in that country as a fiber plant and as a catch crop.

For previous introduction, see S. P. I. No. 43502.

55370 and 55371. RUBUS spp. Rosaceæ.

From Sitka, Alaska. Plants and roots presented by C. C. Georgeson, agronomist in charge, Agricultural Experiment Station. Received May 17, 1922.

Introduced for cultural and breeding experiments.

55370. RUBUS CHAMAEMORUS L.**Cloudberry.**

The cloudberry is of circumpolar distribution, and the edible yellowish fruits are much prized by natives of the Arctic regions. The plant is creeping in habit and is frequently found in peat bogs.

For previous introduction, see S. P. I. No. 24379.

55371. RUBUS SPECTABILIS Pursh.**Salmon berry.**

The salmon berry is a native of northwestern North America from California to Alaska; it is a vigorous plant with canes 5 to 15 feet in length and large, conical, salmon-colored fruits.

For previous introduction, see S. P. I. No. 23452.

55372. LAPAGERIA ROSEA Ruiz and Pav. Liliaceæ.**Copihue.**

From Angol, Chile. Seeds purchased from F. L. Crouse, Instituto Agricola Bunster, Angol. Received May 19, 1922.

"*Copihue*. This, the national flower of Chile, has been occasionally grown in northern greenhouses, where it creates a genuine sensation when in bloom. It is a climbing plant of slow growth, with slender, wiry stems and bright-crimson tubular flowers about 3 inches in length. In southern Chile huge bunches of these blossoms are brought to the railway stations and sold to passing travelers. The plant requires an acid soil." (*Wilson Popenoe*.)

For previous introduction, see S. P. I. No. 54621.

55373 and 55374. JUGLANS spp. Juglandaceæ.**Walnut.**

From Buenos Aires, Argentina. Nuts presented by D. S. Bullock, agricultural commissioner, Bureau of Markets and Crop Estimates. Received May 13, 1922. Quoted notes by Mr. Bullock.

55373. JUGLANS sp.

"From the eastern foothills of the Andes at Limoncito, Rio Blanco, or Iruya, Province of Salta. Collected in August, 1921, by A. G. Maddren."

55374. JUGLANS sp.

"From the Sierra de Lumbrera, a well-watered small mountain range just east of the Andes, in the Department of Metan, Province of Salta. The 'Nogal' trees grow along the small creeks at an altitude of 3,000 to 4,000 feet. Collected by D. S. Birkett."

55375 to 55398.

From Copenhagen, Denmark. Presented by Government Seed Control. Received May 11, 1922. Quoted notes by Dr. A. S. Hitchcock, of the United States Department of Agriculture.

The Danish Government, in cooperation with the seed growers of Denmark, is conducting extensive tests of commercial crops of value for cultivation there. These seeds are selections of some of their more promising varieties.

55375. ALOPECURUS PRATENSIS L. Poaceæ.**Meadow foxtail.**

(No. 40.) "Meadow foxtail is sometimes used as a meadow grass in the eastern United States. It is recommended for mixtures on moist soil, being nutritious and producing early forage. It is an erect grass 2 to 3 feet tall."

55375 to 55398—Continued.

55376. ANTHYLLIS VULNERARIA L. Fabaceæ. **Kidney vetch.**
 (No. 32.) A perennial herb found throughout Europe, northern Africa, and Asia, which is grown for sheep fodder and is particularly recommended for lime soils. In Norway it is native as far north as 70°. (Adapted from *Von Mueller, Select Extra-Tropical Plants, p. 48.*)
55377. ARRHENATHERUM ELATIUS (L.) Mert. and Koch. Poaceæ.
 (*A. avenaceum* Beauv.)
 (No. 37.) "This is occasionally cultivated in humid regions in the United States as a meadow grass; it is a fairly satisfactory forage grass."
55378. AVENA SATIVA L. Poaceæ. **Oats.**
 (No. 49.)
- 55379 and 55380. BETA VULGARIS L. Chenopodiaceæ. **Beet.**
 55379. (No. 44.) **55380. (No. 45.) Sugar beet.**
55381. BRASSICA NAPUS L. Brassicaceæ. **Rape.**
 (No. 47.)
55382. DACTYLIS GLOMERATA L. Poaceæ. **Orchard grass.**
 (No. 36.) "A well-known meadow and pasture grass, cultivated in the humid regions of the United States."
55383. DAUCUS CAROTA L. Apiaceæ. **Carrot.**
 (No. 46.)
55384. FESTUCA DURIUSCULA L. Poaceæ. **Hard fescue.**
 (No. 39.) "This grass, rare in America, is used in mixtures for lawns, especially for sterile or stony soil."
55385. FESTUCA ELATIOR L. Poaceæ. **Meadow fescue.**
 (No. 38.) "Meadow fescue is cultivated for hay and pasture in humid regions of the United States."
55386. HORDEUM DISTICHON PALMELLA Harlan. Poaceæ. **Barley.**
 (No. 50.)
55387. LOLIUM MULTIFLORUM Lam. Poaceæ. **Italian rye-grass.**
 (No. 35.)
55388. LOTUS CORNICULATUS L. Fabaceæ.
 (No. 31.) An excellent fodder, and considered a valuable element in meadows and pastures in Australia and Tasmania, where it is native. (Adapted from *Maiden, Useful Native Plants of Australia, p. 134.*)
 For previous introduction, see S. P. I. No. 48634.
55389. MEDICAGO LUPULINA L. Fabaceæ. **Black medic.**
 (No. 30.)
55390. MEDICAGO SATIVA L. Fabaceæ. **Alfalfa.**
 (No. 29.)
55391. NOTHOLCUS LANATUS (L.) Nash. Poaceæ. **Velvet grass.**
 (*Holcus lanatus* L.)
 (No. 43.) "Velvet grass has value as a meadow grass on moist sandy or sterile soil where other grasses will not thrive. It is an erect grass 2 to 3 feet tall."
55392. PHLEUM PRATENSE L. Poaceæ. **Timothy.**
 (No. 33.)
55393. POA PRATENSIS L. Poaceæ. **Kentucky bluegrass.**
 (No. 42.)

55375 to 55398—Continued.

- 55394.** *POA TRIVIALIS* L. Poaceæ. **Rough-stalked meadow grass.**
(No. 41.) A grass with stems decumbent at the base. Not only the stems but also the leaves and sheaths are very rough. The panicle is 2 to 5 inches long.
- 55395.** *SECALE CEREALE* L. Poaceæ. **Rye.**
(No. 48.)
- 55396.** *TRIFOLIUM HYBRIDUM* L. Fabaceæ. **Alsike clover.**
(No. 28.)
- 55397.** *TRIFOLIUM PRATENSE* L. Fabaceæ. **Red clover.**
(No. 26.)
- 55398.** *TRIFOLIUM REPENS* L. Fabaceæ. **White clover.**
(No. 27.)

55399 to 55404. CUCUMIS MELO L. Cucurbitaceæ. Muskmelon.

From Lucknow, United Provinces, India. Seeds presented by F. H. Johnson, superintendent, Government Horticultural Gardens. Received May 9, 1922.

Seeds of six distinct varieties of *Kharbusa* (melons).

- 55399.** *Chitta.* **55400.** *Khurra.*
- 55401 and 55402.** *Safada.* This is perhaps the finest of Indian melons and is grown in sandy loam along river banks. It is the size of a very large orange, flattened at both ends, and white inside and out. (Adapted from *Watt, Commercial Products of India, p. 438.*)
- 55401.** *Safada* (big). **55402.** *Safada* (Mandyaon).
- 55403.** *Sarda.* A fine variety cultivated in India, originally introduced from Kabul, Afghanistan, for the wealthy natives of the Punjab. The seeds of this melon are distinguished by their very large size. (Adapted from *Macmillan, Handbook of Tropical Gardening and Planting, p. 156.*)
- 55404.** Mixed.

55405. AMARANTHUS VIRIDIS L. Amaranthaceæ.

From Antigua, Leeward Islands. Seeds presented by Edwin A. Thompson, junior assistant, Imperial Department of Agriculture. Received May 16, 1922.

"I obtained this variety recently in Montserrat; the seeds were from locally grown plants of a special type of West Indian spinach, which is an undoubted acquisition. The plant becomes about 5 feet in height, and during its early growth the leaves are large, about the size of a dessert plate. During the recent extreme drought in Antigua I have been able to have a side dish of this vegetable at least twice a week." (*Thompson.*)

55406 and 55407. SOLANUM TUBEROSUM L. Solanaceæ. Potato.

From Galicia, Austria. Tubers purchased from Heinrich Dotkowski & Son. Received May 18, 1922.

- 55406.** "*Petronius.* This variety is fairly vigorous in growth and the plants are large, compact, and healthy with strong erect medium green stems. The leaves are medium to large and rather dark green; the flowers are white, and pollen is produced rather freely. The tubers are light skinned, the eyes medium in number and depth. It is not a very productive variety, being chiefly valuable for breeding purposes." (*William Stuart.*)

For previous introduction, see S. P. I. No. 33487.

- 55407.** *Rubin.*

55408 and 55409. RUBUS MACROCARPUS Benth. Rosaceæ. Colombian berry.

From Bogota, Colombia. Presented by W. O. Wolcott. Received May 10, 1922.

"Seeds of very large wild blackberries." (*Wolcott.*)

55410. GOSSYPIUM ANOMALUM Wawra. Malvaceæ. Cotton.

From Asmara, Eritrea, Africa. Seeds presented by the director, Eritrea Colonization Service. Received April 19, 1922.

"This cotton has a very short staple, but it is soft and shining like silk. It is used by native textile workers." (*A. M. Tancredi, Notizie e Studi sulla Colonia Eritrea, p. 110.*)

According to one authority this is the only truly wild cotton in Africa; it has been found in Angola and also in the Anglo-Egyptian Sudan. It forms a shrub 5 to 10 feet in height, with rough branches, reddish flowers, and oval capsules about an inch in length, much smaller than cultivated cotton. (Adapted from *Oliver, Flora of Tropical Africa, vol. 1, p. 211.*)

55411. AMERIMNON SISSOO (Roxb.) Kuntze. Fabaceæ. Sissu.
(*Dalbergia sissoo* Roxb.)

From Dehra Dun, United Provinces, India. Seeds presented by R. S. Hole, forest botanist. Received May 16, 1922.

A large deciduous tree native to tropical and subtropical regions of the lower Himalayas. It is highly esteemed for its very durable wood, which seasons well, does not warp or split, and is strong and elastic. The thin layer of sapwood is white, while the heartwood is brown, with darker longitudinal veins, and is very hard. (Adapted from *Gamble, Manual of Indian Timbers, p. 124.*)

55412. DIOSCOREA ALATA L. Dioscoreaceæ. Greater yam.

From India. Tuber presented by E. R. Sasscer, Federal Horticultural Board, United States Department of Agriculture. Obtained by L. M. Scott, inspector, Boston, Mass., from baggage on the steamship *City of Valencia*. Received April 19, 1922.

