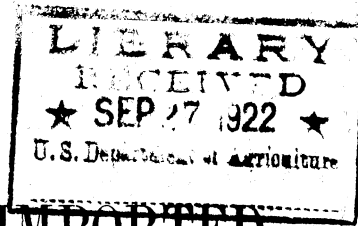


U. S. DEPARTMENT OF AGRICULTURE.
BUREAU OF PLANT INDUSTRY.



INVENTORY
OF

SEEDS AND PLANTS IMPORTED

BY THE

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION
DURING THE PERIOD FROM NOVEMBER 1
TO DECEMBER 31, 1919.

(No. 61; Nos. 48427 to 49123.)



Issued July, 1922

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INVENTORY OF SEEDS AND PLANTS IMPORTED BY THE OFFICE OF FOREIGN SEED AND PLANT INTRO- DUCTION DURING THE PERIOD FROM NOVEMBER 1 TO DECEMBER 31, 1919 (NO. 61; NOS. 48427 TO 49123).

INTRODUCTORY STATEMENT.

This inventory describes a wealth of new plants. There are more than 25 new fruits included in it, more than 10 striking new timber trees, 4 street or windbreak trees, 8 new forage plants, 5 new cereals, 2 drug plants, 4 new vegetables, and more than 125 new ornamental trees, shrubs, or plants. The expense of propagating these and of finding people who are interested in growing them is one which only those who see the thousands of seedlings coming up can appreciate. The knowledge that the success of a single one of them may in time pay for all the trouble and expense turns the trouble of taking care of them into a romance of real fascination.

The maruka grass (*Echinochloa stagnina*, No. 48427) of the Philippines for trial on overflowed lands on the Everglades of Florida is worth emphasizing.

Mr. J. Burt Davy collected for us, during a short expedition into the region of the Belgian Kongo and Rhodesia, seeds of a remarkable number of interesting economic plants (Nos. 48428 to 48503), among which should be mentioned the knob thorn (*Acacia pallens*, No. 48428, one of the most valuable hardwood trees of the Transvaal; the mootungulu (*Amomum* sp., No. 48433), an edible-fruited plant related to the ginger; the kifumbe (*Bauhinia reticulata*, No. 48437), the pods of which are used for fodder; the mookasje (*Diospyros senegalensis*, No. 48454), a persimmon from the Belgian Kongo; the noxa tree (*Parinari mobola*, No. 48469), a handsome ornamental and useful tree of the Rosaceæ, whose leaves are dark green above and snowy white below and whose edible fruits, the size of a small peach, are produced in such abundance that at the time of ripening a large proportion of the native population is sustained almost exclusively on them; and various cultivated forms of *Uapaca* (Nos. 48490 to 48494), a genus of Euphorbiaceæ, bearing edible fruits which are given native names by the inhabitants of the Kongo.

The yama-momo of Japan or yang mei of China (*Myrica rubra*, No. 48504) is one of the most showy of table fruits, and the fact that specimens of it are growing at Chico, Del Monte, and Berkeley, Calif.,

and Brooksville, Fla., makes it appear desirable to arouse more interest in its culture in America. Its slow growth should not prevent its being planted extensively, for it is a handsome evergreen tree worthy of a place on anyone's lawn.

The Mexican hawthorn (No. 48507), sent by Mr. F. S. Furnivall, with fruits suited for preserves, may add a fruiting and ornamental tree to our Southern States.

When the writer was in Cape Town in 1902, Prof. MacOwan called to his attention the spekboom, an important fodder tree of the karoo, and one of the trees then standing in the gardens was cut down and sent in as cuttings. As a result several trees of this species are now growing in Santa Barbara and San Diego, Calif. If it can be naturalized in this portion of California and become wild, as in South Africa, it will add a valuable forage asset to the hillsides of that region. Dr. Shantz has sent in additional material with most interesting data on this important tree (*Portulacaria afra*, No. 48510).

The late Aaron Aaronsohn called attention to *Crataegus azarolus*, which he had used successfully as a stock for early pears in Palestine. Sr. Pedro Giraud sends in two varieties of it for trial (Nos. 48516 and 48517).

Mr. J. B. Norton, who was sent out as an agricultural explorer to South China, was prevented by ill health from carrying out the program outlined for the work there, but, before he was forced to return, he obtained several interesting things, among which are a new *Actinidia* (No. 48551), related to the yang-tao; the Chinese "olive" (*Canarium album*, No. 48554) which, contrary to general belief, he found has a pleasant, refreshing flavor; a small water-melon with a thin rind (No. 48558), which he suggests might, after improvement, be adapted for serving as an "individual melon;" a lawn and grazing grass (*Eremochloa ophiuroides*, No. 48566) for clay soils possibly as far north as the Carolinas; a new species of legume (*Apios fortunei*, No. 48569), related to our native *Apios tuberosa*, which may be useful in the hybridization and selection of this promising wild legume; a new, attractive pot ornamental (*Trichosanthes cucumeroides*, No. 48585), which the Chinese train on special frames in pots; an ornamental perennial shrubby *Melastoma* (*M. repens*, No. 48718); the "tiger grass" (*Miscanthus sinensis*, No. 48719), from the inflorescence of which excellent brooms are made; and three species of *Rubus* (Nos. 48739 to 48742), promising for hybridization.

Since Bignonias are among the most beautiful of the climbers grown in Florida, a new vine of the same family (*Pandorea ricasoliana*, No. 48624), which so experienced a horticulturist as Dr. Pros-

chowsky says is most strikingly beautiful, producing large bunches of pale-rose blooms, is worthy of emphasis.

With this inventory begins the description of the collections which were made by Dr. H. L. Shantz, agricultural explorer for this office, during the time in which he was attached to the Smithsonian expedition through South and East Africa. As described in the daily papers of the period, Dr. Shantz made, in company with Dr. Raven, of the Smithsonian Institution, a study of the native agriculture of the eastern part of the Belgian Kongo, German East Africa, Portuguese East Africa, and British East Africa, starting at Cape Town and coming out at Cairo. The trip took approximately a whole year and resulted in the collection of invaluable information, photographs, and living material bearing upon the customs of the remarkable agricultural people of these portions of Africa and also in the introduction of hundreds of samples of potentially valuable seeds which should make it possible to discover whether any of the crops grown by these remarkable races have value for the American farmer.

Dr. Shantz finds the m'tsama melon (*Citrullus vulgaris*, No. 48761) of the Kalahari Desert the chief water supply of travelers and dwellers in that region and recommends its further trial in Texas and California. He suggests the use of *Dimorphotheca spectabilis* (No. 48768) for our Great Plains and western desert regions. He found a large-fruited form of Mimosops (*M. zeyheri*, No. 48777), which was said to be delicious and would probably grow in southern Texas. He reports *Themeda triandra* (No. 48787) as the most dominant grass of the sweet veldt of Africa. He got a collection of cowpeas (*Vigna sinensis*, Nos. 48791 to 48793) from Cape Province; a new jujube, which is prolific and an attractive ornamental (*Ziziphus* sp., No. 48796); and a beautiful shade tree (*Combretum salicifolium*, No. 48809), which grows along all the watercourses of the arid region around Pretoria and the Orange River region and appears very promising for southern Texas and California.

Regarding the grass called teff (*Eragrostis abyssinica*, No. 48815), the staple hay crop of the high veldt, Dr. Shantz remarks, "It is the most important plant next to corn in the Transvaal. It should grow from Amarillo, Tex., to Judith Basin, Mont." It requires summer rain and therefore is not adapted for cultivation in the Southwest.

Of the kikuyu grass (*Pennisetum clandestinum*, No. 48818) the Union of South Africa Department of Agriculture reports that in wet weather it keeps green all the time, in spite of heavy frosts, and even makes some growth. For soiling dairy cows it is the grass par excellence; it grows almost as rapidly as lucern, yielding four or five cuttings in a season; in food value it is superior to any of our other grasses.

Rhus lancea (No. 48821) Dr. Shantz believes deserves careful study as a shade and timber tree for the southern Texas region, provided it will stand the frosts there.

Since the *Strychnos spinosa* has proved adapted to culture in southern Florida, another species, *S. pungens* (Nos. 48824 and 48825), may do as well. It forms an important element of the food of wild elephants in Mozambique, where the fruits, as large as pumpmelos, often lie thick on the ground beneath the trees.

Though no commercial variety of corn or sorghum may come directly from them, it is important for the cereal breeder to have for his work the types of these cereals which for centuries, perhaps, have been cultivated by the native African tribes. Under Nos. 48827 to 48832 are described authentic ears of the corn grown by the Basutos, who still control one of the least disturbed sections of South Africa, and under Nos. 48849 to 48859 are described a collection of their sorghums.

Through Mr. F. L. Rockwood, of Bogota, Colombia, comes an introduction of the seeds of the giant Colombian blackberry (*Rubus macrocarpus*, Nos. 48751 and 48752), which was later studied exhaustively by Mr. Wilson Popenoe.

Mr. Edwin Ashby, of Blackwood, South Australia, has contributed a new Australian fruiting bush (*Acrotriche depressa*, No. 48800) suited to regions of light rainfall (15 to 25 inches). It is known as the "native currant." The bushes are not over 2 feet high and bear their fruits in great abundance in masses low down on the main stems. This new fruit seems certainly worthy of the attention of the horticulturists of Texas, Arizona, and southern California.

Through the Forestry Commission of New South Wales a quantity of seeds of the quandong, or "native peach" (*Mida acuminata*, No. 48837), has been obtained. This tree grows in the hotter and drier parts of New South Wales and bears red fruit (from 1½ to 3 inches in circumference), which make excellent conserve and jelly.

Dr. Alvaro da Silveira, of Minas Geraes, Brazil, sends the pusa (*Mouriria pusa*, No. 48838), a new fruit about the size of a wild cherry, which is borne on a small tree 10 feet high and which ought to grow in southern Florida and California.

American children are all familiar with the elderberry, and their faces have more than once been stained by its fruits. Hugo Mulertt, of Wiesbaden, Germany, has discovered a mutation of the European elderberry (*Sambucus nigra*, No. 48839), which has very large berries that instead of being black are greenish golden in color and semi-transparent; they do not stain linen or one's teeth and yet are most excellent when cooked.

Two varieties of Natal grass (*Tricholaena rosea*, Nos. 48843 and 48844) from New Zealand will attract the attention of horticulturists in Florida, where this grass has been such a success.

The Siberian brier (*Rosa laxa*, No. 48845) which, according to Mr. George M. Taylor, of the Florists' Exchange, is an excellent stock for roses on medium and light soils, merits trial by others.

The growing interest in Job's-tears (*Coix lacryma-jobi*) as a cereal and forage crop makes the collection of 16 varieties of this cereal (Nos. 48860 to 48875) which Mr. Thompstone has sent in from Northern Circle, Burma, of unusual importance; and, according to Mr. G. N. Collins, the remarkable collection of varieties of corn (Nos. 48876 to 48921) from the same region, is composed of an entirely new type having waxy endosperms similar to that of a single isolated sort obtained by us from China a number of years ago. For breeding purposes these have very unusual interest.

Through the courtesy of the Director General of Agriculture of the Belgian Kongo, M. Leplae, 51 varieties of cassava (*Manihot esculenta*, Nos. 48924 to 48974) have been received for use in the tests of this plant as a vegetable for home use in southern Florida.

Peppermint growers in Michigan will be pleased to have from the agronomist of the Hokkaido Agricultural Experiment Station authentic material of the best variety of Japanese peppermint (*Mentha piperita*, No. 48980).