"*Purple Ceylon.* In India this yam is said to be called 'King of Yams.' The specimen received weighs about 13 ounces, is roughly spherical, and has deep-purple flesh, being similar in these respects to the *Purple Ceylon* previously received from Porto Rico (S. P. I. No. 54900). The flesh retains its color when cooked, is smooth in texture, and of very good flavor." (*R. A. Young.*)

55413. COIX LACRYMA-JOBI L. Poaceæ. Job's-tears.

From Muang Hai, southern Yunnan, China. Seeds collected by J. F. Rock, Agricultural Explorer of the United States Department of Agriculture. Received May 9, 1922.

"(No. 2485. February 17, 1922.) Collected along brooks near Muang Hai, southern Yunnan, at an altitude of 4,000 feet; may be of interest to cereal specialists." (*Rock.*)

For previous introduction, see S. P. I. No. 49516.

55414 to 55416. CITRUS spp. Rutaceæ.

From Shaowu, Fukien, China. Presented by Rev. J. E. Walker, Shaowu Mission of the American Board. Received May 16, 1922.

"Seeds from varieties equal to the best in Amoy, Fukien." (*Walker.*)

55414. CITRUS sp.

55416. CITRUS sp.

55415. CITRUS sp.

55417. PRUNUS MAJESTICA Koehne. Amygdalaceæ. **Cherry.**

From Yunnan, China. Seeds collected by J. F. Rock, Agricultural Explorer of the United States Department of Agriculture. Received May 16, 1922.

"(No. 2884. Between Puerhfu and Mohei, Yunnan. March 18, 1922.) A tree 25 to 30 feet in height with ascending branches, growing on exposed dry ridges 6,000 feet or more in altitude. The cherries, which are borne in March, are oblong to ovoid, bright red, with scanty but juicy bitter flesh. The tree grows in company with *Pyrus yunnanensis*, *P. pashia*, *Larix* sp., and several other species of *Prunus* and *Malus* which are now in flower." (Rock.)

55418. PHASEOLUS SEMIERECTUS L. Fabaceæ.

From Gatun, Canal Zone. Seeds presented by J. A. Close. Received May 18, 1922.

"The long narrow pods are of a leguminous plant which I am trying out as a cover crop. I first noticed the dark-purple flowers, about the size and shape of sweet peas, along the railroad track at Gatun, but the plant did not grow well in the gravel. When planted in heavy clay mixed with charcoal, however, it developed wonderfully, and the vines formed a dense mat which allowed no other vegetation to grow under or through it. The plants grew about 3 feet high, and in the last month of the dry season the ground was covered with the decaying leaves. New plants have appeared a hundred feet from the old planting." (Close.)

55419 to 55423. ACACIA spp. Mimosaceæ.

From Khartum, Anglo-Egyptian Sudan. Seeds presented by E. E. Massey, Government botanist, Sudan Government Department of Agriculture, through Maj. R. G. Archibald, Wellcome Tropical Research Laboratories. Received May 15, 1922.

Introduced for experimental planting in the southwestern United States in connection with gum-arabic production.

55419. ACACIA ALBIDA Delile.

A low, much-branched tree with whitish bark, axillary spikes of white flowers, and flat, oblong pods. It is a native of tropical Africa and yields a gum similar to gum arabic. The leaves are eaten by goats, and the bark is used in curing leather. (Adapted from *Oliver, Flora of Tropical Africa, vol. 2, p. 339, 1871, and Kew Bulletin of Miscellaneous Information, Additional Series IX, pt. 2, p. 288.*)

For previous introduction, see S. P. I. No. 44922.

55420. ACACIA CATECHU (L. f.) Willd.

A moderate-sized tree with dark-brown, much-cracked bark, very finely pinnate leaves, spikes of white or pale-yellow flowers, and narrow dark-brown pods. It is found in most parts of India and Burma, sometimes becoming over 70 feet tall with a circumference of 8 or 9 feet. It yields a pale-yellow gum, with tears often an inch in diameter, which is a strong mucilage and a better substitute for gum arabic than the gum of *Acacia arabica*. This species is also the source of cutch, the resinous extract obtained by boiling down a decoction obtained from chips of the heartwood; from this extract a dull-red dye may be obtained.

The sapwood is yellowish white, and the heartwood, which is extremely hard, is either light or dark red. The wood is very durable, takes a fine polish, and is not attacked by white ants or shipworms. (Adapted from *Watt, Dictionary of the Economic Products of India, vol. 1, p. 27.*)

For previous introduction, see S. P. I. No. 50711.

55421. ACACIA NUBICA Benth.

An umbrella-shaped shrub 4 to 5 feet high, with dark greenish bark, small leaflets, and rather large heads of fragrant yellowish flowers. It is native to Abyssinia and the western coast of Arabia. (Adapted from *Linnaea, vol. 35, p. 337.*)

55419 to 55423—Continued.

55422. ACACIA SPIROCARPA Hochst.

An umbrellalike tree 20 to 40 feet in height with snow-white heads of fragrant flowers and narrow, spirally twisted pods. It is quite common in dry, open, rocky places in Abyssinia at an altitude of about 4,500 feet. (Adapted from *Chioyenda, Osservazioni Botaniche nell'Abissinia*, p. 101.)

55423. ACACIA VERUGERA Schweinf.

This Abyssinian acacia forms a handsome tree 60 feet in height, with very long spines, light-green feathery foliage, and round heads of pale-yellow flowers. (Adapted from *Linnaea*, vol. 35, p. 340.)

For previous introduction, see S. P. I. No. 44924.

55424 to 55441.

From Harbin, northern Manchuria. Presented by B. W. Skvortzow. Received May 10, 1922. Quoted notes by Mr. Skvortzow.

A collection of seeds from northern Manchuria.

55424 and 55425. AMARANTHUS spp. Amaranthaceæ.

Introduced for testing as possible sources of leaf vegetables for diabetics.

55424. AMARANTHUS CAUDATUS L.

The young leaves of this plant are used like spinach.

55425. AMARANTHUS PANICULATUS L.

The seeds of this plant are much used by Mexican Indians for making sweetmeats; the seeds are first roasted, then mixed with sirup made of honey or of sugar and water, rolled into balls, and eaten like sugared pop corn. The seeds are also ground and cooked in small cakes known as *alegria*, these cakes being eaten in large quantities by the poorer classes. (Adapted from note of Mrs. Zelia Nuttall under S. P. I. No. 46310.)

For previous introduction, see S. P. I. No. 54407.

55426. CORIANDRUM SATIVUM L. Apiaceæ. Coriander.

"A Chinese variety."

55427. FAGOPYRUM VULGARE Hill. Polygonaceæ. Buckwheat.

A medium-sized variety with brownish gray seeds.

55428. HOLCUS SORGHUM L. Poaceæ. Sorghum.
(*Sorghum vulgare* Pers.)

A reddish yellow variety with black hulls.

55429. ORYZA SATIVA L. Poaceæ. Rice.

"Water rice."

55430 to 55432. PHASEOLUS ANGULARIS (Willd.) W. F. Wight. Fabaceæ.
Adsuki bean.

55430. Straw-colored variety.

55431. Small red variety.

55432. "From the Chinese market."

Large variety with mottled red and white seeds.

55433 and 55434. PHASEOLUS AUREUS Roxb. Fabaceæ. Mung bean.

55433. Seeds dull grayish green.

55434. "From the Chinese market."

Seeds bright green.

55424 to 55441—Continued.

55435 and 55436. *PHLEUM* spp. Poaceæ.

Introduced in connection with timothy-breeding experiments.

55435. *PHLEUM ALPINUM* L.

"Seeds of wild plants from the Ussuri district, Siberia."

55436. *PHLEUM PRATENSE* L.

Timothy.

"From the Nicolsk-Ussurisk Agricultural Experiment Station."

Contains some *Phleum alpinum*.

55437 to 55441.

Introduced for forage-crop experiments.

55437. *SOJA MAX* (L.) Piper. Fabaceæ.

Soy bean.

(*Glycine hispida* Maxim.)

"Black soy beans."

55438 and 55439. *VIGNA SESQUIPEDALIS* (L.) Fruwirth. Fabaceæ.

Yard-Long bean.

55438. Black variety.

55439. Brown variety.

55440 and 55441. *VIGNA SINENSIS* (Torner) Savi. Fabaceæ.

Cowpea.

55440. Seeds mottled with straw color and light chocolate.

55441. "From the market."

55442 and 55443.

From Foochow, China. Seeds presented by C. R. Kellogg. Received May 20, 1922.

55442. *ALLIUM ODORUM* L. Liliaceæ.

Onion.

In Japan this onion is cultivated for its leaves, which are eaten as greens; in the spring the leaves are borne luxuriantly by the old bulbs, becoming about a foot in length. (Adapted from *Useful Plants of Japan, Agricultural Society, Tokyo, p. 17.*)

55443. *MELASTOMA REPENS* DESR. Melastomataceæ.

"A low perennial shrub which bears beautiful roselike flowers all summer long. The flowers last only one day, but because of their great number the shrub is always well covered. The fruits are said to be eaten, but have the lack of flavor so common in Chinese fruits." (*J. B. Norton.*)

For previous introduction, see S. P. I. No. 48718.

55444. *HIBISCUS ROSA-SINENSIS* L. Malvaceæ.

From Manila, Philippine Islands. Cuttings presented by H. H. Boyle, Manila, through the Bureau of Agriculture. Received May 25, 1922.

White Gumamela. A white variety of the well-known and exceedingly variable Chinese hibiscus.

55445. *CASIMIROA TETRAMERIA* Millsp. Rutaceæ. Matasano.

From Tegucigalpa, Honduras. Seeds presented by G. K. Donald, American consul. Received May 27, 1922.

A Central American tree about 30 feet in height, with pale warty branches, digitate leaves about 8 inches long, and axillary panicles of greenish flowers. The edible fruit, approximately the size of an orange, has a green skin with spiny protuberances sparsely scattered over the surface; the white or yellow flesh is sweet or slightly sour and incloses two or three large black seeds. (Adapted from *Field Museum of Natural History, Chicago, Publications, Botanical Series, vol. 1, p. 401.*)

This species has fruited in the Miami Plant Introduction Garden and its large attractive fruits prove it to be one worthy of serious study by Florida horticulturists.

For previous introduction, see S. P. I. No. 21030.

For illustrations of a white sapote and its fruits, see Plates I and II.

55446. MEIBOMIA RENSONI Painter. Fabaceæ.

From San Salvador, Salvador. Seeds presented by Dr. Carlos Renson, Director del Laboratorio Químico. Received May 23, 1922.

"These seeds gave a perfect germination in from 4 to 10 days." (*Renson.*)

The *barajillo* is a rapidly growing shrub, native to the Republic of El Salvador at altitudes ranging from 2,000 to 4,000 feet. Under favorable conditions it sometimes becomes a small tree about 18 feet high. The trifoliolate leaves are softly hairy and up to 3½ inches in length, and the small purplish flowers are borne in terminal racemes late in October. The roots of the *barajillo* are very large and penetrate deeply into the soil; the tubercles formed by the nitrogen-gathering bacteria are usually found only on the upper third of the root. All kinds of cattle are exceedingly fond of this plant; furthermore, it is capable of enduring prolonged drought and of thriving in very poor soil. (Adapted from *Revista de Agricultura Tropical, El Salvador, vol. 1, p. 65.*)

For illustrations of the *barajillo*, see Plates III and IV.

55447. MICROCITRUS INODORA (Baill.) Swingle. Rutaceæ.
Russell River lime.

(*Citrus inodorus* Baill.)

From Brisbane, Queensland. Seeds presented by C. T. White, Botanic Museum and Herbarium, Botanic Gardens. Received May 25, 1922.

In general appearance the Russell River lime resembles the orange, having the same dark-green foliage. The very small white flowers are odorless, and the oval or oblong ribbed fruits are about 2½ inches long, with pulp having a sharp but agreeable flavor. This tree is native to the Bellenden Ker Mountain region of northern Queensland and is the only species of the genus which yields fruits of sufficiently good quality to be of promise for culture even without any improvement by cross-breeding or selection. (Adapted from *Swingle, Journal of the Washington Academy of Sciences, vol. 5, p. 577*, and from *Bailey, Report of the Government Expedition to Bellenden Ker Range, p. 34.*)

55448 to 55450. CERATONIA SILIQUA L. Cæsalpiniaceæ. Carob.

From Jerusalem, Palestine. Cuttings presented by I. Wilkanski, Jewish Agricultural Experiment Station. Received May 25, 1922. Quoted notes by Mr. Wilkanski.

55448. "*Habathi*. This is poorer in quality than the other two varieties, but gives a larger crop."

55449. "*Sandalawi*. This is the best variety as far as quality is concerned."

55450. "*Schehabi*. This is quite mediocre both in quality and yield."

55451 to 55453. GOSSYPIUM spp. Malvaceæ. Cotton.

From Bela Vista, Angola, Africa. Seeds presented by H. A. Neipp, American Mission. Received May 19, 1922. Quoted notes by Mr. Neipp.

55451. GOSSYPIUM sp.

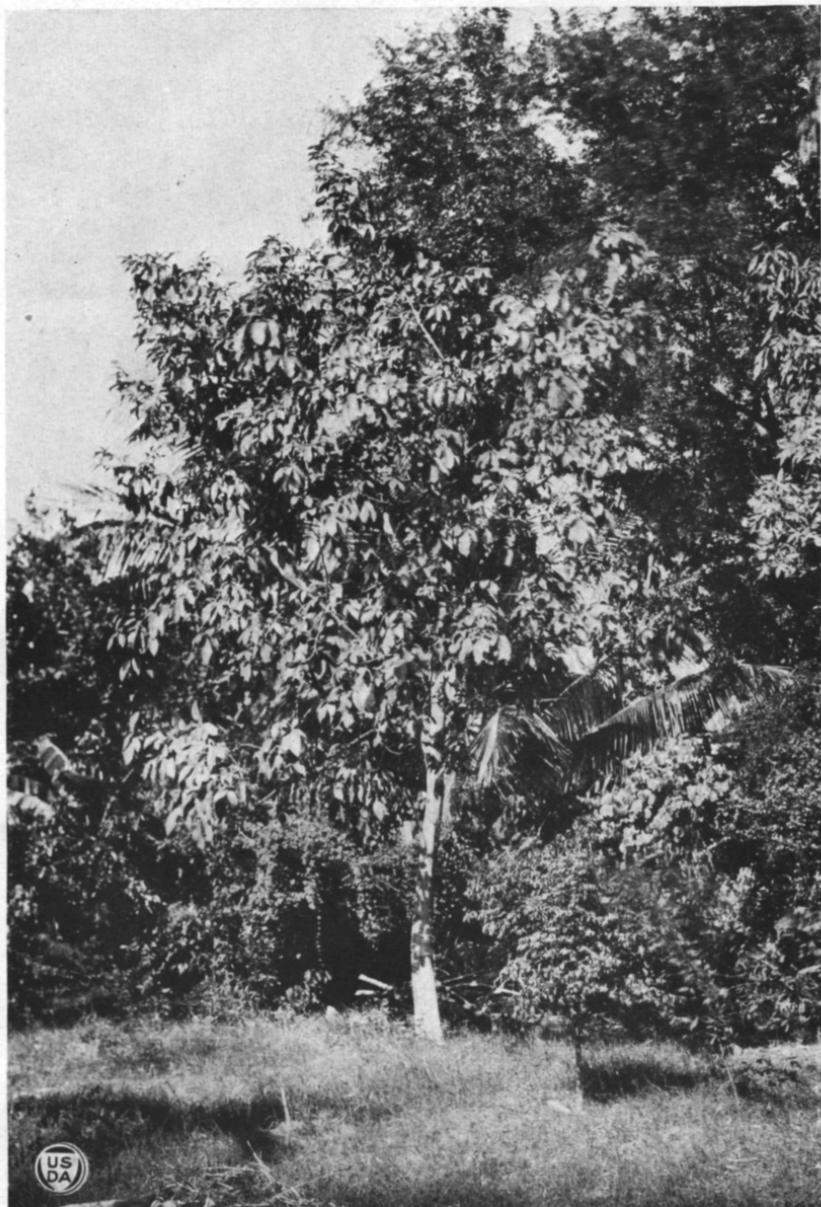
"Collected in dry season at 5,400 feet altitude."

55452. GOSSYPIUM sp.

"Collected during the wet season at 5,400 feet altitude."

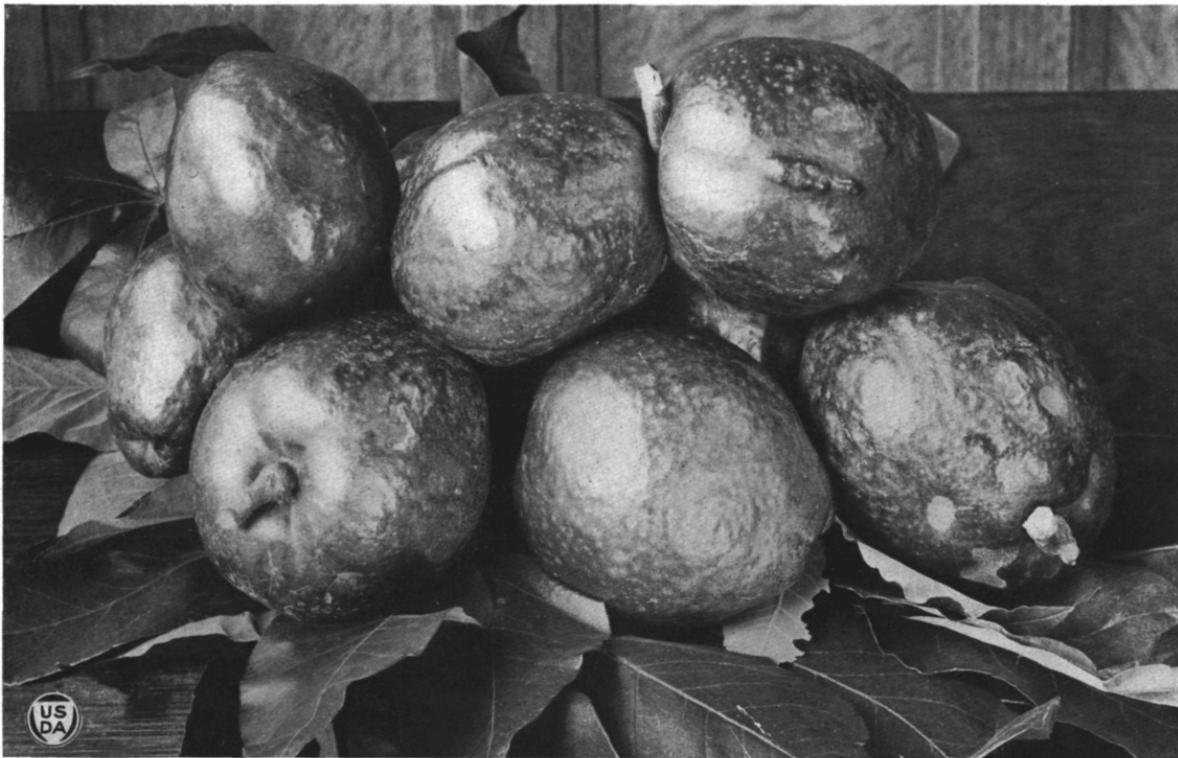
55453. GOSSYPIUM sp.

"Collected in Lobito, sea level."



ONE OF THE WHITE SAPOTES OF CENTRAL AMERICA. (CASIMIROA
TETRAMERIA MILLSP.; S. P. I. NO. 55445.)

The common white sapote (*Casimiroa edulis*) has been cultivated in California for many years. The species here shown, *C. tetrameria*, is of more recent introduction and has not yet become well known in this country. At Miami, Fla., it grows lustily and produces in great abundance its yellow-green fruits, whose pale yellow flesh is of very sweet flavor with a bitter tang. *Casimiroa tetrameria* can be distinguished from *C. edulis* by its more pubescent leaves. The fruits of the two species are almost identical in character. (Photographed by Edward Simmonds, Plant Introduction Garden, Miami, Fla., October, 1921; P2793FS.)



A RARE SPECIES OF WHITE SAPOTE. (CASIMIROA TETRAMERIA MILLSP.; S. P. I. NO. 55445.)

When fully ripe, the fruits of this rare white sapote are very soft and delicate in texture and must be handled with care to avoid bruising. They are usually eaten out of the hand and are highly interesting because of the peculiar combination of sweet and bitter flavors which they possess. The tree can be grown in many parts of California and Florida. It resists severe frosts and requires less water than many other fruit trees. (Photographed by E. L. Crandall, Photographic Laboratory, May 24, 1921; P26849FS.)



THE BARAJILLO, A NEW LEGUMINOUS SHRUB FROM SALVADOR. (MEIBOMIA RENSONI PAINTER; S. P. I. No. 55446.)