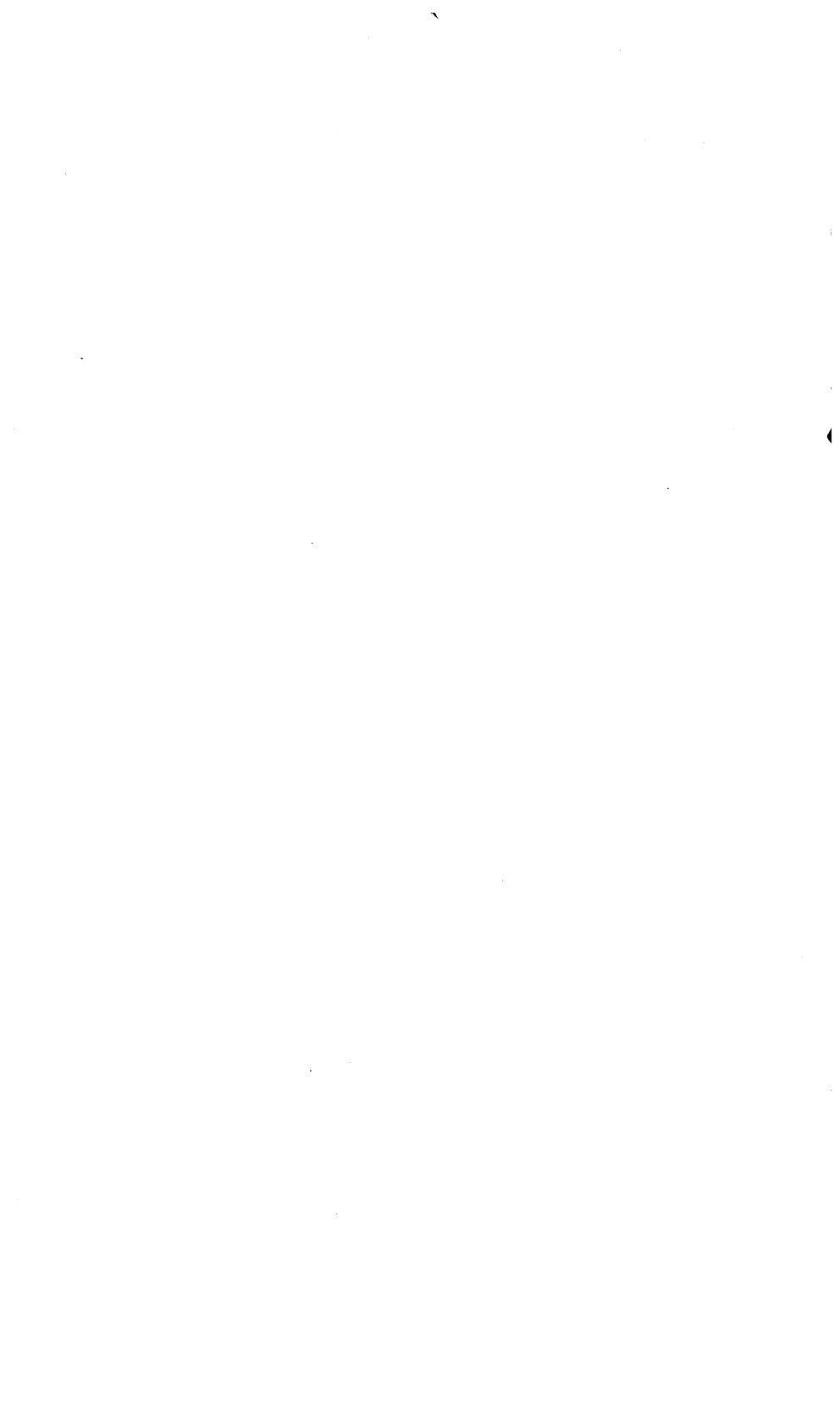
Petrea volubilis is one of the loveliest of all climbers recently introduced into southern Florida, and another species of the same genus (*P. arborea*, No. 49031) from Colombia, which is a shrub, will meet with a warm welcome there if it approaches the vine in beauty.

Nos. 49032 to 49050 represent seeds which were collected by Mr. Allanson from the exotic fruiting trees and shrubs in the parks of Rochester, N. Y., and presented to us through the courtesy of Mr. Dunbar, director of the parks; and Nos. 49051 to 49123 represent a similar collection from the Arnold Arboretum, through the courtesy of Prof. Sargent, its director. Most of them represent valuable introductions made by the Arboretum.

The botanical determinations of seeds introduced have been made and the nomenclature determined by Mr. H. C. Skeels; and the descriptive and botanical notes have been arranged by Mr. G. P. Van Eseltine, who has had general supervision of this inventory, as of all other publications of this office. The manuscript has been prepared by Miss Esther A. Celandier and Miss Patty T. Newbold.

DAVID FAIRCHILD,
Agricultural Explorer in Charge.

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION,
Washington, D. C., October 8, 1921.



INVENTORY.¹

48427. ECHINOCHLOA STAGNINA (Retz) Beauv. Poaceæ.

(*Panicum stagninum* Retz.)

Maruka grass

From Rizal, Luzon, Philippine Islands. Presented by Mr. Adn. Hernandez, Director of Agriculture, Manila, through Prof. C. V. Piper. Numbered November 12, 1919.

"A tall-growing grass much resembling Japanese millet but with longer awns. The grass is native in the Philippines, Africa, India, and probably most of the Indo-Malayan region. It was originally described by Rumphius from specimens from Batavia, Java. The grass commonly grows in shallow water or on very marshy ground. In the Philippines it covers large areas of nearly pure growth, and at the lower end of Laguna de Bay extensive areas are found on a floating mass of vegetable matter. Quantities of this green grass are sold in the Manila market, where it is known as *balili*. The grass has many vernacular names in India, among which are the following: *dul*, *dula*, *pedda-uda*, *nari*, *shangalligaddi*, *pedda-woondoo*; in Sunda, *tjampea*; in Ceylon, *maruka*. The common name used in Ceylon is chosen as a common name for this grass, which therefore may be called '*maruka grass*.' *Panicum burgu* Chev., of the Niger River, is considered identical by some botanists, but others regard it at least sub-specifically distinct. The grass is introduced in the hope that it may be valuable on extensive areas of land in Florida periodically overflowed. In most regions it is reported to be not particularly palatable." (Piper.)

48428 to 48503.

From Johannesburg, Transvaal. Collected by Mr. J. Burt Davy. Received October 29, 1919. Quoted notes by Mr. Davy, except as otherwise stated.

48428. ACACIA PALLENS (Benth.) Rolfe. Mimosaceæ. **Knob thorn.**

"(No. 207.) From Bosoli Siding, Southern Rhodesia. One of the more valuable timbers for mine props."

A valuable timber tree, 30 feet in height, with a heavy wood, used for making clubs; the timber is exceedingly hard and is durable under ground. It is considered to be one of the most valuable hardwood trees in the Transvaal and is cut extensively for mine props for the Rand. It is

¹ All introductions consist of seeds unless otherwise noted.

It should be understood that the varietal names of fruits, vegetables, cereals, and other plants used in these inventories are those which the material bore when received 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 these inventories will in many cases undoubtedly be changed by the specialists interested in the various groups of plants and the forms of the names brought into harmony with recognized American codes of nomenclature.

48428 to 48503—Continued.

characterized by the presence of prominent warts on the trunk and main branches, whence it has received the vernacular name of *Knopjesdoorn*. (Adapted from *Kew Bulletin of Miscellaneous Information*, 1907, p. 361.)

48429. *ALBIZZIA KATANGENSIS* Wildem. Mimosaceæ.

"(No. 166.) *Musaasi*. A large deciduous tree with valuable timber, from the wireless station, Elizabethville, Belgian Kongo."

A tree from Katanga, Belgian Kongo, the roots of which are used in an infusion as a disinfectant. (Adapted from *Wildeman, Etudes sur la Flore du Katanga*, 4th ser., p. 37.)

48430. *ALBIZZIA* sp. Mimosaceæ.

"(No. 211.) From Choma, Northern Rhodesia."

48431. *AMERIMNON* sp. Fabaceæ.

(*Dalbergia* sp.)

"(No. 120.) *Moobanga*. From near Elizabethville, Belgian Kongo."

48432. *AMERIMNON* sp. Fabaceæ.

(*Dalbergia* sp.)

"(No. 190.) From Elizabethville, Belgian Kongo."

48433. *AMOMUM* sp. Zinziberaceæ.

"(No. 180.) *Mootungulu*. An herb with bright-red fruits, which are eaten by the natives. These fruits have the fragrance of some of the species of *Kaempferia*. Note the similarity of the name to the Zulu name for *Carissa edulis* (*ama-tungulu*); *moo*, like *ama*, is a prefix. From Elizabethville, Belgian Kongo."

48434. *ANTIDESMA* sp. Euphorbiaceæ.

"(No. 194.) Found on termite nests, in Likasi, Kambove, Belgian Kongo."

Received as *Antidesma venosum*, but it does not agree with our material of *A. venosum*.

48435. *ARACHIS HYPOGAEA* L. Fabaceæ.

Peanut.

"(No. 208.) Peanuts grown by natives at Kapiri M'Poshi, Northern Rhodesia."

48436. *BAIKIAEA PLURIJUGA* Harms. Cæsalpiniaceæ. **Rhodesian teak.**

"(No. 215.) From Victoria Falls, Rhodesia; found growing on a sand veld."

For previous introduction, see S. P. I. No. 48234.

48437 to 48439. *BAUHINIA RETICULATA* DC. Cæsalpiniaceæ.

48437. "(No. 188.) *Kifumbe*. The pods are much relished by cattle. A cattleman in Matabeleland, Southern Rhodesia, grinds them up to mix with concentrates for his pedigreed stock."

A spreading shrub or small tree; from its roots a mahogany-colored pigment is obtained, used by the Manyoro for staining wooden utensils. The stain is most effective; the liquid applied when only slightly diluted, dries rapidly and with a gloss. The shrub grows in quantity also in parts of Toro and Chagwe and is sometimes used in native medicine. (Adapted from *Dawe, Economic Resources of Uganda*, p. 26.)

48438. "(No. 210.) From Elizabethville, Belgian Kongo."

48439. "(No. 205.) From Broken Hill, Northern Rhodesia."

48428 to 48503—Continued.

48440. BRACHYSTEGLIA sp. Cæsalpiniacæ.

"(No. 132.) *Kaputu*. A common and characteristic tree of the forest. Elizabethville, Belgian Kongo."

48441. BRACHYSTEGLIA sp. Cæsalpiniacæ.

"(No. 133.) Near to *Kaputu*, but the leaves, pods, and seeds appear to be larger than those of No. 132."

48442. BRACHYSTEGLIA sp. Cæsalpiniacæ.

"(No. 191.) *Tootoole*. The dominant forest tree at Likasi near Kambove, Belgian Kongo. Formerly used by the natives for making bark-cloth garments."

48443. CANAVALI GLADIATUM (Jacq.) DC. Fabacæ. Sword bean.

"(No. 163.) The red-seeded variety. Grown on fences in Elizabethville gardens."

"The sword bean, also known as the knife bean and the saber bean, is cultivated through much of southern Asia and also in Africa. The flowers shade from white to red and the seeds are white, gray, or red. The young pods are prepared after the manner of snap beans and are well flavored and wholesome. It is considered one of the best of the native vegetables in India. The very young pods have but little flavor, but when about half grown their taste suggests mushrooms. They are best when about half grown, as the full-sized green pods are rather fibrous. The mature seeds do not seem to be much used as food, though they lack the strong odor of those of the jack bean. The young pods are used by the Japanese for pickling and are very good for this purpose. All varieties of the sword bean that we have tested are rambling vines, none of them being bushy like the jack bean; they are not so desirable for forage as the latter species, since the foliage is just as bitter and the habit inferior. The Indian variety with red seeds and red flowers has proved very satisfactory as a cover crop in Porto Rico. Cattle are said to graze on the plant there to a limited extent. The plant will develop full-grown green pods as far north as Washington, D. C., but ordinarily the season is not long enough for the seeds to ripen." (C. V. Piper.)

For previous introduction, see S. P. I. No. 46773.

48444. CASSIA ABBREVIATA Oliver. Cæsalpiniacæ.

"(No. 134.) From granitic soils, Matoppo Hills, Matabeleland, Southern Rhodesia."

A shrub or tree, attaining a height of 12 to 25 feet, with bright ochre-colored flowers; native to Mozambique district. (Adapted from *Oliver, Flora of Tropical Africa, vol. 2, p. 271.*)

48445. CASSIA sp. Cæsalpiniacæ.

"(No. 193.) A deciduous tree with long pods; found on termite nests at Likasi, near Kambove, Belgian Kongo."

48446. CASSIA sp. Cæsalpiniacæ.

"(No. 196.) *Paampi*. Pods used to kill fish. From Likasi, Belgian Kongo."

48447. COMBRETUM sp. Combretacæ.

"(No. 104.) An evergreen. From a sand veld at Victoria Falls, Rhodesia."

48428 to 48503—Continued.

48448. COMBRETUM sp. Combretaceæ.

"(No. 152.) Near Kimbembe River, Katanga, Belgian Kongo. Large fruits in dense clusters."

48449. COMBRETUM sp. Combretaceæ.

"(No. 154.) *Kifoola-buto*. Near Kimbembe River, Katanga, Belgian Kongo."

48450. COMBRETUM sp. Combretaceæ.

"(No. 164.) Governor's garden, Elizabethville, Belgian Kongo."

48451. COMMIPHORA sp. Balsameaceæ.

"(No. 57.) A spiny, green-barked, deciduous tree. The trunk or branches, cut off and set in the ground during the rainy season, strike root readily and make good living posts for fences or kraal walls. From Bulawayo, Matabeleland, Southern Rhodesia."

48452. DIGITARIA ERIANTHA Steud. Poaceæ.

Grass.

"(No. 214.) One of our best native sweet-grasses."

Common throughout the eastern half of South Africa, rare in the west. Said to be good fodder for cattle. (Adapted from *Oliver, Flora of Tropical Africa, vol. 9, pt. 3, p. 429.*)

48453. DIOSCOREA sp. Dioscoreaceæ.

"(No. 173.) Bulbils from termite nests at Elizabethville, Belgian Kongo."

48454. DIOSPYROS SENEGALENSIS Perr. Diospyraceæ.

Inkulu.

"(No. 121.) *Mookasje*. Near Elizabethville, Belgian Kongo."

A shrub or tree, from 6 to 40 feet high, bearing edible fruits up to an inch in diameter. The compact, ebonylike wood is useful in many ways and is much thought of by the natives, who call it *monkey guava* in West Africa and *aje* in Abyssinia. The tree is widely scattered, ranging from Abyssinia and Mozambique on the east to the Gold Coast and Angola on the west. (Adapted from *Hiern, Ebenaceæ, p. 165.*)

A fruiting tree of the inkulu is shown in Plate I.

48455. DIPLORHYNCHUS sp. Apocynaceæ.

"(No. 155.) *Muëngwe*. Near the Kimbembe River, Katanga, Belgian Kongo."

48456. ELEUSINE CORACANA (L.) Gaertn. Poaceæ.

Ragi millet.

"(No. 143.) A small-seeded millet cultivated by the natives and chiefly used for the manufacture of pombe, a kind of beer."

A substitute for sorghum, called by the Arabians *teleboon*, by the Abyssinians *toccusso*; it is grown only on the poorest soil and where the ground is too wet to admit a better crop. The grain is very small and generally black and is protected by a thick, hard skin; it has a disagreeable taste and makes only a wretched sort of pap. It yields a yeast that is more fit for brewing than for baking; in fact, not only do the Niam-Niam, who are the principal growers of the Eleusine, but also the Abyssinians make a regular beer by means of it. (Adapted from *Schweinfurth, The Heart of Africa, p. 248.*)

For previous introduction, see S. P. I. No. 46295.



**AN AFRICAN PERSIMMON TREE, THE INKULU, IN FULL BEARING. (DIO-
SPYROS SENEGALENSIS PERR., S. P. I. No. 48454.)**

One of the most interesting plants found by Dr. H. L. Shantz in the Belgian Kongo is the inkulu. Its fruits are somewhat like our persimmons in general character; when green they are quite astringent, but after becoming fully ripe they have a delicious, sweet flavor. The wood, like that of many other species of *Diospyros*, is hard, dark colored, and of considerable value. Dr. Shantz found marked variation in the size, shape, and flavor of fruits on the wild trees. Selection would probably produce varieties of superior merit. The plant is rather drought resistant, but would probably stand very little frost. (Photographed by Dr. H. L. Shantz, Kafue, Northern Rhodesia, November 22, 1919: F36774FS.)



**A DENSE THICKET OF SPEKBOOM, IN THE ADDO BUSH, CAPE PROVINCE.
(PORTULACARIA AFRA JACQ., S. P. I. NO. 48510.)**

“One of the most prominent plants of the addo bush, the habitat of the only herd of wild elephants in South Africa, this plant supplies the larger part of their forage. It is relished also by cattle, sheep, and ostriches, and even children enjoy eating the leaves. It may prove adapted to the coast region of southern California, where it is now growing in gardens, and possibly will take the place of the worthless chaparral.” (*Shantz.*) (Photographed by Dr. H. L. Shantz, Kenkelbosch, Cape Province, September 7, 1919; P36202FS.)

48428 to 48503—Continued.

48457. *Erythrophloeum guineense* Don. Cæsalpiniaceæ.

"(No. 126.) *Mo'afi*. A large, handsome tree, with bipinnate leaves; yields good timber.

48458. *Euphorbia* sp. Euphorbiaceæ.

"(No. 170.) From Elizabethville, Belgian Kongo."

48459. (Undetermined.)

"(No. 167.) *Mufungo*. From Elizabethville, Belgian Kongo."

48460. *Flacourtia* sp. Flacourtiaceæ.

"(No. 88.) A thorny, edible-fruited evergreen tree from Cataract Island, Zambezi River, Mozambique. Probably the same as S. P. I. No. 48249."

48461. *Gossypium* sp. Malvaceæ.

"(No. 109.) Tree from Zimba, Northern Rhodesia."

48462. *Gossypium* sp. Malvaceæ.

"(No. 189.) *Mookollé*. Fruits eaten by the natives. From Elizabethville, Belgian Kongo."

48463. *Hibiscus* sp. Malvaceæ.

"(No. 138.) A fiber plant from Tara, Northern Rhodesia."

48464. *Holcus sorghum* L. Poaceæ.

Sorghum.

(*Sorghum vulgare* Pers.)

"(No. 158.) Kafir corn. One of the staple foodstuffs of the South Kongo natives. From Katanga, Belgian Kongo."

"Kafir, the most widely grown variety of the grain sorghums, has considerable sugar in the stem, and all of the varieties are valuable as forage and are used extensively as a source of roughage both in the form of fodder and as silage. The yield of forage from the grain sorghums is usually about two-thirds that of the sweet sorghums, but the smaller yield is partly balanced by the higher feeding value of the seed of grain sorghums, which is an important item in both fodder and silage. Yields of 20 to 40 bushels of grain or 3 to 4 tons of fodder may be expected from the better varieties." (*H. N. Vinall.*)

For previous introduction, see S. P. I. No. 47009.

48465. *Intsia* sp. Cæsalpiniaceæ.

(*Afzella* sp.)

"(No. 149.) *Moopaapi*. From Keemelolo River, Belgian Kongo."

48466. *Khaya senegalensis* (Desr.) Juss. Meliaceæ.

"(No. 125.) *Mawfwi*. A fine tree. Belgian Kongo."

African mahogany. From west tropical Africa. An important timber and cabinet wood of the Tropics. (Adapted from *Macmillan, Handbook of Tropical Gardening and Planting*, p. 564.)

For previous introduction, see S. P. I. No. 8311.

48467. *Markhamia paucifoliolata* Wildem. Bignoniaceæ.

"(No. 157.) *Tenda-kwair* or *Tantanguale*. From Kimbembe River, Katanga, Belgian Kongo."

For previous introduction, see S. P. I. No. 48216.

48468. *Mimusops* sp. Sapotaceæ.

"(No. 79.) From Rhodesia."

48428 to 48503—Continued.

48469 to 48471. PARINARI MOBOLA Oliver. Rosaceæ.

Nocha or *noxa*. One of the most handsome and useful trees of all the Huilla district, forming extensive forests in the mountainous parts of Morro de Lopollo. It rises to a height of 15 to 40 feet with a maximum diameter of 4 feet; the trunk branches dichotomously and tortuously. The crown is dilated, and the dense, leathery evergreen foliage, deep green above and snowy white beneath, is of extraordinary effect. The wood of the *noxa* is generally employed in Huilla for the manufacture of furniture and other domestic articles and when properly seasoned makes good lumber. But what is most advantageous in this tree is its fruit, since at the time of its ripening, a large proportion of the native population is sustained almost exclusively on *noxas*. So great is the abundance of these fruits in the neighborhood of Lopollo and Humpata that the natives offer large baskets of them to the European colonists at the price of about ten cents for a hundred fruits. The fruits are of the size of a small peach, containing the bulky stone enveloped in a farinaceous-pulpy mass, sweet and of a very agreeable aroma. (Adapted from *Hiern, A Catalogue of Welwitch's African Plants, pt. 1, p. 320.*)

48469. "(No. 110.) *Mobola plum.* From Choma, Northern Rhodesia."

48470. "(No. 114.) From Elizabethville, Belgian Kongo."

48471. "(No. 182.) *Moopundu.* A large tree from Elizabethville, Belgian Kongo; the fruit is eaten by monkeys."

48472. PHASEOLUS VULGARIS L. Fabaceæ.

Common bean.

"(No. 184.) Haricot bean grown by natives in the Belgian Kongo, farther north than Elizabethville. It is supposed to be indigenous to the country."

For previous introduction, see S. P. I. No. 47873.

48473. PLECTRONIA sp. Rubiaceæ.

"(No. 168.) From termite nests near Elizabethville, Belgian Kongo."

48474. PSEUDOLACHNOSTYLIS sp. Euphorbiaceæ.

"(No. 139.) *Moosalië.* Fruit eaten by small antelopes."

"(No. 206.) From Broken Hill, Northern Rhodesia."

48475. PTEROCARPUS DEKINDTIANUS Harms. Fabaceæ.

"(No. 115.) *Moolembo.* A rare and valuable timber tree from Elizabethville, Belgian Kongo; yields a kino. [A kino is a dark red or blackish tanniferous product similar to catechu, obtained from various tropical trees. It is commonly used in medicine as an astringent, but less often than catechu in tanning and dyeing.]"

A tree, 16 to 33 feet in height, with pinnate leaves and numerous-flowered racemes. The roundish membranaceous legume is broadly winged. (Adapted from *Engler, Botanische Jahrbücher, vol. 30, p. 89.*)

48476. RICINUS COMMUNIS L. Euphorbiaceæ.

Castor-bean.

"(No. 200.) Growing wild by a railroad track at Baya, Katanga Province, Belgian Kongo."

48477. SECURIDACA LONGIPEDUNCULATA Fres. Polygalaceæ.

"(No. 172.) From Elizabethville, Belgian Kongo."

A much-branched divaricate shrub, sometimes attaining a height of 10 feet, native to Upper Guinea, Abyssinia, and Mozambique district.

48428 to 48503—Continued.

The coriaceous leaves are revolute-margined when dry, and the flowers are rose, or shades of purple or violet, or variegated with white, in terminal spreading racemes. (Adapted from *Oliver, Flora of Tropical Africa, vol. 1, p. 134.*)

For previous introduction, see S. P. I. No. 47994.

48478. *SECURIDACA LONGIPEDUNCULATA PARVIFOLIA* Oliver. Polygalaceæ.

“(No. 123.) *Mooyaye*. The bast fiber is used for string. The ash of the root is said to be poisonous.”

This plant has leaves considerably smaller than those of *S. longipedunculata* and its bark affords a valuable flaxlike fiber, the buaze fiber of Zambesiland. Native to Upper Guinea and Lower Guinea. (Adapted from *Oliver, Flora of Tropical Africa, vol. 1, p. 134.*)

48479. *SPOROBOLUS INDICUS* (L.) R. Br. Poaceæ. Grass.

“(No. 209.) A useful grass, adventive at Burttholm, Vereeniging, Transvaal.”

For previous introduction see S. P. I. No. 47803.

48480. *STRYCHNOS UNGUACHA* A. Rich. Loganiaceæ.

“(No. 130.) *Zaanza*. A deciduous tree found growing near the river. The pulp surrounding the seeds is eaten by the natives.”