The use of leguminous plants as green cover crops and soil builders is becoming universal. The one here shown, *Meibomia rensoni*, has recently been called to the attention of horticulturists by Dr. Carlos Renson, of San Salvador. Under favorable conditions of climate and soil it reaches 18 feet in height. Its purplish flowers are borne in terminal racemes. The large roots penetrate deeply into the soil. Like other leguminous plants, *M. rensoni* gathers nitrogen from the air and stores it in nodules upon the smaller roots. (Photographed by Dr. Carlos Renson, San Salvador, Salvador.)



YOUNG BRANCHES OF THE BARAJILLO. (MEIBOMIA RENSONI PAINTER;
S. P. I. No. 55446.)

This new leguminous shrub from Salvador, in addition to serving as a green cover crop, is said to be an excellent forage for livestock. The plant thrives in poor soil and is said to resist drought admirably. It should be tried in tropical regions, where it may prove to be more valuable than the pigeon-pea, now used extensively as a cover crop and soil builder. (Photographed by Dr. Carlos Renson, San Salvador, Salvador.)

55454 and 55455. GARCINIA spp. Clusiaceæ.

From Santa Fe, Isle of Pines. Seeds presented by H. S. Jones. Received May 27, 1922.

Introduced for testing as a stock for the mangosteen (*Garcinia mangostana* L.).

55454. *GARCINIA TINCTORIA* (DC.) W. F. Wight.
(*G. ranthochymus* Hook. f.)

A medium-sized tree, native to southern Asia, with smooth, bright-yellow, strongly acid fruits the size of an orange.

For previous introduction, see S. P. I. No. 47358.

55455. *GARCINIA* sp.

Fruits yellow, about 2 inches in diameter.

55456 to 55462. SOLANUM TUBEROSUM L. Solanaceæ. Potato.

From Ibarra, Ecuador. Tubers presented by Sr. José Felix Tamayo. Received May 29, 1922.

"These varieties of *Chaucha* potatoes were grown near Ibarra, Ecuador. The *Chauchas* (Quichua, early) are a group of potatoes cultivated in the Ecuadorian highlands at altitudes between 8,000 and 12,000 feet. Commercially they are not very important, due to the fact that they do not keep as well as other varieties, but they are much cultivated for home use. The tubers are of good size; those of some varieties are of good quality, while others are rather inferior. The color, both of surface and flesh, is variable.

"The *Chauchas* mature in about five months from the time of planting, when cultivated at an elevation of 12,000 feet; other varieties require seven to eight months. As soon as the plants come into bloom the tubers are considered to be mature and are dug for eating. Unlike other varieties, which must be dug and then stored for a period before resowing, the *Chauchas* can be resown immediately after digging. The yield is fairly heavy, but not as great as that of some of the late-maturing varieties." (*Wilson Popenoe.*)

55456. (No. 1.)

55460. (No. 5.)

55457. (No. 2.)

55461. (No. 6.)

55458. (No. 3.)

55462. (No. 7.)

55459. (No. 4.)

55463. CUCURBITA PEPO L. Cucurbitaceæ. Squash.

From Paris, France. Seeds purchased from Vilmorin-Andrieux & Co. Received May 31, 1922.

Introduced in connection with experiments to determine the specific identity of our cultivated pumpkins and squashes.

Courge de Mirepoix. (Mirepoix Musk squash.) A variety cultivated in southern France, with a strong trailing stem, large erect leaves with rounded lobes, and pear-shaped, slightly ribbed fruits which are dark green, streaked with light green. The flesh is dark red, firm, and fragrant. (Adapted from *Robinson, The Vegetable Garden*, p. 327.)

55464. CERATONIA SILIQUA L. Cæsalpiniaceæ. Carob.

From Chaseki, Athens, Greece. Presented by P. O. Anagnostopoulos, director, Horticultural Station. Received May 27, 1922.

Cuttings of a variety of carob, grown near Athens, Greece. Obtained at the request of Dr. J. Eliot Coit, of Los Angeles, who has been in correspondence with Mr. Anagnostopoulos, and who believes that the variety may be a superior one for cultivation in California, where the carob is receiving serious attention.

55465. ONCOBA ECHINATA Oliver. Flacourtiaceæ. **Gorli.**

From Sierra Leone, Africa. Purchased from L. A. King-Church, conservator of forests, Freetown, Sierra Leone. Received June 1, 1922.

"The commercial sources of chaulmoogra oil and some closely related products which yield chaulmoogric and hydnocarpic acids have always been and still are the seeds of forest trees (*Taraktogenos kurzii*, *Hydnocarpus anthelminthica*, and *H. wightiana*, and possibly others) growing in the rain-forest regions of British India and Siam. It has, however, been observed by Goulding and Akers that the seeds of a West African shrub, *Oncoba echinata*, yield an oil which contains a large proportion of chaulmoogric acid.

"Through the explorations of J. F. Rock, of this office, seeds of the forest trees (*Taraktogenos kurzii*, *Hydnocarpus anthelminthica*, *H. wightiana*, and *H. castanea*) have been secured and plants obtained from them are now being grown in various countries. Inasmuch as these are all tall trees, considerable time would doubtless be required for the production of fruit. On account of this fact a search has been made for more rapidly maturing plants which yield chaulmoogric acid, and through the kindness of L. A. King-Church, conservator of forests of Sierra Leone, a considerable quantity of seeds of the *gorli* shrub (*Oncoba echinata*) has been secured.

"Since the investigations of Goulding and Akers (see Proceedings of the Chemical Society of London, vol. 29, No. 417, p. 197) of the Imperial Institute, have established the fact that *gorli* seeds yield 45.6 per cent of fat and that the mixed fatty acids obtained from this consist to the extent of 87.5 per cent of chaulmoogric acid, the importance of making an attempt to get the plant and cultivating it was pointed out by Dr. Frederick B. Power in his chapter in Mr. Rock's bulletin entitled: 'The Chaulmoogra Tree and Some Related Species,' p. 8 (U. S. Department of Agriculture Bulletin No. 1057).

"From the literature relating to the genus *Oncoba* it appears that it is composed of shrubs or small trees; that there are several species, all of them African, and that they bear fruits of considerable size. *Oncoba echinata*, for example, has fruits resembling in size and shape an unopened chestnut bur. That these shrubs are precocious is indicated by the fact that one species, *Oncoba routledgii*, flowered in England two years from seed. This won a certificate from the horticultural society on account of the conspicuous beauty of its large white flowers, which are 2 or 3 inches in diameter.

"Whether *Oncoba echinata* is especially particular as to its soil requirements remains to be determined, but, judging from the experience which we have had with other trees and shrubs from Natal and other portions of Africa, there would seem to be a fair chance that it might thrive even on the limestone soils of southern Florida." (*David Fairchild.*)

55466 and 55467. AVENA SATIVA L. Poaceæ. **Oats.**

From Cambridge, England. Seeds presented by Prof. R. H. Biffen, Cambridge School of Agriculture. Received May 24, 1922.

These two new hybrid varieties of *white winter* oats were originated at the Plant-Breeding Institute, Cambridge, England, and are introduced for the use of oat breeders in this country.

55466. *A. 69.*

55467. *A. 147.*

55468 and 55469.

From Oxtutzcab, Yucatan, Mexico. Seeds presented by Sr. Moises Vasquez Vega. Received May 29, 1922.

55468. *CARICA PAPAYA* L. Papayaceæ.

Papaya.

"The fruits are very large, weighing from 17 to 22 pounds." (*Vega.*)

For previous introduction, see S. P. I. No. 52620.

55469. *JACARATIA MEXICANA* A. DC. Papayaceæ.

A relative of the papaya (*Carica papaya* L.), introduced for breeding experiments.

"A tree with a smooth, tapering trunk and many slender branches. The leaves are palmately seven parted and the fruits, about 6 inches

55468 and 55469—Continued.

long, are five winged, each wing terminating in an incurved spur at the base. These sweetish edible fruits are preserved with sugar. The tree is commonly called *bonete* or *papaya silvestre* and occurs in Yucatan and Chiapas, Mexico, and other parts of tropical America." (W. E. Safford.)

55470. AMYGDALUS PERSICA × COMMUNIS. Amygdalaceæ. Peach-almond hybrid.

From Mexico, D. F., Mexico. Seeds presented by Prof. Juan Balme. Received June 1, 1922.

The peachmond, a supposed peach-almond hybrid, interesting to those engaged in breeding stone fruits.

55471. CHENOPODIUM QUINOA Willd. Chenopodiaceæ. Quinoa.

From Cuzco, Peru. Seeds presented by Dr. Alber A. Giesecke, Cuzco University. Received June 1, 1922.

For previous introduction and description, see S. P. I. No. 55051.

55472 to 55475. CAPSICUM ANNUM L. Solanaceæ. Red pepper.

From Valencia, Spain. Seeds presented by Henry C. A. Damm, American consul. Received June 10, 1922.

55472. *Paprika* No. 1.

55473. *Paprika* No. 2.

55474. *Pimiento largo dulce de España.*

55475. *Pimiento Morron.*

For previous introduction, see S. P. I. No. 32370.

55476. PRUNUS MAJESTICA Koehne. Amygdalaceæ. Cherry.

From Kingtungting, Yunnan, China. Seeds collected by J. F. Rock, Agricultural Explorer of the United States Department of Agriculture. Received June 2, 1922.

"(No. 2967. Manoh, Yunnan. March 30, 1922.) A large, handsome tree, 40 to 50 feet in height, with large green leaves and oblong, bright-red, bitter, fleshy fruits. It grows at altitudes of 6,000 feet on ridges with *Pyrus yunnanensis* and is very drought resistant, enduring drought for seven months or more. Also it can withstand the intense heat of April and the freezing temperatures of winter. It is a prolific bearer, but is useful only as a stock plant and as an ornamental." (Rock.)

55477. NAGEIA NAGI (Thunb.) Kuntze. Taxaceæ.
(*Podocarpus nagi* Pilger.)

From Okitsu, Shizuokaken, Japan. Seeds presented by T. Onda, director, Government Horticultural Experiment Station. Received June 2, 1922.

An evergreen subtropical tree 30 to 60 feet high, with very narrow, bluish green, sharp-pointed leaves about 3 inches long arranged in two rows on the branches. The fruit is a small, fleshy, purplish black drupe which emits a balsamlike fragrance when cut. In Japan, where this tree is native, the white, fine-grained wood is used for furniture and general building. Propagation is easily carried on by seeds, of which the tree produces an abundance. (Adapted from *Useful Plants of Japan, Agricultural Society, Tokyo, p. 145*, and *Revue Horticole, vol. 86, p. 77.*)

55478. SALPICHROA RHOMBOIDEA (Gill. and Hook.) Miers. Solanaceae.

From Buenos Aires, Argentina. Seeds presented by Sr. Benito Carrasco, director, Botanic Garden. Received June 2, 1922.

Introduced for use in tomato-breeding experiments.

An ornamental relative of the tomato, with white flowers and edible, white, transparent berries which resemble the pineapple in flavor. Because of its attractive appearance and creeping habit it is very effective for covering bare places. (Adapted from *The Garden*, vol. 35, p. 367.)

55479. AVENA NUDA Hoefj. Poaceae. **Naked oats.**

From Min Hsien, Kansu, China. Seeds presented by William H. Ruhl. Received June 2, 1922.

"This is the variety of huskless oats grown in the Province of Kansu." (*Ruhl.*)

55480. PHLEUM PRATENSE L. Poaceae. **Timothy.**

From Sydney, New South Wales. Presented by George Valder, under-secretary and director, New South Wales Department of Agriculture. Received June 12, 1922.

Locally grown timothy seed introduced for cultural and comparison experiments.

55481. HIBISCUS CANNABINUS L. Malvaceae.

From Pusa, Bengal, India. Seeds presented by A. Howard, Imperial economic botanist, through Robert S. Finlow, fiber expert to the Government of Bengal. Received June 3, 1922.

Introduced for trial as a fiber-producing plant.

A prickly stemmed plant 6 to 8 feet in height, cultivated throughout India for its fiber, which is used as a substitute for hemp. The fiber is soft, white, and silky and is considered by some authorities to be more durable than jute for coarse textiles. (Adapted from *C. R. Dodge, Useful Fiber Plants of the World*, p. 192.)

55482. DIOSCOREA CAYENENSIS Lam. Dioscoreaceae.

From Guantanamo, Cuba. Tuber collected at Baltimore, Md., by C. E. Prince, inspector, Federal Horticultural Board. Received June 3, 1922.

"A yellow-fleshed yam having a somewhat bitter taste, but otherwise of very good quality. The vine is dark green and thorny." (*R. A. Young.*)

55483. LYCOPERSICON ESCULENTUM Mill. Solanaceae. **Tomato.**

From Naples, Italy. Seeds presented by the Italian School of Agriculture at Portici, through Homer M. Byington, American consul. Received June 3, 1922.

"*King Humbert.* This belongs to the group of tomatoes used by the Italians for making tomato paste. The fruits are pear shaped. The vine is very vigorous and quite productive." (*D. N. Shoemaker.*)

Introduced for the use of specialists in tomato breeding.

55484. JUNIPERUS PROCERA Hochst. Pinaceae. **East African cedar.**

From Jamaica Plain, Mass. Seeds presented by Prof. C. S. Sargent, Arnold Arboretum, Harvard University. Received June 3, 1922.

"This is probably the largest and handsomest juniper in the world. It is a native of the high mountains of eastern tropical Africa and should prove an extremely valuable tree in the mountains of the West Indies; it may grow in the southern United States." (*Sargent.*)

55485. ZIZIPHUS MAURITIANA Lam. Rhamnaceæ. Indian jujube.
(*Z. jujuba* Lam., not Mill.)

From Assam, India. Seeds presented by S. K. Mitra, economic botanist. Received June 5, 1922.

The Indian jujube is cultivated chiefly for its fruit, which varies in shape from more or less spherical in the wild or commoner kinds to oval or oblong in the cultivated kinds. The pulp is mealy and pleasantly sweetish; some of the cultivated varieties are very fine. The tree is found throughout India. (Adapted from *Brandis, Forest Flora of India*, p. 88.)

For previous introduction, see S. P. I. No. 41443.

For an illustration of this jujube, see Plate V.

55486. ACANTHOSICYOS HORRIDA Welw. Cucurbitaceæ.

From Pretoria, Union of South Africa. Seeds presented by Dr. I. B. Pole Evans, through Dr. H. L. Shantz, physiologist in charge of the Office of Plant Physiological and Fermentation Investigations. Received June 5, 1922.

"*Narras*. A remarkable cucurbitaceous plant which grows on the dunes of the Namib, where subterranean waters exist. Even when this water is at great depths this plant subsists. It forms thorny thickets on the sand hills of Southwest Africa and is adapted to a hot, dry climate, with little or no rainfall. The fruit is the size of an ostrich egg. Both the pulp and seeds are used as food by the natives. The fruits are produced in abundance, and for about four months of the year the more primitive Hottentots are said to survive with practically no other source of food or water. The fruits are eaten and water is secured from them. The seeds when ripe are plump and about the size of watermelon seeds.

"The plant is one which should be of great value to our Indians of the Southwest if once established on the sand dunes of Arizona and southern California. It is doubtful if any plant can be secured which seems offhand to give greater promise in that region than does this cucurbit." (*Shantz*.)

For previous introduction, see S. P. I. No. 31401.

55487. AMYGDALUS PERSICA L. Amygdalaceæ. Peach.
(*Prunus persica* Stokes.)

From Santa Ines, Chile. Plants presented by Sr. Salvador Izquierdo, Santiago, Chile. Received June 12, 1922.

"*Pomona Improved*. Sr. Izquierdo writes that this is an improved form of the variety *Pomona*, grown at his nursery at Santa Ines. Preserved fruits which he has sent us to show the character of the variety indicate that it is a fruit of unusually large size, deep yellow, clingstone, and of excellent quality for canning. It should be tried in California, where it may prove to have real value. Its season of ripening is not known." (*Wilson Popenoe*.)

55488. MEDICAGO SATIVA L. Fabaceæ.

From Loja, Ecuador. Seeds presented by Sr. Enrique Witt. Received June 15, 1922.

Locally grown seed introduced for experiments in alfalfa breeding.

55489. ILEX PARAGUARIENSIS St. Hil. Aquifoliaceæ. Yerba maté.

From Buenos Aires, Argentina. Presented by D. S. Bullock, agricultural commissioner, Bureau of Markets and Crop Estimates, United States Department of Agriculture. Received June 5, 1922.

"These seeds were harvested in April in the Territory of Misiones." (*Bullock*.)

A small, bushy, evergreen tree with serrate alternate leaves, native to Brazil and Paraguay and the neighboring countries. The leaves are roasted and ground to make the Paraguay tea of commerce, which is said to possess the good properties of tea and coffee without their injurious after effects.

For previous introduction, see S. P. I. No. 47309.

55490 and 55491. LENTILLA LENS (L.) W. F. Wight. Fabaceae. Lentil.
(*Lens esculenta* Moench.)

From Malaga, Spain. Seeds presented by Sr. Luis Liro Ortiz, Ingeniero de la Sección Agronómica Málaga, through Gaston Smith, American consul. Received June 12, 1922.

55490. From Arevalo, Province of Avila.

55491. From the Province of Salamanca.

55492. DIOSCOREA ALATA L. Dioscoreaceae. Greater yam.

From the Bahama Islands. Tuber collected at New York by Federal Horticultural Board inspectors. Received June 8, 1922.

"Tuber of an unidentified variety of the greater yam for testing in Florida and the Gulf region. The vine is four angled and prominently winged, with the margins of the wings purplish. The central part of the young leaf has purplish shading between the veins." (*R. A. Young.*)

55493. ILEX PARAGUARIENSIS St. Hil. Aquifoliaceae. Yerba maté.

From Paris, France. Seeds purchased from Vilmorin-Andrieux & Co. Received June 7, 1922.

For previous introduction and description, see S. P. I. No. 55489.

55494. RUMEX TUBEROSUS L. Polygonaceae. Sorrel.

From Algiers, Algeria. Seeds presented by Dr. L. Trabut. Received June 2, 1922.

"A very good sorrel from the Atlas region of Algeria." (*Trabut.*)

"The leaves are often used as a vegetable." (*Dragendorff, Die Heilpflanzen, p. 190.*)

55495. SEVERINIA BUXIFOLIA (Poir.) Ten. Rutaceae.
(*Atalantia buxifolia* Oliver.)

From Buitenzorg, Java. Seeds presented by the director of the Botanic Garden. Received June 5, 1922.

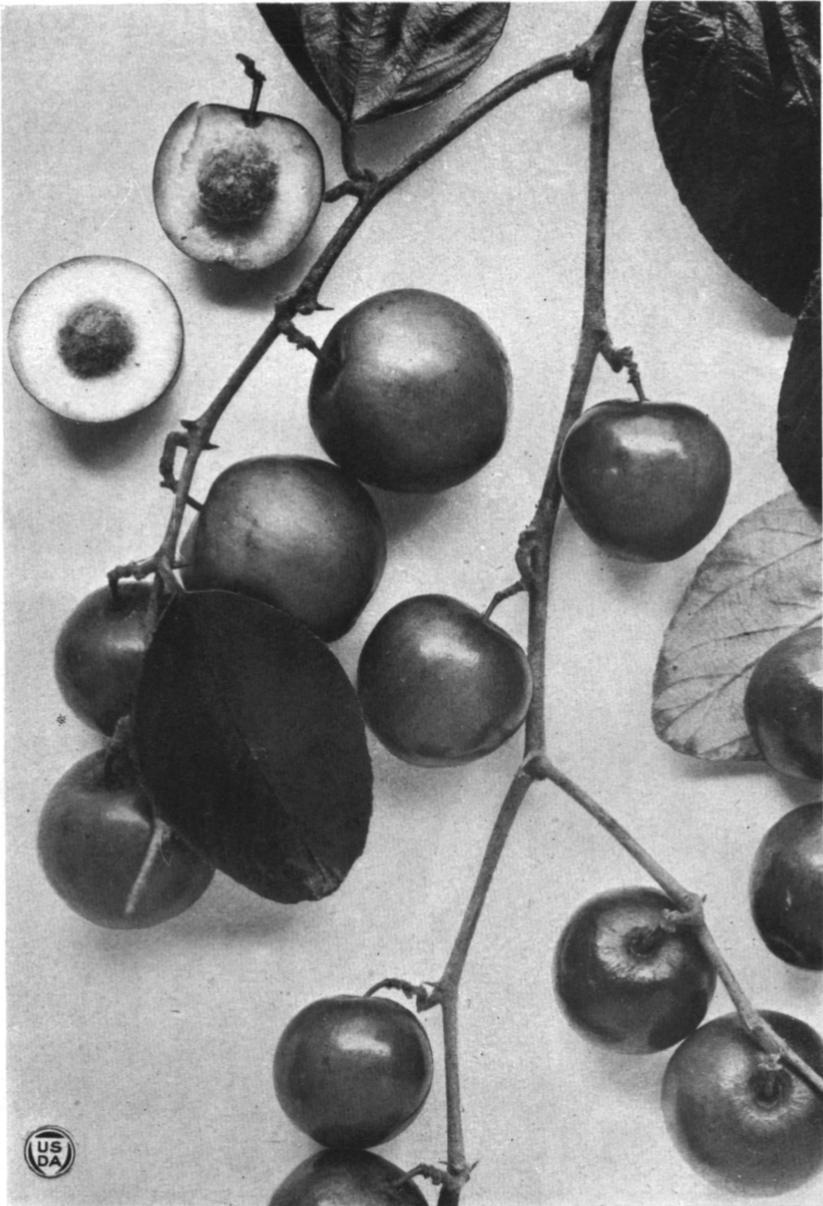
A much-branched thorny shrub which is not uncommon in southern China and French Indo-China; it has oval, shiny green leaves, axillary clusters of small white flowers, and small berrylike fruits which become very dark red or nearly black. In Louisiana this handsome shrub has proved useful for hedges, especially the forms which have thorns 2 or 3 inches long; furthermore, it is easily propagated from cuttings. Experiments have shown that *Severinia* can withstand unusually large amounts of salt in the soil, and it may prove of interest for citrus fruits in regions having alkali in the soil or salty irrigation water. (Adapted from *Swingle, Journal of the Washington Academy of Sciences, vol. 6, p. 651.*)

55496. GARCINIA MANGOSTANA L. Clusiaceae. Mangosteen.

From Peradeniya, Ceylon. Plants presented by Dr. F. A. Stockdale, Director of Agriculture for Ceylon, through Mrs. Arthur Curtis James. Received June 5, 1922.