An erect Abyssinian tree with somewhat leathery leaves and dense cymes of small white flowers. The globose fruit, .2 to 2½ inches in diameter, contains 15 to 20 seeds which are three-fourths of an inch long. (Adapted from *Thiselton-Dyer, Flora of Tropical Africa, vol. 4, sec. 1, p. 534.*)

48481. *STRYCHNOS* sp. Loganiaceæ.

“(No. 201.) Collected in the woods near Baya, Katanga.”

48482. *TERMINALIA SERICEA* Burchell. Combretaceæ.

“(No. 137.) From Devonias, Matabeleland, near Bulawayo. Known as *mangwe*; considered one of the best timbers of Matabeleland. It is also called *yellowwood* (not the Cape yellowwood, which is *Podocarpus*).”

For previous introduction, see S. P. I. No. 48258.

48483. *TERMINALIA* sp. Combretaceæ.

“(No. 151.) From granitic formation, Bulawayo, Matabeleland, Southern Rhodesia.”

48484. *TERMINALIA* sp. Combretaceæ.

“(No. 174.) From Elizabethville, Belgian Kongo.”

48485. *TERMINALIA* sp. Combretaceæ.

“(No. 195.) *Mukolwa*. From Likasi, near Kambove, Belgian Kongo.”

48486. *TETRAPLEURA* sp. Mimosaceæ.

“(No. 204.) A tall leguminous tree from Broken Hill, Northern Rhodesia.”

48487. *THEMEDA QUADRIVALVIS* (L.) Kuntze. Poaceæ. Grass.

“(No. 213.) *Rooti-gras*. The dominant grass of the high veld, on ‘sweet-veld’ areas. From Burttholm, Vereeniging, Transvaal. This is one of our best native grasses.”

48428 to 48503—Continued.

An annual erect grass, native to India and used there for fodder. Introduced elsewhere. (Adapted from *Thiselton-Dyer, Flora of Tropical Africa, vol. 9, pt. 3, p. 420.*)

For previous introduction, see S. P. I. No. 41919.

48488. TOUNATEA MADAGASCARIENSIS (Desv.) Kuntze. Cæsalpiniaceæ.
(*Swartzia madagascariensis* Desv.)

“(No. 147.) *N'daale*. The pod smells sweet inside, as though containing sugar; it is said to be edible for stock. Lubumbashi River, Belgian Kongo.”

An African tree, 15 to 20 feet high, with spreading, horizontal, or even drooping branchlets. The bark is whitish, and the leaves coriaceous. The space between the outer and inner layers of the coriaceous legume is filled by spongy transverse partitions inclosing resinous gummy matter. (Adapted from *Hiern, Catalogue of Welwitsch's African Plants, pt. 1, p. 286*, and *Oliver, Flora of Tropical Africa, vol. 2, p. 257.*)

48489. TRICHOLAENA ROSEA Nees. Poaceæ. Natal grass.

“(No. 127.) Useful hay grass.”

A perennial South African grass which does not survive the winter where the temperature falls much below freezing, so that it is usually cultivated as an annual. The seeds are produced in large clusters about the size and shape of a panicle of oats. In most cases the seed clusters are bright red or rosy crimson in color, and for that reason the grass has sometimes been called “redtop.” It is, however, very different from the common northern grass known as redtop. The plants are killed by a single plowing, and by keeping the land cultivated in other crops through the whole of a single season all the seeds in the ground will have germinated and the young plants will be killed by cultivation, so Natal grass can not become a troublesome weed. Good Natal grass hay is an excellent feed. The stems and leaves are not tough, are very palatable, and are eaten without waste. The stems are so slender that the hay makes an attractive-looking bale and so sells well on the market. The commercial use of the hay has been developed in the past few years, and wherever offered it usually brings the same price as timothy. It is easily cured, is rich in protein, and the average yield is 2½ to 3 tons per acre or about three-fourths of a ton for each cutting. When planted on favorable soil, Natal grass makes such vigorous growth as to choke out most other grasses and weeds. (Adapted from *S. M. Tracy and C. V. Piper.*)

For previous introduction, see S. P. I. No. 41921.

48490 to 48492. UAPACA NITIDA Muell. Arg. Euphorbiaceæ.

48490. “(No. 141.) *Musokolobwe*. Fruit edible. From Belgian Kongo.”

A shrub or tree, up to 50 feet high, with an erect trunk and spreading head. The entire rigid, shining leaves are crowded toward the ends of the branches. Native to Lower Guinea, Rhodesia, and German East Africa. (Adapted from *Thiselton-Dyer, Flora of Tropical Africa, vol. 6, pt. 1, p. 639.*)

48491. “(No. 160.) *Musokolobwe (makooba)*. Fruit edible. From Elizabethville, Belgian Kongo.”

48428 to 48503—Continued.

48492. "(No. 161.) *Musokolobwe (kilobo)*. This appears to be a third form passing under the vernacular name."

48493. *UAPACA* sp. Euphorbiaceæ.

"(Nos. 122 and 159.) *Moosooku (kiloko)*. Found in the Belgian Kongo near Elizabethville.

48494. *UAPACA* sp. Euphorbiaceæ.

"(No. 111.) A tree growing near a river at Elizabethville, Belgian Kongo (No. 213); *mahobohobo* from Choma, Northern Rhodesia; and (No. 156) edible fruit of *makombwi* from the Kimbembe River, Katanga, Belgian Kongo."

48495. *VITEX CAMPORUM* Buettn. Verbenaceæ.

"(No. 144.) *Mufutu*. On termite nests at Elizabethville, Belgian Kongo."

A tree, native to Upper Guinea and Lower Guinea, with densely pubescent branchlets and long-stalked, 3-foliolate, somewhat leathery leaves. The hairy campanulate flowers are in dense, axillary cymes. (Adapted from *Thiselton-Dyer, Flora of Tropical Africa, vol. 5, p. 323.*)

48496. *VITEX* sp. Verbenaceæ.

"(No. 175.) *Mufutu*. There is more than one species passing under this name. From Elizabethville, Belgian Kongo."

48497. *ZEA MAYS* L. Poaceæ.

Corn.

"(No. 186.) Native maize of the Belgian Kongo."

48498. *ZIZIPHUS* sp. Rhamnaceæ.

"(No. 124.) *Loonkawle*. Growing along rivers and on termite nests in the Belgian Kongo. The fruit is edible but not worth eating. The wood is useful and durable."

48499. *ZIZIPHUS* sp. Rhamnaceæ.

"(No. 197.) From Lufisa River, Katanga, Belgian Kongo."

48500. (Undetermined.)

"(No. 106.) From a sand veld, Victoria Falls, Rhodesia."

48501. (Undetermined.)

"(No. 108.) Tree at Zimba, Northern Rhodesia."

48502. (Undetermined.)

"(No. 140.) *Kibobo*. Edible fruit. From Elizabethville, Belgian Kongo."

48503. (Undetermined.)

"(No. 153.) *Mukawba*. A small edible-fruited tree from Kimbembe River, Katanga, Belgian Kongo."

48504. MYRICA RUBRA Sieb. and Zucc. Myricaceæ.

From Yokohama, Japan. Purchased from the Yokohama Nursery Co. Received November 1, 1919.

Yama-momo. This very pretty evergreen tree is closely allied to the sweet gale (*Myrica gale*), well known in America. It is a small tree, attaining a height of some 15 to 20 feet, with oblong or lanceolate, dark-green, smooth, and glistening leaves, 3 to 4 inches long. This tree, or large bush, grows especially in the mountains of southern Japan. Its name, *yama-momo*, indicates its habitation, as it means literally "mountain peach." How far north it grows

wild I am not prepared to say. One Japanese authority asserts that it grows all over Japan, a statement I am unable to verify. A specimen in the botanical garden at Tokyo is about 12 feet high, with a very dense, spreading, round head and short trunk. It is very ornamental. The fruit when fully ripe is pleasantly acidulated and juicy. It is apparently made up of a large number of densely crowded sections, quite distinct from each other, but radiating from a small central stone or hard seed. On this specimen the fruit was red, but there are varieties with fruits of different colors. A white-fruited kind, having comparatively large fruit, is said to be of very excellent quality. The tree is commonly propagated by seed, but the Japanese assert that it can also be grafted on the mulberry. It is planted by them partly for fruit and partly for ornament, but not largely for either purpose. The bark is an important dye-stuff. (Adapted from *The American Garden*, vol. 12, p. 82.)

48505 and 48506.

From Transvaal, South Africa. Presented by Mr. George Thorncroft, Winter Bros., Barberton. Received November 7, 1919.

48505. *ALOE PRETORIENSIS* Pole Evans. Liliaceæ.

Aloe pretoriensis is found commonly on many of the kopjes around Pretoria. It grows plentifully on the northern slopes of Mentjes Kop, and extends from here in an easterly and westerly direction on the range of hills composed of the Daasport quartzite; it is also found in the Spekboom Valley near Lydenburg, at Barberton, and along the foot of the Lebombo Range of mountains.

The most distinctive feature of the plant is its tall branched inflorescence, the racemes of which are densely clustered with brightly colored flowers; so conspicuous are they that they form a bright-scarlet patch of color in the landscape and are visible from a considerable distance. The flowers contain a quantity of honey and consequently attract large numbers of brilliant sunbirds. The dense rosettes of tapering leaves, usually withered at the tips, have frequently a very characteristic red hue about them and spring from a stoutish stem 4 to 5 inches in diameter. The stem is dark brown to black in color, extremely rough, and clothed throughout its entire length by the remains of withered leafstalks. At first sight this *Aloe* certainly resembles *A. lineata* in general habit, but on closer examination it is found that the leaves are more narrowly linear-lanceolate than those of *Aloe lineata*. (Adapted from *The Gardeners' Chronicle*, vol. 56, 3d ser., p. 105.)

48506. *CYRTANTHUS THORNCROFTII* C. H. Wright. Amaryllidaceæ.

An African bulbous plant with two long narrow leaves and bearing a short 2-flowered scape. The small light-red flowers are nearly an inch across. (Adapted from *Kew Bulletin of Miscellaneous Information*, p. 421, 1909.)

48507. *CRATAEGUS MEXICANA* Moc. and Sesse. Malaceæ.

From Guadalajara, Mexico. Presented by Mr. F. S. Furnivall, through Mr. Andrew J. McConnico, American consul. Received November 8, 1919.

"White thorn, commonly known as the 'manzanilla' or 'tejecote,' is indigenous to the mountain sections of Mexico and Guatemala; the fruit (a little apple about the size of the American crab apple) is insipid in the raw state but very valuable for making jelly; the tree or shrub may be used with marked success as a stock in budding and grafting apples and pears." (*Furnivall*.)

For previous introduction, see S. P. I. No. 46481.

48508. AMYGDALUS PERSICA L. Amygdalaceæ. **Peach.**
(*Prunus persica* Stokes.)

From Santa Cruz, Calif. Presented by Mr. George G. Streator. Received November 19, 1919.

"*Indian Blood* peach. A vigorous-growing tree, bearing freestone peaches. The flesh is dark blood red, very juicy, and of very good quality; the skin is greenish gray suffused with red. It is late maturing and looks as though it would make an excellent canning peach." (*Peter Bisset.*)

48509. VOUCAPOUA INERMIS (Swartz) Knuth. Fabaceæ.
(*Andira inermis* H. B. K.)

From Georgetown, Demerara, British Guiana. Presented by Mr. R. Ward, superintendent, Botanic Garden. Received November 25, 1919.

A slow-growing leguminous tree, called in Jamaica *cabbage tree* or *cabbage-bark tree*, on account of its disagreeable odor. It is generally distributed in Porto Rico and is sometimes used in coffee plantations for shade. The fleshy pods, about the size of a horse-chestnut, contain but a single seed. The floors of the caves of Aguas Buenas, Porto Rico, are in places covered with the seeds of this species, which are carried in by bats for the sake of the inclosing pulp. These seeds germinate in the caves, sending up slender white sprouts 2 or 3 feet high. The wood, which is said to be hard and durable, varies in the same tree from reddish yellow to black and takes a high polish. It is used for wheel hubs, for flooring and all sorts of carpenter work, and was formerly used in Brazil in the construction of boats. In Porto Rico its most common use is for the framework of houses. It is imported into Europe and used for turned parts of cabinetwork, and to make canes and parasol handles. (Adapted from *Cook and Collins, Mexican, Central American, and Porto Rican Plants*, p. 80.)