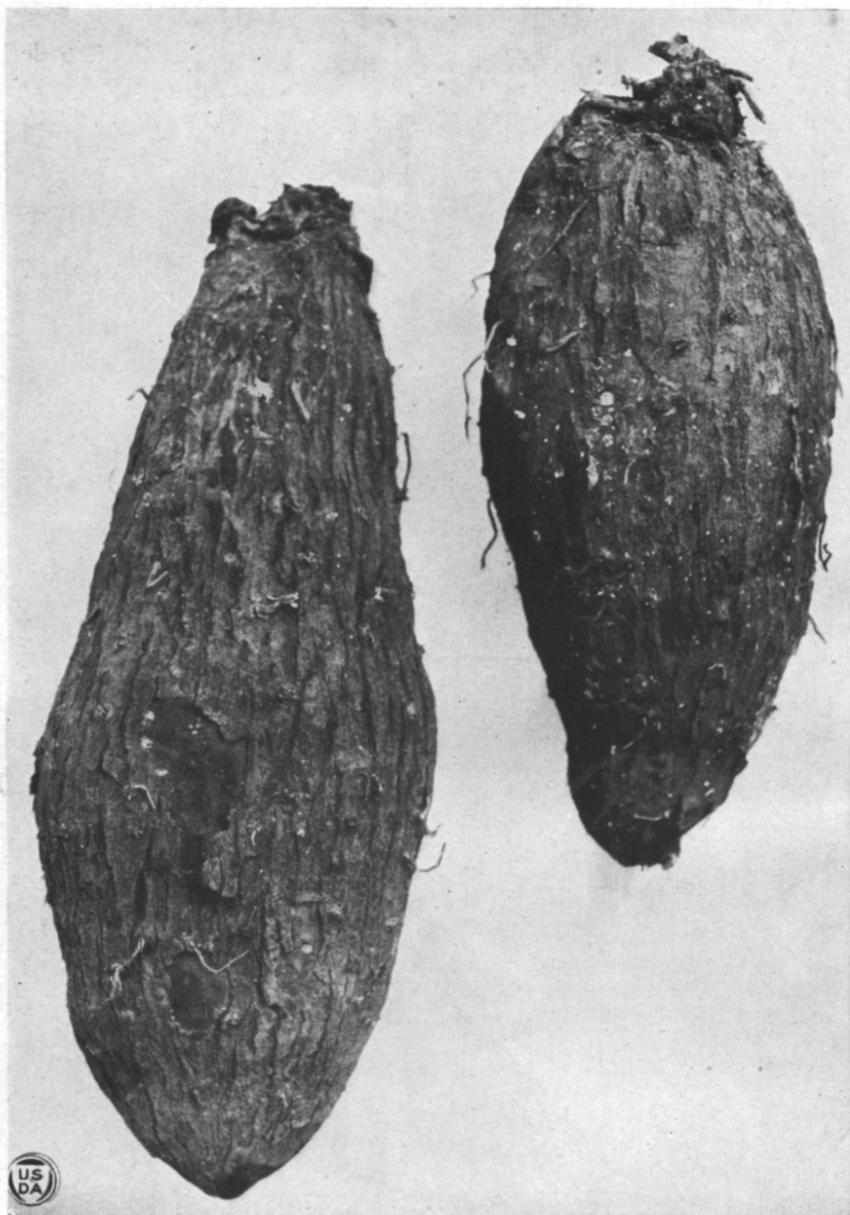
"In the hope of establishing the mangosteen in our tropical dependencies, many importations of seeds and plants have been made during the last 20 years. Indeed, the office has made it a point never to miss an opportunity to secure new stock, whether in the form of a shipment of seeds by parcel post or a wardian case of young plants which some traveler returning from the East has generously volunteered to bring home. This lot of plants which Mrs. Arthur Curtis James secured from the Botanic Garden at Peradeniya, Ceylon, and which she has carefully brought with her on the deck of the yacht *Aloha*, was presented by Dr. F. A. Stockdale, Director of Agriculture for Ceylon." (*Wilson Popenoe.*)

For description of the mangosteen, see S. P. I. No. 51465.



A JUJUBE FOR MOIST TROPICAL REGIONS. (*ZIZIPHUS MAURITIANA* LAM.; S. P. I. No. 55485.)

The Chinese jujube (*Ziziphus jujuba*) is being cultivated with great success in California and the Southwestern States. It is not successful, however, in southern Florida or in humid tropical regions generally. *Ziziphus mauritiana*, on the other hand, grows and fruits well at the Plant Introduction Garden, Miami, Fla., and will probably be suitable for cultivation in Porto Rico, Hawaii, and the Philippines. It is a small tree of attractive appearance, and its greenish yellow fruits, here illustrated in natural size, when stewed are scarcely distinguishable from the best northern plums. (Photographed by E. L. Crandall, Photographic Laboratory, February 7, 1922; P27245F8.)



BARBADOS RED, A GOOD VARIETY OF TROPICAL YAM. (*Dioscorea alata* L.; S. P. I. No. 55561.)

This is a horticultural form of *Dioscorea alata*, technically known as the greater yam. It is widely grown in the West Indies and is closely related to the Dago haya, or Guam yam. It is, however, better than the latter in some respects. The tuber has a purple inner skin, and the firm flesh, mealy when cooked, is purplish and of good flavor. The yam replaces the potato in certain tropical regions and in its best varieties is fully equal to the latter; indeed, good yams properly cooked can hardly be distinguished from potatoes. (Photographed, natural size, by E. L. Crandall, Photographic Laboratory, June 23, 1922; P27585FS.)

55497 to 55499.

From Talifu, Yunnan, China. Seeds collected by J. F. Rock, Agricultural Explorer of the United States Department of Agriculture. Received June 18, 1922. Quoted notes by Mr. Rock.

55497. PYRUS sp. Malaceæ.

Pear.

"(Talifu, Yunnan. April 18, 1922.) An edible pear about the size of a large apple; the flesh is light yellow, and the skin is thin, firm, and light citron colored with a red hue, hence the name *Wu pa li*, 'touched-by-the-fire' pear. The tree grows on the side of the lake opposite to Talifu."

55498. PRUNUS MAJESTICA Koehne. Amygdalaceæ.

Cherry.

"(No. 3066. Near Chukai, Yunnan. April 5, 1922.) A lovely tree with large serrate leaves; the branches were bent with their load of large, oblong, deep-red, cherrylike fruits. It is early fruiting, the fruits appearing in late February or early in March, and the tree seems to be absolutely free from insect or fungous pests. It occurs throughout the Black River Valley at altitudes of about 5,000 feet on mountain slopes, also near Szemao, where it is rare, and more commonly near Nanchien. The Chinese name is *Yin to* or *Yin tao*."

55499. RUBUS ELLIPTICUS J. E. Smith. Rosaceæ.

Raspberry.

(*R. flavus* Buch.-Ham.)

"(Nanchien, Yunnan. April 8, 1922.) A very stout shrub which, especially when young, is densely covered with long, red, almost hairlike spines. The flowers are white, and the deep-yellow, almost orange, very juicy acid fruits are collected by the hill tribes and brought to the markets; the fruits ripen earlier on the mountains than in the valley. The shrub is found at altitudes of 6,000 to 7,000 feet all the way up to Talifu; it grows on the high hills near Szemao, and I also came across it in Kengtung."

55500 and 55501.

From Nanchien, Yunnan, China. Cuttings collected by J. F. Rock, Agricultural Explorer of the United States Department of Agriculture. Received June 13, 1922. Quoted notes by Mr. Rock.

55500. PRUNUS MAJESTICA Koehne. Amygdalaceæ.

Cherry.

"(Szemao, Yunnan, March 18, 1922.) These seeds were sent to me at Talifu from the mountains near Szemao; they are said to be from the first wild edible cherries which came to the market."

55501. SACCHARUM OFFICINARUM L. Poaceæ.

Sugar cane.

"(Nanchien, Yunnan. April 27, 1922.) The cane is erect, tall, of a uniform reddish yellow color, and very juicy and sweet. It is cultivated throughout the central portion of Yunnan, south of Mengwa, and also near Puerhfu, in southern Yunnan; it is grown at an altitude of 5,000 to 6,000 feet and even higher. The region is very dry, and arid mountains form the slopes of the valleys."

55502. TRIFOLIUM PRATENSE L. Fabaceæ.

Red clover.

From Valence sur Rhone, France. Seeds purchased from Tezier Frères. Received June 17, 1922.

Medium red clover seed introduced for comparison and cultural experiments.

"This seed is from the 1921 harvest and was grown about 8 kilometers (about 5 miles) east of Valence." (*Tezier Frères*.)

55503. LYCOPERSICON ESCULENTUM Mill. Solanaceæ.

Tomato.

From Buenos Aires, Argentina. Seeds presented by D. S. Bullock, agricultural commissioner, Bureau of Markets and Crop Estimates, United States Department of Agriculture. Received June 15, 1922.

Perfección. Introduced for the use of specialists of this bureau who are engaged in tomato-breeding experiments.

55504. TELFAIRIA PEDATA (J. E. Smith) Hook. Cucurbitaceæ.
Koume vine.

From Nairobi, Kenia, Africa. Seeds presented by A. Holm, director, Department of Agriculture. Received June 6, 1922.

"A perennial climber, indigenous to eastern Africa, which grows very luxuriantly in this colony. The kernels of the seeds are used by the natives both as a foodstuff and as a source of edible oil.