48510. PORTULACARIA AFRA Jacq. Portulacaceæ. **Spekboom.**

From Johannesburg, Transvaal. Cuttings collected by Dr. H. L. Shantz, Agricultural Explorer of the Bureau of Plant Industry. Received November 26, 1919.

"(No. 122. Pretoria, Transvaal. October 8, 1919.) Plant from the Botanic Grounds." (*Shantz.*)

A succulent South African shrub, rising to 12 feet, which affords locally the principal food for elephants; it is excellent for sheep pasture; hence, it may deserve naturalization on stony ridges and in sandy desert land not otherwise readily utilized. It is stated that all kinds of pasture animals eat it readily and, when grass is scarce, live on it almost entirely. It grows on hot rocky slopes and prefers doleritic soil. It is easily grown from cuttings and even from single leaves. *Spekboom* displays an extraordinary recuperative power when broken by browsing animals or when injured from other causes. The trunk may attain 1 foot in diameter. (Adapted from *Mueller, Select Extra-Tropical Plants*, p. 420.)

In some places the spekboom is arborescent, up to 20 feet high, often forming dense thickets. The juicy leaves are a wholesome food for all classes of stock as well as for wild animals, including buffaloes and elephants; hence, farms with plenty of spekboom need not fear an ordinary drought. "Providence meant to spoil our farmers in placing the spekboom on the hills of the karoo," wrote MacOwan in one of his articles on the fodder plants of the country. (Adapted from *Marloth, The Flora of South Africa*, vol. 1, p. 209.)

"The yearly rainfall of the region in which the spekboom thrives averages about 18 $\frac{1}{2}$ inches, and the rainiest months are the hottest ones (November, December, and January), the temperature reaching 108° F. During these months the rainfall is about 2 inches. In the winter months the rainfall is between 0.35 and 0.54 of an inch and the temperature sometimes as low as 21° F. The plant has been successfully introduced into America and small trees of it are now growing in San Diego and Santa Barbara, Calif." (*David Fairchild.*)

For previous introduction, see S. P. I. Nos. 9604 and 12020.

The spekboom is illustrated in Plate II.

48511 to 48515. RIBES LOBBII A. Gray. Grossulariaceæ.

Gooseberry.

From near Castlerock, Wash. Collected by Dr. David Fairchild. Received September 30, 1919, and October 6, 1919.

"Seeds of the largest wild gooseberries that I have ever seen. The fruits from which these seeds were taken I collected from a vigorous bush growing beside the road on a detour between Castlerock and Kelso, Wash., September 10, 1919. This particular bush appeared to bear unusually large fruits for a wild plant, some of them attaining a diameter of an inch. The fruits were attached to the bush by a very slender pedicel, and when I touched them they dropped into my hands. They were covered with flat-topped glandular hairs which made them slightly sticky to the touch and they had an odor reminding me of that exhaled by the leaves of *Rosa xanthina*. A farmer whom we met on the road declared that he could tell when he was near bushes of this species of gooseberry by the odor. The entire skin is claret red when the fruit is ripe, but as these were near the roadside they were grimy with dust which had stuck to their sticky glandular surfaces. The skin peels off easily, exposing a whitish tissue inside of which is the characteristic gooseberry flesh containing a few small seeds. The flavor is extremely mild, not sour but sweetish and rather lacking in character; capable of being improved possibly through breeding by the addition of that tartness so characteristic of our eastern wild gooseberry. I obtained as many seeds as possible with the idea that the seedlings from this particular specimen might inherit the unusual size and that it might be of value in breeding experiments." (*David Fairchild.*)

48511. No. 1. Wild gooseberry.

48512. No. 2. Wild gooseberry.

48513. No. 3. Wild gooseberry.

48514. No. 4. Seeds from the largest berry.

48515. Mixed seed of wild gooseberry.

48516 and 48517. CRATAEGUS AZAROLUS L. Malaceæ.

From Granada, Spain. Purchased from Mr. Pedro Giraud. Received November 29, 1919.

Among the species of *Crataegus* one of the most important is *C. azarolus* with its numerous varieties and races. This is a shrub of the calcareous hills and grows only on very dry lands. If undisturbed it grows as high as 13 to 16 feet, but its branches are generally hacked off for fuel by Arab women or mutilated by heavy stones thrown by the boys to shake down the fruit. Some varieties of *C. azarolus* have fruits as large as a large cherry, with a very agreeable acid taste. Although they are sold on the markets of the Orient, they would not be marketable in Europe or America because of the large stones;

but specimens are often found which are nearly stoneless, and it is possible that this character could be fixed by selection.

For fifteen years or more the writer has used *C. azarolus* as a stock for pears with excellent results. Top-grafted at 2 to 3 feet above the ground, it develops into a very beautiful, productive, and long-lived dwarf tree, provided the grafting is done with a very early variety. This shrub grows in extremely hot, dry places and must therefore complete the greater part of its development early in the season. Its roots, therefore, are unable to furnish the sap necessary to develop pears in August. If, however, it is grafted with a pear which fruits in May or June, when the roots of the *Crataegus* are in their period of greatest activity, the best results are obtained.

The writer speaks only of pears, because he has experimented with them, but he sees no reason a priori why these stocks should not do as well for apples, which he has not as yet tried. (Adapted from *Aaronsohn, Bureau of Plant Industry Bulletin No. 180, p. 15.*)

48516. "A red-fruited form." (*Giraud.*)

48517. "A yellow-fruited form." (*Giraud.*)

For previous introduction, see S. P. I. No. 33205.

48518 to 48550.

From Kenkelbosch, Cape Province. Collected by Dr. H. L. Shantz, Agricultural Explorer of the Bureau of Plant Industry. Received November 1, 1919. Quoted notes by Dr. Shantz.

48518. *ACACIA HORRIDA* (L.) Willd. Mimosaceæ. **White thorn.**

"(No. 75. Kenkelbosch, Cape Province. September 8, 1919.) A South African shrub, 4 to 10 feet high; it is very white when leafless because of the large spines. It grows mostly in the open, and seeds abundantly."

A natural hedge of this species is shown in Plate III.

48519. *ARCTOTIS ACAULIS* L. Asteraceæ.

"(No. 25. Kirstenbosch, Cape Province. August 25, 1919.) A beautiful composite, from 6 to 12 inches high, ranging from deep red to orange."

48520. *ASPARAGUS* sp. Convallariaceæ.

"(No. 79. Kenkelbosch, Cape Province. September 10, 1919.) A large spiny type from South Africa, with very pretty foliage; one of the *Wacht-ecen-beetje* [wait-a-bit thorns]; a very decorative vine with a red berry and black seed."

48521. *LEUCOSPERMUM*. Proteaceæ.

"(No. 76. Kenkelbosch, Cape Province. September 3, 1919.) A beautiful low bush from South Africa, with a very showy flower."

48522. *MEDICAGO HISPIDA DENTICULATA* (Willd.) Urban. Fabaceæ.

Bur clover.

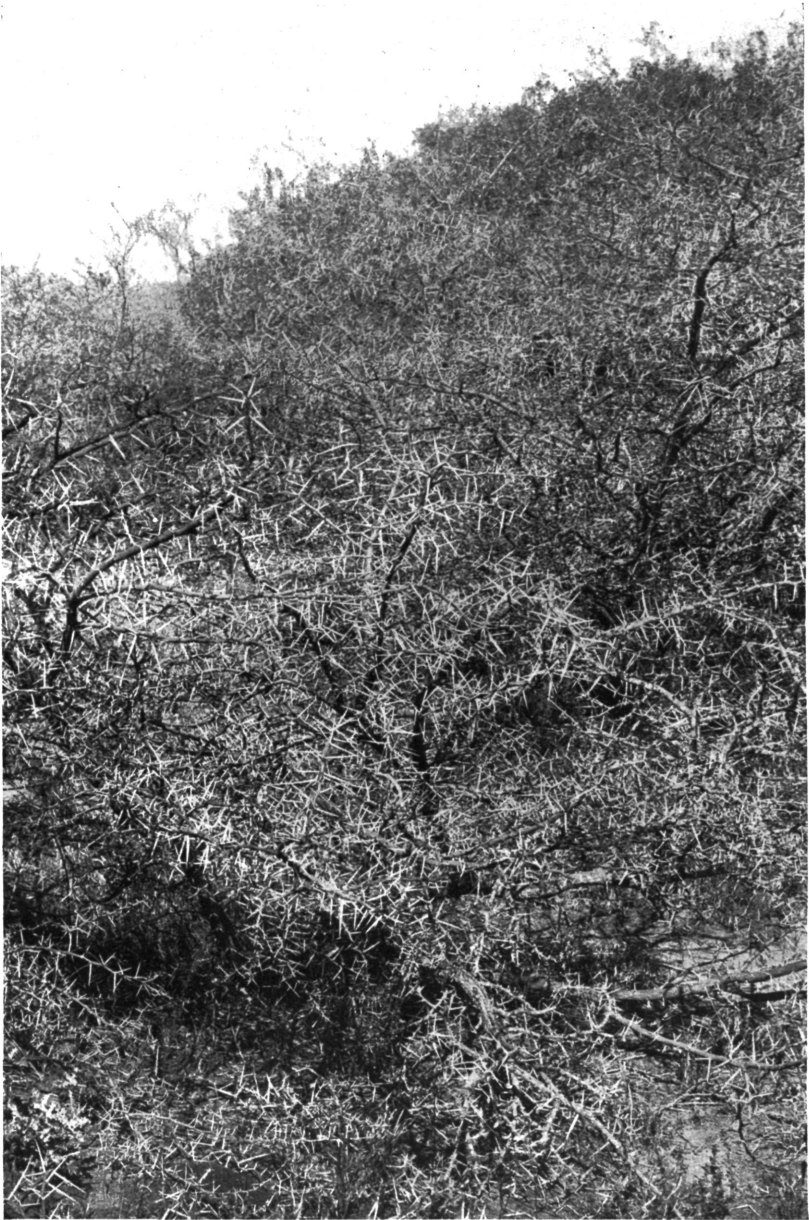
"(No. 70. Port Elizabeth, Cape Province. September 2, 1919.) A low-growing clover, with heads of purple flowers. It is found on most lawns, producing a very dense cover. It is said to die out during hot weather but is excellent when the season is not too dry."

48523 to 48545. *PHASEOLUS* spp. Fabaceæ. **Bean.**

"(Nos. 44 to 69. Rosebank, Cape Town. August 27, 1919.) Beans from the Entomological Station at Rosebank, which have been grown for weevil resistance. All strains being grown for experimental purposes have been separated from the commercial varieties."