"The following analysis of the seeds has been published by Gilbert (see Sadebeck, Die Kulturgewächse der Deutschen Kolonien und Ihre Erzeugnisse, Jena, 1899, p. 245) :

	Per cent.
Moisture	6.54
Ash	2.04
Oil	36.02
Protein	19.63
Woody fiber	7.30
Nitrogen-free extractive matter	28.45

"These seeds are flat, irregularly circular in shape, and about $1\frac{1}{4}$ to $1\frac{1}{2}$ inches in diameter. The single seeds average 4.9 grams in weight.

"The Imperial Institute of London has reported as follows:

"The seeds consist approximately of fibrous husk 11 per cent, shell 38 per cent, and kernel 51 per cent."

"The kernel yields 56.9 per cent of slightly reddish brown oil.

"The oil from seeds from Zanzibar gave the following analysis:

Specific gravity at 15° C.....	0.919
Acid value	2.6
Saponification	196
Iodin value	89

"This is a nondrying oil and has a pleasant, slightly sweet taste. It would be suitable for soap manufacture and also as an edible oil. The seed is used by Europeans in this colony both as a nut and as a flavoring for cakes.

"The reason that these seeds are not more used is due to the hardness of the shell and the difficulty of removing it, as well as to the intensely bitter, green skin which separates the kernel from the shell. If a method could be found of removing the tough fibrous husks and this bitter skin, it would appear that the seed would be of considerable commercial value, both for its edible oil and for the manufacture of soap, as well as for the resultant oil cake, which would probably make a good cattle feed. It would be impossible, however, to use the cake after pressing the unhusked seeds, on account of the skin mentioned above.

"A German syndicate of soap and candle manufacturers at Mannheim has investigated the possibilities of these seeds, but expressed the opinion that it would be inadvisable to place consignments of the seeds on the European market until a machine had been invented for rapidly and cheaply shelling them.

"These seeds grow very rapidly in any place which is not touched by frost. The pod containing the seeds is about a foot in diameter when ripe. The vine climbs over neighboring trees and requires no care." (S. W. Eels, *American consul, Nairobi, Kenia.*)

For previous introduction, see S. P. I. No. 52450.

55505 to 55508. RUBUS spp. Rosaceæ. **Raspberry.**

From Slough, England. Plants purchased from Charles Turner, The Royal Nurseries. Received June 2, 1922.

55505. RUBUS sp.

Carter's Prolific. A moderately vigorous variety with spiny canes about 3 feet high and very small leaves; it is a good cropper, and the berries are medium sized, deep red, and nearly round, firm, and of good flavor. (Adapted from *Journal of the Royal Horticultural Society*, vol. 47, p. 47.)

55506. RUBUS sp.

"Northumberland Fillbasket. Large, deep-red fruits of good flavor." (*Dicksons's 1921-22 Catalogue.*)

55505 to 55508—Continued.55507. *RUBUS* sp.

"*Perfection*. Very stout bright-crimson canes and large bright-red fruits of excellent flavor. A vigorous grower, thriving on light soils." (*George Bunyard's Catalogue*.)

55508. *RUBUS* sp.

"*The Guinea*. A new yellow variety of great excellence." (*Charles Turner's Catalogue*.)

For previous introduction, see S. P. I. No. 41976.

55509. PERSEA AMERICANA Mill. Lauraceæ. Avocado.
(*P. gratissima* Gaertn. f.)

Seedling now growing at the Plant Introduction Garden, Miami, Fla.

"*Collinson*. This is a seedling of the Collins Guatemalan avocado (S. P. I. No. 19080); it was planted at the new garden in 1915, endured well the frost of February, 1917, when the temperature went to 26° F., before a good crop of fruit in 1920 and 1921, and at this date (March 7, 1922) still has fruit on the tree. The tree is upright in habit, with large leaves which do not burn in the summer. This year the fruits are of better quality than before, the average weight being about 1½ pounds; color, green; seed, tight in the cavity; flavor, good." (*Edward Simmonds*.)

55510 to 55515. SOLANUM TUBEROSUM L. Solanaceæ. Potato.

From Sydney, New South Wales. Tubers presented by George Valder, undersecretary and director, New South Wales Department of Agriculture, through W. D. Kerle, Inspector of Agriculture. Received June 17, 1922.

These are old varieties of American origin which are being cultivated in New South Wales. They have been reintroduced from New South Wales for special studies by potato experts. William Stuart, of the Bureau of Plant Industry, has furnished the descriptive notes from old American catalogues.

55510. *Adirondack*. This variety is a hybrid with *White Peachblow*. It is distinguished from the latter in its upright habit and larger bright-green leaves. The red-skinned, almost perfectly spherical tubers are much clustered; the flesh is pure white. (Adapted from *Potato Catalogue of B. K. Bliss & Sons, 1881, p. 5*.)

55511. *Brownell's Beauty*. The foliage is deep green and very healthy; the tubers grow compactly in the hill and are easily dug, ripening in about three months from the time of planting. The tubers are medium to large, oval or somewhat flattened with the eyes few and nearly even with the surface; the skin is reddish or deep-flesh color; the flesh is white, fine-grained, and very delicate. For the table, when baked or boiled, they are equal to the best. (Adapted from *Potato Catalogue of R. K. Bliss & Sons, 1874, p. 4*.)

55512. "*Carmen No. 1*. (Synonym *Rural New York No. 1*.) This is a seedling from seedlings raised through several generations. It belongs to the Green Mountain group. The vines are large, strong, healthy, and well branched. The flowers are white and abundant, but rarely producing seeds. The abundant tubers are large, broadly roundish, with rather shallow eyes, creamy white skin, and white flesh of very fine quality." (*Stuart*.)

55513. *Manhattan*.

55514. *Manhattan Black*. This is a main-crop variety and may be called "Improved Compton's Surprise." The vines are vigorous, with dark-green foliage; the tubers are nearly round, with dark-purple skin and very solid white flesh of fine grain; in size medium to large. (Adapted from *Potato Catalogue of B. K. Bliss & Sons, 1880, p. 18*.)

55510 to 55515—Continued.

55515. *Queen of the Valley.* The vines are large and unusually vigorous, resisting disease well; the leaves are large, thick, and dark green. The very large tubers are long-flattened, but because of their large size are less suitable for table use than for feeding livestock. (Adapted from *Potato Catalogue of B. K. Bliss & Sons, 1881, p. 9.*)

55516. *FRAGARIA* sp. *Rosacæ.***Strawberry.**

From Irapuato, Guanajuato, Mexico. Plants sent by Juan Lopez Comaremy, Irapuato, at the request of Arthur Stockdale, Mexico City. Received June 20, 1922.

For previous introduction and description, see S. P. I. No. 54976.

55517 to 55519. *MEDICAGO SATIVA* L. *Fabacæ.***Alfalfa.**

From Lima, Peru. Seeds presented by Dr. W. E. Dunn, acting commercial attaché. Received May 10, 1922.

Peruvian alfalfa has proved of great value in certain parts of the United States. In the hope of securing new strains which may be superior in certain respects to any now grown in the United States, an effort is being made to obtain seed from as many different regions in Peru as possible. The following note is taken from H. L. Westover, *The Development of the Peruvian Alfalfa Industry in the United States, Department Circular 93:*

"As compared with common alfalfa, both the Peruvian and 'smooth Peruvian' alfalfas are more upright, less branched, and have fewer and somewhat coarser stems and smaller crowns. In thick stands, these differences are hardly noticeable. Most of the Peruvian introductions are also characterized by rapid growth, quick recovery after cutting, and in sections having a mild climate ability to make growth in cool weather after ordinary alfalfas have ceased growing. Under such conditions the former starts growth earlier in the spring and continues later in the fall, thereby giving more cuttings each season. The principal objection advanced in times past to these alfalfas is their tendency to become somewhat woody when allowed to stand beyond the flowering stage, but this difficulty is easily obviated by harvesting earlier.

"Lack of hardness will always confine the successful production of the true and smooth Peruvian alfalfas to the southern and southwestern portions of the United States, where the climatic conditions are comparatively mild. They can not be grown to advantage where the winter temperature falls below 10° F.

"At the present time most of the Peruvian and smooth Peruvian alfalfa in the United States is found in Arizona and California. It has also been grown to a limited extent in New Mexico, Texas, and the coastal regions of the South-eastern States. The results secured seem to indicate that in much of this region the common alfalfa could be replaced very profitably by Peruvian alfalfa."

55517. *Mousetu Norte.***55519.** *Sierra Alta.***55518.** *Quebrada de Tangas.***55520 to 55547.**

From Ariana, near Tunis, Africa. Seeds presented by F. Boeuf, chief, Botanical Service of Tunis. Received May 31, 1922.

55520 to 55524. *AVENA STERILIS* L. *Poacæ.***Oats.****55520.** *Crève.***55523.** *Noire.***55521.** *Grise.***55524.** *Roussc.***55522.** *Hybride.***55525 to 55527.** *HORDEUM VULGARE PALLIDUM* Seringe. *Poacæ.* **Barley.****55525.** *Fourragère.***55527.** *Commune J.***55526.** *Commune A.*

55520 to 55547—Continued.

55528. *LOLIUM MULTIFLORUM* Lam. Poaceæ. **Italian rye-grass.**

"Italian rye-grass is used to a limited extent for meadow, pasture, and lawn and in the South is of some importance for winter forage" (*A. S. Hitchcock.*)

55529 to 55546. *TRITICUM DURUM* Desf. Poaceæ. **Durum wheat.**

55529. *Adjini.* **55538.** *Mahmoudi AC 3.*

55530. *Agili.* **55539.** *Mahoudi AP 5.*

55531. *Agiliblanc (No. 1).* **55540.** *Medea.*

55532. *Agiliblanc (No. 2).* **55541.** *Mekki 1.*

55533. *Aouedj.* **55542.** *Mekki 2.*

55534. *Derbessi.* **55543.** *Souri AC 60.*

55535. *Biskri.* **55544.** *Squri AP 5.*

55536. *Hamira.* **55545.** *Sbei 1.*

55537. *Jenah Rhetifah.* **55546.** *Sbei 2.*

55547. *VICIA MICHAUXII* Spreng. Fabaceæ. **Vetch.**

Introduced for trial as green manure and as a forage plant.

A creeping or climbing annual vetch, native to Syria, with very narrow leaflets, light-yellow flowers, and hairy pods about an inch long. (Adapted from *Post, Flora of Syria, Palestine, and Sinai, p. 288.*)

55548. *ORNITHOPUS SATIVUS* Brot. Fabaceæ. **Serradella.**

From Hamburg, Germany. Seeds purchased from Ernst & Von Spreckelsen. Received June 20, 1922.

Introduced for testing as a winter forage crop in the South.

For previous introduction, see S. P. I. No. 39345.

55549. *AMYGDALUS PERSICA* L. Amygdalaceæ. **Peach.**

(*Prunus persica* Stokes.)

From Eastwood, New South Wales. Plants purchased from C. E. Vessey, Mount Tomah Nurseries, through H. R. Wright, Avondale, Auckland, New Zealand. Received June 20, 1922.

"*Goodman's Choice.* We have sent out a number of letters to friends who are in a position to know the behavior of this peach and its comparison with *Phillips Cling.* So far we have only two replies, one from Mr. Goodman, who states that this is easily the best-quality canning peach the canners have ever seen, and that growers in this State (Victoria) are putting in more acres of it than all other yellow clings put together.

"His catalogue description, quoted below, shows that it ripens about six weeks later than *Tuscan Cling:*

"Undoubtedly the greatest yellow-fleshed clingstone peach introduced for many years. The tree is a heavy bearer each season of medium-sized fruit that is admirable for canning. The skin has a red blush on the sunny side; the flesh is beautifully rich and translucent; the variety is remarkable for even crops and gradual ripening, which means so much when the picking campaign is in progress. The fruit ripens toward the end of February and, as the name indicates, represents my choice for canning."

"We know the behavior of the clings generally in this State, and we find that they have a great tendency to be uneven in shape. Our own nurseyman states that *Goodman's Choice* is one of the best late peaches that he has come across, but as we have no growers for canneries around there we can not give an authoritative report from that point of view ourselves." (*Herbert J. Rumsey, Dundas, New South Wales.*)

55550. PYRUS sp. Malaceæ. Pear.

From Talifu, Yunnan, China. Seeds collected by J. F. Rock, Agricultural Explorer of the United States Department of Agriculture. Received June 27, 1922.

"(Talifu, May 4, 1922.) Seeds of a domesticated pear, from Haitung, on Lake Erh Hai, about 10 miles from Talifu." (Rock.)

55551. HORDEUM VULGARE PALLIDUM Seringe. Poaceæ. Barley.

From Valparaiso, Chile. Seeds purchased from S. Reid Thompson, American vice consul in charge. Received June 20, 1922.

"In Chile *Forjara* barley is cut twice for hay, and after that a third crop gives a good yield of grain. If this barley would give similar results in Oregon it would be of very great value." (F. C. Reimer, Oregon Agricultural College Experiment Station.)

55552 and 55553.

From Buitenzorg, Java. Seeds presented by the director, Botanic Garden, Buitenzorg. Received June 23, 1922.

55552. GARCINIA MANGOSTANA L. Clusiaceæ. Mangosteen.

55553. RHEEDIA EDULIS (Seem.) Planch. and Triana. Clusiaceæ.

"This is occasionally cultivated in Brazil under the name of *limão do matto* (wild lemon); it is a small, handsome tree with oblong glossy green leaves and elliptic yellow fruits 2 inches long. The white pulp is highly acid." (Wilson Popenoe.)

55554 and 55555.

From Barberton, Transvaal. Seeds presented by George Thorncroft. Received June 26, 1922.

55554. ANNONA SENEGALENSIS Pers. Annonaceæ.

A shrub or small tree, sometimes 20 feet in height, native to both eastern and western tropical Africa. The oval, blue-green leathery leaves are up to 5 inches in length, and the orange-yellow fruits, over an inch in diameter, contain an aromatic dark-red pulp which suggests that of the cherimoya of tropical America. (Adapted from *Schweinfurth, The Heart of Africa*, p. 222, and from *Oliver, Flora of Tropical Africa*, vol. 1, p. 16.)

For previous introduction, see S. P. I. No. 49843.

55555. BOLUSANTHUS SPECIOSUS (Bolus) Harms. Fabaceæ.
(*Lonchocarpus speciosus* Bolus.)

A small, ornamental, leguminous tree from southeastern and southern Africa, with compound deciduous leaves and long racemes of violet flowers which have given the name "Rhodesian wistaria" to the tree in some districts. The hard, white, durable timber is used only for wheel spokes. The tree is subtropical in its requirements, grows best in good deep soil, and is propagated only by seeds. (Adapted from *The Garden*, vol. 78, p. 64.)

For previous introduction, see S. P. I. No. 21808.

55556. TRITICUM DURUM Desf. Poaceæ. Durum wheat.

From Algiers, Algeria. Seeds presented by Dr. L. Trabut. Received June 23, 1922.

"(June 3, 1922.) Red wheat from Tlemcen, Algeria." (Trabut.)

55557 and 55558. SOLANUM TUBEROSUM L. Solanaceæ. Potato.

From Ibarra, Ecuador. Presented by Sr. Jose Felix Tamayo. Received June 27, 1922. Quoted notes by Wilson Popenoe.

Seeds of the following potatoes, obtained for the use of plant breeders. Tubers of these varieties have been previously introduced; see S. P. I. Nos. 53190 and 53193.

55557. "*Cueruda blanca* (white cueruda) potato, 1921 crop, from the hacienda La Rinconada, in the Province of Carchi, where it is cultivated at altitudes between 11,000 and 12,000 feet.

"This is the most important commercial potato of Carchi Province. At Ibarra, where it is one of the favorite varieties on the market, it is known as *pastuza*. It yields heavily, and the whitish brown, somewhat flattened, oval tubers are of good size and quality. The eyes are very shallow and not numerous."

For previous introduction, see S. P. I. No. 53193.

55558. "*Cueruda morada* (purple cueruda) potato, 1921 crop, from the hacienda La Rinconada, Province of Carchi, where it is cultivated at altitudes between 11,000 and 12,000 feet.

"Commercially one of the best and most important varieties in northern Ecuador, though it is not quite so extensively grown as *cueruda blanca*. The tubers are oval, flattened, purple in color, with whitish areas around the shallow eyes; they possess excellent keeping qualities."

For previous introduction, see S. P. I. No. 53190.

55559 to 55562. DIOSCOREA ALATA L. Dioscoreaceæ.**Greater yam.**

From Montserrat, British West Indies. Tubers presented by W. Robson, curator, Agricultural Experiment Station. Received June 21, 1922. Quoted notes by R. A. Young.

55559. "*West White*. This is a white-fleshed yam, firm but mealy when cooked, and of good flavor. The vine is green, with narrow reddish wings at the four angles. Leaves long-ovate, cordate, acuminate; sinus fairly wide, but deep."

55560. "*West Red*. The inner skin of this yam is deep purple; and the flesh is purplish, mottled with deeper purple; it is mealy when cooked, but rather lacking in flavor. The wings on the vine are prominent and maroon colored. Leaves opposite, broadly ovate, cordate, acuminate; veins maroon; sinus deep and narrow; petiole maroon at base and apex."

55561. "*Barbados Red*. The inner skin is purple, and the flesh is light purple with scattered fibers of deeper purple. The flesh is rather firm, but mealy when cooked and of very good flavor. The vine has prominent maroon wings at the angles. Leaves opposite, ovate-cordate, acuminate; veins maroon; sinus deep and narrow, petiole maroon at base and apex."

For an illustration of this yam, see Plate VI.

55562. "*Bottle-Necked Lisbon*. This is a white-fleshed yam, which, when cooked, is mealy and of good flavor. The vine is green, with very narrow reddish wings. Leaves on young plants alternate, sagittate, basal lobes pointed; sinus very broad."

55563. AMYGDALUS PERSICA L. Amygdalaceæ. Peach.

(*Prunus persica* Stokes.)

Seedling selected at the Plant Introduction Garden, Chico, Calif., from seed obtained through John R. Putnam, American consul at Valencia, Spain, under S. P. I. No. 43570.

"Fruit large, yellow, with red blush. Flesh golden yellow throughout, of excellent flavor; pit small, not deeply grooved. Weight about 9 ounces.

Ripens at the Chico Plant Introduction Garden about August 20. This variety is of exceptional value as a commercial canning peach. Remains firm when cooked, maintains its delicate flavor, and does not require a very heavy sirup." (*J. E. Morrow.*)

55564. AMYGDALUS PERSICA L. Amygdalaceæ. Peach.
(*Prunus persica* Stokes.)

Seedlings selected at the Plant Introduction Garden, Chico, Calif., from seed obtained through John R. Putnam, American consul at Valencia, Spain, under S. P. I. No. 43571.

"Fruits a fine golden yellow with red blush; basin deep, suture distinct; pit very small and yellow, not coloring the flesh. Flesh firm and of fine flavor. Should prove excellent for canning and a good shipper. Average weight of fruits about 5 ounces. Ripens at the Chico Plant Introduction Garden about August 20." (*J. E. Morrow.*)

55565. MILLETTIA MEGASPERMA (F. Muell.) Benth. Fabaceæ.

From Abergeldie, New South Wales. Seeds presented by Sir Hugh Dixon, Summer Hill. Received June 23, 1922.

"This plant is quite unlike Chinese or Japanese varieties of wistaria. It has dark-green foliage and is a rank grower when established; mine is growing over a park railing 90 feet long, 4 feet wide, and 5 feet high and has to be kept within bounds on width and height. It is not particular as to soil, but I would not advise a heavy clay. The plant stands 8 to 10 degrees of frost without injury. The flowers are darker purple than those of the Chinese variety, sweet scented, and are borne in dense panicles. It is a very shy seeder, with seldom more than one seed in a pod but it strikes root freely when layered and also from cuttings. The root of a layer afterwards potted had the largest number of nodules I have ever seen on any leguminous plant. It is an exceedingly rare plant simply because its good qualities are not known." (*Dixon.*)

For previous introduction, see S. P. I. No. 50518.

55566. ILEX PARAGUARIENSIS St. Hil. Aquifoliaceæ. Yerba maté

From Asuncion, Paraguay. Seeds presented by C. Fiebrig, director, Botanical Garden. Received May 27, 1922.

A small evergreen tree, native to Paraguay and Brazil, whose leaves are roasted and ground to make the Paraguay tea or *maté* of commerce. This plant may prove suitable for Florida and California.

For previous introduction, see S. P. I. No. 55489.

55567 and 55568. DIOSCOREA spp. Dioscoreaceæ. Yam.

From Ogbomosho, Nigeria, Africa. Tubers presented by Dr. George Green. Received June 23, 1922. Quoted notes by R. A. Young.

55567. DIOSCOREA CAYENENSIS Lam.

Yellow Guinea yam.

(Nos. 11, 12, and 14.) "Three tubers, apparently all of the same variety, from a mixed lot. The flesh is cream colored instead of yellow, as in the variety of this species previously received from West Indian sources, and is less bitter; the quality is good. The vine is dark shiny green and thorny, with alternate leaves."

55568. DIOSCOREA ROTUNDATA Poir.

White Guinea yam.

(No. 1.) "The specimen received is white fleshed, mealy, and of fair flavor when cooked. The vine is round stemmed, glaucous, and armed on the lower parts with short but strong recurved thorns. The leaves are opposite and on the lower parts of the main stem are modified into peculiar bracts, from the axils of which arise lateral branches. The variety appears to be different in quality from the one commonly grown in Porto Rico."

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