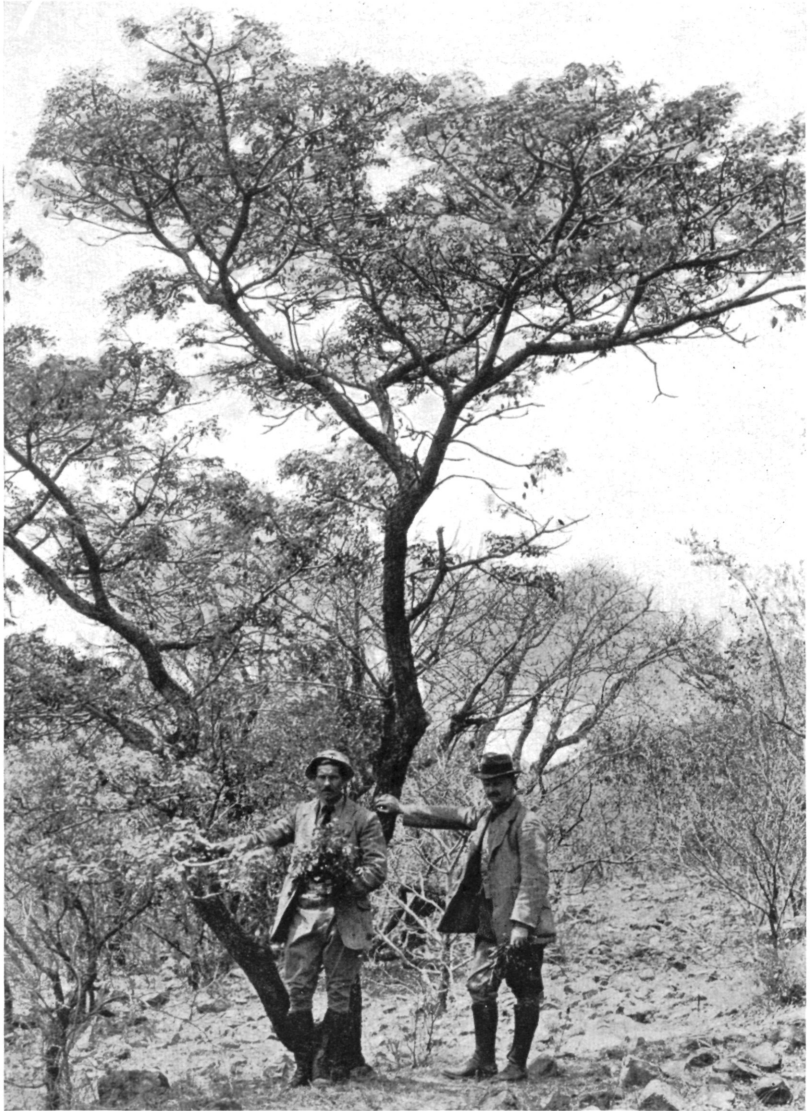
48518 to 48550—Continued.

- 48523. PHASEOLUS AUREUS Roxb. Mung bean.**
 "(No. 44.) This is a small green bean of good flavor; when cracked in a coffee mill it makes good bean porridge. The seed resembles a small pea."
- 48524 to 48533. PHASEOLUS COCCINEUS L. Scarlet Runner bean.**
- 48524.** "(No. 49.) Grown for weevil resistance by Mr. C. W. Mally, Cape entomologist."
48525. "(No. 60.) This number is splashed with light and dark brown markings."
48526. "(No. 61.) Reddish black markings on purplish ground."
48527. "(No. 62.) Large bean; black markings on purple ground."
48528. "(No. 63.) Similar to No. 62 [S. P. I. No. 48527], but smaller."
48529. "(No. 64.) See No. 60 [S. P. I. No. 48525]. Black splotches on purple ground."
48530. "(No. 65.) Dark variety of No. 64 [S. P. I. No. 48529]."
48531. "(No. 66.) Purple variety with black dots."
48532. "(No. 67.) A black variety."
48533. "(No. 68.) A white variety."
- 48534 and 48535. PHASEOLUS LUNATUS L. Lima bean.**
- 48534.** "(No. 45.) *Governor* bean. A white bean with two small dark spots."
48535. "(No. 46.) Similar to No. 45 [S. P. I. No. 48534], but with a complete, dark-brown ring around the hilum."
- 48536 to 48545. PHASEOLUS VULGARIS L. Common bean.**
- 48536.** "(No. 48.) A black bean a little larger than the navy bean."
48537. "(No. 50.) A tan-colored bean with a white eye surrounded by a brown ring. Said to be a popular bean in the back country."
48538. "(No. 53.) A dark bean, purplish to black."
48539. "(No. 54.) A purple variety of No. 53 [S. P. I. No. 48538]."
48540. "(No. 55.) A black variety of No. 53 [S. P. I. No. 48538]; bean still smaller than No. 54 [S. P. I. No. 48539]."
48541. "(No. 56.) A dark tan-colored bean, darker than No. 50 [S. P. I. No. 48537] and apparently an entirely distinct strain."
48542. "(No. 57.) A small white bean, like a navy bean."
48543. "(No. 58.) A black and white or black-eyed bean."
48544. "(No. 59.) A red and white bean with peculiar markings, similar, in general appearance, to No. 6 sent in from St. Vincent [S. P. I. No. 47979]."
48545. "(No. 69.) Similar to No. 50 [S. P. I. No. 48537], but lighter in color and larger."



A NATURAL HEDGE OF THE KAROO THORN IN SOUTH AFRICA. (ACACIA HORRIDA (L.) WILLD., S. P. I. NO. 48518.)

Because of its shining white spines, the karoo thorn is fully as attractive when leafless as it is when clothed with its grayish green, finely divided foliage. When set closely together, the plants form an impenetrable hedge. They also serve in Africa as forage for sheep and cattle. Since the native home of the species is the desert region of Cape Province, it should be well adapted for culture in our Southwestern States. (Photographed by Dr. H. L. Shantz, Kenkelbosch, Cape Province, September 8, 1919; P36211FS.)



**A NEW ORNAMENTAL FOR THE DRY SOUTHWEST. (BURKEA AFRICANA HOOK.,
S. P. I. No. 48804.)**

Although it belongs to the Leguminosæ, this African tree is known as the Rhodesian ash. It bears yellow flowers and is a striking thing when in full bloom. Its seeds are said to be used as food in times of famine. The wood is tough and coarse grained. Since it comes from a dry, sandy region with rather cool winters, it should succeed in California and our Southwestern States. (Photographed by Dr. H. L. Shantz, Wonderboom, near Pretoria, Transvaal, October 12, 1919; P36434FS.)

48518 to 48550—Continued.**48546. PROTEA LEPIDOCARPODENDRON L.** Proteaceæ.

"(No. 71. Port Elizabeth, Cape Province. September 2, 1919.) A large *Protea* bearing very large flowers; the handsome petallike bracts have black tips. It should be grown in California and possibly through the South. This is an important plant in the vegetation of hilly land."

For previous introduction, see S. P. I. No. 48184.

48547. SCHOTIA SPECIOSA Jacq. Cæsalpiniaceæ.

"(No. 77. Kenkelbosch, Cape Province. September 10, 1919.) *Boerboom*. A spiny tree, 6 to 20 feet high, used in tanning; produces scarlet flowers, followed by large pods, which are eaten when green by elephants and Boers. The tree is not grown in cultivation, but is an important element of the bush; the wood is hard."

48548 and 48549. SOJA MAX (L.) Piper. Fabaceæ. **Soy bean.**
(*Glycine hispida* Maxim.)

48548. "(No. 51. Rosebank, Cape Town. August 27, 1919.) A small yellowish bean grown for weevil resistance."

48549. "(No. 52. Rosebank, Cape Town. August 27, 1919.) A yellowish bean similar to No. 51 [S. P. I. No. 48548]."

48550. SOLANUM AURICULATUM Ait. Solanaceæ.

"(No. 37. Mowbray, Cape Town. August 27, 1919.) A *Solanum* with small fruits and very large hairy mulleinlike leaves."

48551 to 48586.

From China and Japan. Collected by Mr. J. B. Norton, Agricultural Explorer of the Bureau of Plant Industry. Received November 29, 1919. Quoted notes by Mr. Norton.

48551. ACTINIDIA sp. Dilleniaceæ.

"(Seeds from Kuliang Hills, near Foochow, Fukien. September 8, 1919.) Collected by Mr. C. R. Kellogg from vines found by me. This vine is a wonderful grower after it gets started, and when clipped back sends out shoots 20 feet or more long before laterals are formed. The young woolly shoots are strikingly attractive. The fruit is not inedible if the woolly skin is removed. This species, like many other species not used by the natives at present, is found around deserted villages."

48552. ARISAEMA sp. Araceæ.

"(Kuliang Hills, near Foochow. August 6, 1919.) This is perhaps identical with the Japanese aroid used as a source of aeroplane varnish. The showy orange-red fruit stayed fresh from the time of collection until unpacked at the Plant Inspection Office, Washington, D. C., late in November."

48553. BENINCASA HISPIDA (Thunb.) Cogn. Cucurbitaceæ. **Wax gourd.**

"Collected near Foochow. This large gourd is common in summer and fall in the markets of Foochow. I did not test its edibility, but understand that it is very good."

48554. CANARIUM ALBUM (Lour.) DC. Balsameaceæ.

"(Foochow, China. September 14, 1919.) The fruit has a pleasant refreshing flavor to which it is easier to become accustomed than that of pickled olives. The Chinese are very fond of it and pay high prices

48551 to 48586—Continued.

for the fruits in the markets of Foochow and elsewhere. The fruit keeps well and when no longer fresh is dried or pickled. The tree grows well and reaches a height of 50 feet, with a broad spreading top. It is apparently very easy to graft, for it is top-worked by the Chinese in a very crude manner and apparently always successfully. The tree is also useful as a street or ornamental tree."

48555 and 48556. *CASTANEA CRENATA* Sieb. and Zucc. Fagaceæ.

Japanese chestnut.

48555. "(Kobe, Japan. October 28, 1919.) Samples of chestnuts being loaded for shipment to America."

48556. "(Foochow, China. September 15, 1919.) Samples from market."

48557. *CELOSIA ARGENTEA* L. Amaranthaceæ.

Cockscomb.

"(From Foochow, China. September 14, 1919.) Collected on waste land on Nantai Island near Foochow. This plant is common along the margins of gardens and fields and among the cemeteries on the hills. The silvery white spikes are very attractive."

48558. *CITRULLUS VULGARIS* Schrad. Cucurbitaceæ.

Watermelon.

"(Foochow, China. September 15, 1919.) Seeds of the common, small, red-fleshed melon of this region, which has very thin rinds and fine quality flesh but is lacking in sugar. It should be used in disease-resistant breeding to get shipping and marketing qualities for small melons. It has a very attractive appearance and the size suggests the possibility of producing a watermelon small enough to ship in crates for individual consumption."

48559. *CORCHORUS CAPSULARIS* L. Tiliaceæ.

Jute.

"(Foochow, China. September 14, 1919.) The common fiber plant of this region. The better farmers grow small patches of these plants for their own use."

48560 to 48562. *CUCURBITA PEPO* L. Cucurbitaceæ.

Gourd.

48560. "(Foochow, China. September 15, 1919.) An ornamental squashlike cucurbit used for room decoration by the Chinese."

48561. "(Foochow, China. September 17, 1919.) An ornamental squashlike cucurbit used for room decoration by the Chinese. The skin of this gourd is orange blotched with green."

48562. "(Gourds from Nagasaki, Japan. October 20, 1919.) An ornamental gourd used for room decoration by the Japanese. Bought in the market."

48563. *DIOSCOREA ALATA* L. Dioscoreaceæ.

Yam.

"Bulbils from a vine in the garden of a Chinese missionary teacher in Foochow, China. September 10, 1919."

48564. *DRYMOGLOSSUM* sp. Polypodiaceæ.

Fern.

"(From Nagasaki, Japan. A plant growing on volcanic cliffs near Mogi. October 14, 1919.) A very small creeping fleshy fronded fern for rockwork. This fern is found in the shaded ravines of Japan and China growing over the face of the rocks. It stands considerable drying out and makes a solid cover, suggesting some fleshy leaved flowering plant. It would be very good for use on rockwork in gardens in Florida and California."

48551 to 48586—Continued.

48565. ELEOCHARIS TUBEROSA (Roxb.) Schult. Cyperaceæ. **Beechi.**

“(Foochow, China. September 17, 1919.) Tubers of the beechi, or water chestnut, as it is sometimes called, from the market in Foochow. This plant is one of the very common food plants of this region. One sees the peeled and unpeeled tubers in all parts of Foochow. Apparently they are eaten by all classes. Venders sell them strung on split bamboo sticks, six tubers peeled and sometimes dipped in a dark-brown candy paste. The fields of this water chestnut were common both on the river level and on high ground. The grasshoppers eat the tops very badly, so that I saw no good seed.”

48566. EREMOCHLOA OPHIUROIDES (Munro) Hack. Poaceæ. **Grass.**

“(Kuliang Hills, near Foochow, China. August 25, 1919.) Tops of the best lawn and grazing grass of this region. All through the clay region and the gravelly sand alluvial this is the dominant plant. All the neglected fields and washed hillsides are overgrown with it. It is depended upon in Kuliang and largely in Foochow as a source of cover for lawns. If the lawns are mowed, clipped, or grazed, this is the only grass which persists except Bermuda grass (*Capriola dactylon*), which sometimes maintains itself along the edges of walks and paths. This grass in pure culture does not need to be mowed, as it grows only 3 or 4 inches high. In rich soil it is dark green. It can be eradicated easily, as the runners are on the surface, and it is easily propagated by pieces of runners, turf, or seed. It is the best grazing grass in this region, growing with *Lespedeza striata* and allied forms over the fallow terrace lands. The prime condition of the cattle grazing in the hills here depends upon the prevalence of this grass and lespedeza. This is also an excellent plant to prevent washing; the long runners stretch out in every direction, root at every node, and soon branch and make cover. If it can be grown even as far north as North Carolina, it will solve the lawn difficulties of the Eastern States, where none of our grasses are satisfactory the year round.”

48567. FICUS sp. Moraceæ.

“(Kuliang Hills, near Foochow, China. September 3, 1919.) Seed of the common banyan which finds its natural northern limit at Foochow. This tree is the best general-purpose shade tree commonly found at Foochow.”

48568. GINKGO BILOBA L. Ginkgoaceæ. **Ginkgo.**

“(Shanghai, China. October 1, 1919.) Many tons of ‘nuts’ may be seen in the markets of Shanghai in September. Numerous grades are seen, based apparently on individual trees. The samples collected illustrate the range of variation.”

48569. APIOS FORTUNEI Maxim. Fabaceæ.

“(Kuliang Hills, near Foochow, China. September 2, 1919.) This relative of *Apios tuberosa* and *A. priceana* is very important as a possible means of producing hybrids. It differs from both our American species, but may cross with one or both. It has a large fleshy root suggesting *A. priceana* in type. If, through it, the type of either one of our native plants can be broken up and a range of variation started to use in selection work, a new crop will be assured.”

For previous introduction, see S. P. I. No. 44569.

48551 to 48586—Continued.

48579. *IPOMOEA REPTANS* (L.) Poir. Convolvulaceæ.
(*I. aquatica* Forsk.)

“(Foochow, China. September 10, 1919.) This plant is an important leaf vegetable or potherb. Several varieties are grown, but the common wide-leaved aquatic form grown in paddy and pond-edge culture is more abundant in markets. A dry-land form is found even on the hilltop up to 3,000 feet. Its growth is not nearly as tender as the aquatic form, but some say the two forms are different only in the cultural methods. In the flats on Nantai Island forms were found with narrow leaves. While they were cultivated in a half-hearted way, it seemed that these strains were little improved from the wild type, which, however, I did not see in this region, so that the plant is evidently not a native of Foochow. Some of the aquatic dry-land forms showed no bloom up to September, but the hill dry-land forms were in bloom in July and well seeded late in August. The quality of this plant is only mediocre, as the flavor has nothing distinctive about it. The upland forms are more or less fibrous, but the water-grown shoots of the flat plains are quite brittle. On early mornings in June and July one sees great loads of the shoots about 18 inches long in the market streets. The hollow stems, over half an inch in diameter, and the succulent leaves are cut up and cooked into a spinachlike table vegetable. The Chinese say that they carry the aquatic form through the winter without seed, renewing the field from cuttings in the spring. Both forms are attacked by white rust very badly. These seeds were obtained from a patch grown in very wet soil, but not under paddy conditions.”

48571. *JUGLANS REGIA* L. Juglandaceæ. Walnut.

“(Kobe, Japan. October 28, 1919.) Thin-shelled Persian walnuts from China procured here, where they were being transshipped. The shipment was apparently from ungrafted seedlings, but all the nuts were much thinner shelled than those from Japan and were as good as high-grade stock from California.”

48572 and 48573. *KOCHIA SCOPARIA* (L.) Schrad. Chenopodiaceæ.

48572. “(Saigo, near Nagasaki, Japan. October 10, 1919.) A plant used for brooms all along the eastern coast of China and in Japan. The stems are very tough and durable. It is an ornamental border plant. This is not the same as the common Kochia of American seed catalogues. These plants are not highly colored in the fall and are fastigiate inverted pyramidal rather than ovoid. The branches and twigs are wonderfully tough and wear resistant. Every little garden has a few of these plants, first for ornamentals, then to pull for brooms to sweep the walks and yard.”

48573. “(Foochow, China. September 14, 1919.) Another sample of the plant used for brooms by the Chinese and Japanese.”

48574. *OSTERDAMIA JAPONICA* (Steud.) Hitchc. Poaceæ. Grass.
(*Zoysia japonica* Steud.)

“(Mogi, near Nagasaki, Japan.) Mixed seed of two forms of the common lawn grass of Japan. These seem distinct from the forms grown at Miami and Pasadena. If they are free-fruited strains they will prove an important addition to our grass importations, as *Osterdamia* when properly handled is one of the best lawn grasses for the South.”

48551 to 48586—Continued.

- 48575.** *PSIDIUM GUAJAVA* L. Myrtaceæ. **Guava.**
 "Seeds from a very large guava in the market of Foochow, China. Large yellow or green guavas were very common. When stewed with red plums they make a very pleasant fruit dish."
- 48576.** *PYRUS* sp. Malaceæ. **Pear.**
 "(Kuliang Hills, near Foochow, China. August 30, 1919.) Seeds of a wild pear tree growing in a village on Kuliang. This seems to be the semiwild form of the cultivated pear of this region."
- 48577.** *PYRUS* sp. Malaceæ. **Pear.**
 "(Foochow, China. September 16, 1919.) Seeds of an ovoid sand pear common on Foochow markets."
- 48578.** *PYRUS* sp. Malaceæ. **Pear.**
 "(Foochow, China. September 16, 1919.) Seeds of a large round sand pear common in the markets at Foochow."
- 48579.** *PYRUS* sp. Malaceæ. **Pear.**
 "(Foochow, China. September 16, 1919.) Seeds of a small round sand pear common in the markets at Foochow."
- 48580.** *PYRUS* sp. Malaceæ. **Pear.**
 "(Foochow, China. September 10, 1919.) Seeds collected in market by Chinese 'boy.'"
- 48581.** *PYRUS* sp. Malaceæ. **Pear.**
 "(Foochow, China. September 10, 1919.) Seeds collected in market by Chinese 'boy.'"
- 48582.** *PYRUS* sp. Malaceæ. **Pear.**
 "(Foochow, China. September 10, 1919.) Seeds collected in market by Chinese 'boy.'"
- 48583.** *RHODOMYRTUS TOMENTOSA* (Ait.) Wight. Myrtaceæ.
 "Growing among the azaleas on the Kuliang Hills, China, is this shrub with beautiful silvery-green leaves. Its flowers come in June and last until mid-July. While not so showy as an azalea it helps to make the bare grass-covered hills pleasant to the eye."
- 48584.** *ROSA* sp. Rosaceæ. **Rose.**
 "(Foochow, China. September 14, 1919.) Seeds of the common summer-blooming rose of Foochow fields. Very robust and hardy. This rose was in bloom in June on the hills and uncultivated areas on the island. It is a large white rose of strong growth and dark-green foliage. The bractlike involucre below the ovary is a striking characteristic. Found wherever the clay of granite origin is not covered by river alluvial silt. This rose thrives from sea level up to the top of Kushan (3,000 feet). Some plants were still flowering late in August, but most of the bushes or vines were set full of large red hips, often three-fourths of an inch or more in diameter. If the old flowers were picked off I think it would continue to bloom. All the other roses here are out of bloom before July. This rose varies from a small shrubby plant of pastures, scarcely 2 feet in spread, to bushes 6 feet high and with stems an inch through. In front of a bungalow at Kuliang was one that spread on the ground with runners 10 feet long. Now and then flowers are seen with more than five petals. This rose is used by the missionaries for table decoration."

48551 to 48586—Continued.

48585. *TRICHOSANTHES CUCUMEROIDES* (Ser.) Maxim. Cucurbitaceæ.

“(Foochow, China. Seeds from the garden of Mrs. T. N. Wilkinson. September 14, 1919.) This beautiful vine is grown in pots and trained on a frame about 2 feet high, the vine being wound in and out in a globe-shaped arrangement by the Chinese gardeners. In autumn, when the bright-red fruits hang among the dark-green lower leaves and the lacinate starlike flowers peep out among the upper leaves, this plant is very attractive. As a trellis vine it does not show so well, as it is not compact enough. The fruits are about 4 inches long and 1 inch through, shaped like an elongated lemon. When ripe they are a brilliant red.”

48586. *TRICHOSANTHES* sp. Cucurbitaceæ.

“(Kuliang Hills, near Foochow, China. August 6, 1919.) A wild gourd found on the hills northwest of Kuliang, growing in grassland; about 3 inches in diameter, round, and yellow, and very full of seed; pulp bitter but attractive looking. Should be grown as a possible trellis ornamental.”

48587 and 48588. *SOJA MAX* (L.) Piper. Fabaceæ. Soy bean.

(*Glycine hispida* Maxim.)

From Mirpurkhas, Sind, India. Presented by Mr. T. F. Main, Deputy Director of Agriculture. Received October 21, 1919.

“Two varieties of soy beans typical of the region around Sind. They have been under trial for the last five years on the Mirpurkhas Farm and give yields varying from 120 to 180 pounds per acre.” (*Main.*)

48587. “Black soy beans.”

48588. “White soy beans.”

48589. *ALEURITES MONTANA* (Lour.) Wilson. Euphorbiaceæ.

Mu-oil tree.

From Port Louis, Mauritius. Presented by Mr. G. Regnard. Received October 30, 1919.

“This tree is very scarce in Mauritius. It was introduced many years ago at the Royal Botanic Gardens of Pamplemousses, under the erroneous name of *Acer heterophylla*. The tree has been grown only for the pretty flowers and foliage. The blossoming generally precedes the coming out of leaves, but in 1911 the two appeared together.” (*Regnard.*)

Aleurites montana yields an oil from the seeds practically identical with that from *A. fordii*, the tung-oil tree of China. While the seeds of the two species are almost indistinguishable, the fruits are easily recognized by their exteriors; those of the former are prominently ridged, while those of the latter are smooth.

48590 to 48594. *TRITICUM AESTIVUM* L. Poaceæ.

(*T. vulgare* Vill.)

Common wheat.

From Algiers, Algeria. Presented by Dr. L. Trabut. Received November 3, 1919. Quoted notes by Dr. Trabut.

“These wheats are cultivated in an oasis by irrigation.”

48590. No description was received with this material.

48591. “Wheat cultivated in Salla, Sahara.”

48592. “*Ali Ben Makhloul* from Tuat, Sahara.”

48593. “*Kernouf* from Tuat, Sahara.”

48594. “Wheat from Gourara, Sahara.”

48595. CASSIA TOMENTOSA L. f. Cæsalpiniaceæ.

From Egypt. Presented by the director, Horticultural Section, Gizeh Branch, Ministry of Agriculture. Received November 5, 1919.

A tall shrub, tomentose or pubescent throughout, with oblong leaflets and terminal and axillary racemes of large deep-yellow flowers. (Adapted from *Grisebach, Flora of the British West Indian Islands, p. 207.*)

48596. ACHRAS ZAPOTA L. Sapotaceæ.**Sapodilla.**

From Panama, Republic of Panama. Presented by Mr. Ramon Arias-Feraud. Received November 5, 1919.

"The *sapodilla* or *chicozapote* is the best of the sapotaceous fruits. It is common in many parts of tropical America (growing wild in several regions) and is cultivated successfully in southern Florida, where it merits commercial exploitation. The fruits, which are picked when still hard, can be shipped to distant markets. Choice varieties should be propagated by budding." (*Wilson Popenoe.*)

48597 to 48608.

From Para, Brazil. Presented by Mr. André Goeldi. Received November 5, 1919. Quoted notes by Mr. Goeldi, except as otherwise stated.

48597. BRADBURYA PLUMIERI (Turp.) Kuntze. Fabaceæ.

(*Centrosema plumieri* Turp.)

A luxuriant ornamental vine known throughout the Parahyba Valley and also between Sao Paulo and Rio Janeiro, Brazil. It thrives in the dense shade, the vines climbing up to the tops of the trees at least 20 feet, until they find the sun. It bears large numbers of smooth pods about 8 inches long.

For previous introduction, see S. P. I. No. 32058.

48598 and 48599. BRADBURYA VIRGINIANA (L.) Kuntze. Fabaceæ.

(*Centrosema virginianum* Benth.)

48598. "Collected in September, 1919."

48599. "From Marajo Island."

48600. CANAVALI OBTUSIFOLIUM (Lam.) DC. Fabaceæ.

A creeping bushy herb, native to all the tropical regions, coriaceous-fleshy throughout even to the flowers, which are bright purple. The linear-oblong pods bear five to eight very hard, red-brown seeds, which are used as small change in Loanda, Angola. (Adapted from *Hiern, A Catalogue of Welwitsch's African Plants, pt. 1, p. 254.*)

For previous introduction, see S. P. I. No. 44753.

48601 and 48602. CASSIA sp. Cæsalpiniaceæ.

48601. "A fiber plant."

48602. "From Marajo Island."

48603. PHASEOLUS sp. Fabaceæ.

"Marajo Island. September, 1919."

48604. CLITORIA GLYCINOIDES DC. Fabaceæ.

"Collected in September, 1919."

48605. PAVONIA sp. Malvaceæ.

"A fiber plant."

48597 to 48608—Continued.**48606.** TRIUMFETTA sp. Tiliaceæ.

"A fiber plant."

48607. VIGNA VEXILLATA (L.) Rich. Fabaceæ.

"Collected in September, 1919."

48608. WISSADULA SPICATA (H. B. K.) Presl. Malvaceæ.An inferior forage, useful for cattle in times of emergency. (Adapted from *Correa, Flora do Brazil*, p. 137.)**48609 to 48611.**

From Salisbury, Rhodesia. Roots presented by Mr. H. C. Mundy, agriculturist and botanist, Department of Agriculture. Received November 7, 1919.

"We have sent you two tins containing roots of cow cane, Indian cane, and m'fufu grass. As these plants are very hardy, I trust that the roots will retain their vitality. We have never obtained seeds of either cow cane or Indian cane, as the plants have not flowered with us." (*Mundy*.)

48609. PENNISETUM sp. Poaceæ.**M'fufu grass.****48610.** SACCHARUM sp. Poaceæ.**Indian cane.****48611.** SACCHARUM sp. Poaceæ.**Cow cane.****48612.** CACARA EROSA (L.) Kuntze. Fabaceæ.**Yam bean.**(*Pachyrhizus angulatus* Rich.)

From Santiago de las Vegas, Cuba. Presented by Dr. Mario Calvino, director, Estacion Experimental Agronomica. Received November 8, 1919.

"Seeds of what we consider to be *Pachyrhizus tuberosus*. This plant bears blue flowers, although I have seen in Mexico one variety with white flowers." (*Calvino*.)

For previous introduction, see S. P. I. No. 47146.

48613. CASSIA AUSTRALIS Sims. Cæsalpiniaceæ.

From Cairo, Egypt. Presented by Mr. F. S. Walsingham, Horticultural Section, Gizeh Branch, Ministry of Agriculture. Received November 11, 1919.

An erect Australian shrub, simple or very little branched toward the top. The abruptly pinnate leaves are made up of 10 or 12 pairs of oblong-elliptical leaflets, and the axillary peduncles usually bear four large golden-yellow flowers. (Adapted from *Curtis's Botanical Magazine*, pl. 2676.)

48614 to 48623. MANIHOT ESCULENTA Crantz. Euphorbiaceæ.(*M. utilisissima* Pohl.)**Cassava.**

From St. Kitts, British West Indies. Cuttings presented by Mr. F. R. Shepherd, agricultural superintendent, Botanic Station, St. Kitts-Nevis. Received November 11, 1919.

"I am sending three sticks of each of the different varieties of cassavas." (*Shepherd*.)

48614. *Bitter No. 1.***48619.** *Jackroe.***48615.** *Bitter No. 4.***48620.** *Small leaf.***48616.** *Blackolick.***48621.** *Sweet No. 1.***48617.** *Blue top.***48622.** *Red Greenaway.***48618.** *French No. 3.***48623.** *White Greenaway.*

48624. PANDOREA RICASOLIANA (Tanf.) Baill. Bignoniaceæ.*(Podranea ricasoliana Sprague.)*

From Nice, France. Presented by Dr. A. Robertson Proschowsky. Received November 10, 1919.

"Seeds of a most strikingly beautiful climber. It is evergreen, quick-growing, and produces its flowers during six or eight months—from spring to autumn, here—and perhaps would produce all through the year in a warmer climate. The flowers are large and of a beautiful pale-rose color; they are produced in large bunches, hundreds sometimes being open at the same time. I have had this species for more than 20 years, but this year is the first time it ever produced any seeds, four fruits having developed." (*Proschowsky.*)

For previous introduction, see S. P. I. No. 32069.

48625. TRIFOLIUM REPENS L. Fabaceæ.**White clover.**

From Groningen, Holland. Presented by Mr. C. Broekema, director, Groninger Zaaizaadvereeniging. Received November 11, 1919.

"*Friesland* white clover seed of the 1918 crop. It is unnecessary to state that the *Friesland* white clover is not a pure-bred strain, but what we call a 'land-race.'" (*Broekema.*)

48626. FERONIA LIMONIA (L.) Swingle. Rutaceæ. Wood-apple.*(F. elephantum Correa.)*

From Peradeniya, Ceylon. Presented by Mr. H. F. Macmillan, superintendent, Botanic Gardens, Department of Agriculture. Received November 15, 1919.

"*Wood-apple*, or *elephant-apple*. A good-sized tree, 40 to 50 feet high, native to India and Ceylon. It bears round fruit, about the size of a large cricket ball, similar to the bel fruit, but distinguished from it by having a whitish, warty surface. The hard, woody shell incloses a soft, brownish, mealy substance which has a strong aromatic odor. The fruit is generally relished in Ceylon by the poorer classes and is also used in native medicine. Elephants, too, are fond of it. The tree is common throughout the dry region, being often cultivated there as well as in the moist low country." (*Macmillan.*)

48627 to 48630. BRASSICA spp. Brassicaceæ.

From Sibpur, near Calcutta, India. Presented by Mr. A. Gage, director, Botanical Survey of India. Received November 17, 1919. Quoted notes by Mr. Gage.

48627 and 48628. BRASSICA CAMPESTRIS SARSON Prain. Sarson.

48627. "Dark seeds mixed with *tori* from the Calcutta market."

48628. "Yellow seeds from the Calcutta market."

48629. BRASSICA JUNCEA (L.) Cass. Chinese mustard.

"*Lutni Rai*. Yellowish brown seeds from the Calcutta market."

48630. BRASSICA NAPUS DICHOTOMA (Roxb.) Prain. Tori.

"*Tori* from the Calcutta market."

48631 and 48632. BETA spp. Chenopodiaceæ.

From Algiers, Algeria. Presented by Dr. L. Trabut. Received November 19, 1919. Quoted notes by Dr. Trabut.

48631 and 48632—Continued.

48631. BETA VULGARIS MACROCARPA (Guss.) Moq.

"Very abundant on salty, clayey soil."

48632. BETA VULGARIS PERENNIS L.

"Spinach-beet. The leaves are used like spinach."

48633. ELAEIS GUINEENSIS Jacq. Phœnicaceæ. **African oil palm.**

From Kamerun, West Africa. From Mr. Fred Hope, Ebolwoa. Received November 19, 1919.

Variety *poissonii*. The distinguishing character of this form is the presence around the fruit of a "collar" which consists of the persistent perianth having become more accrescent and more fleshy than usual. Very little notice appears to have been taken previously of the perianth at the time when the fruit was mature, probably owing to its having been removed before the fruit was brought into the market. The fruit is obovoid or subglobose, about 3 cm. long (not including the beak, which is 1 cm. long), and somewhat constricted at the base, not ventricose as in some varieties. The woody endocarp is about 3 mm. thick. The 6-parted perianth is thick and fleshy and almost incloses the fruit. Its segments have a transverse thickening about 5 mm. from their apices. According to an analysis made at the Imperial Institute it contains "69.9 per cent of oil, equivalent to 14.8 per cent calculated on the whole fruit or 78.2 per cent calculated on the dry pulpy covering." The ordinary pulp adhering to the nuts of this form yields 27.2 per cent of oil. (Adapted from *Kew Bulletin of Miscellaneous Information*, p. 93.)

48634 to 48636. LOTUS spp. Fabaceæ.

From Weraroa, New Zealand. Presented by Mr. E. Bruce Levy, biologist, Central Development Farm. Received November 24 and 25, 1919. Quoted notes by Mr. Levy.

48634. LOTUS CORNICULATUS L.

"Bird's-foot trefoil."

An excellent fodder, considered a valuable ingredient in meadows and pastures. Native to Tasmania, Victoria, New South Wales, and South Australia. (Adapted from *Maiden, Useful Native Plants of Australia*, p. 134.)

For previous introduction, see S. P. I. No. 18371.

48635. LOTUS ULIGINOSUS Schkuhr.

"Greater bird's-foot trefoil."

A pasture plant of agricultural importance, fairly largely used in New Zealand, from 10 to 15 tons of seed being sown annually. This plant prefers a wet or swampy habitat. The seed sold in December, 1918, at about a dollar per pound. It is saved for seed mainly in the Auckland Province, but prior to the war the greater portion was imported, mainly from Germany. This seed was exported from the latter country under the name of *Lotus villosus* or *L. uliginosus*, which names are the European trade names for the *L. major* of the New Zealand seed trade. *Lotus major* is very variable with regard to certain characters, such as hairiness, and in consequence several botanical names have been given to the plant. There are apparently a good many different strains, but whether these breed true from seed and are good agricultural species or whether

48634 to 48636—Continued.

they are due either to the habitat in which they are growing or to fertilization has not yet been ascertained. (Adapted from *The New Zealand Journal of Agriculture*, vol. 17, p. 347.)

For previous introduction, see S. P. I. No. 5942.

Received as *L. major*, which is now considered to be a synonym of *L. uliginosus*.

48636. LOTUS sp.

"Hairy bird's-foot trefoil."

Received as *L. hispidus*, but the sample does not agree with our material of that species.

48637 to 48654.

From Persia. Presented by Mr. Edward C. M. Richards, forester, New York City. Received November 25, 1919. Quoted notes by Mr. Richards.

"Perhaps you will recall that late in May, 1917, when I was starting for western Persia to do relief work, you asked me to do what I could toward securing Persian seeds of various kinds for you. I returned to New York this last July bringing with me a variety of vegetable and grain seeds. These seeds were collected for me by various Persians, and I trust that you will find them of use to you."

48637. *CAPSICUM ANNUM L.* Solanaceæ. Red pepper.

"Hot red pepper."

48638. *CUCUMIS MELO L.* Cucurbitaceæ. Muskmelon.

48639. *FICUS CARICA L.* Moraceæ. Fig.

"Kurdistan fig."

48640 and 48641. *HORDEUM DISTICHON PALMELLA* Harlan. Poaceæ.

Barley.

48640. "Yellow barley." 48641. "Ordinary form."

48642. *JUGLANS REGIA L.* Juglandaceæ. Walnut.

48643 and 48644. *ORYZA SATIVA L.* Poaceæ. Rice.

48643. "Ardibil." 48644. "Sadry."

48645. *RAPHANUS SATIVUS L.* Brassicaceæ. Radish.

48646 to 48651. *TRITICUM AESTIVUM L.* Poaceæ. Common wheat.

48646. "Hamisee bahar. One of the best wheats of Persia. Can be used as either fall or spring wheat."

48647. "Fall wheat." 48650. "No. 2."

48648. "Perfumé, spring wheat." 48651. "No. 3."

48649. "No. 1."

48652 and 48653. *VITIS VINIFERA L.* Vitaceæ. Grape.

48652. "Zenjon." 48653. "Black Kurdistan."

48654. *ZEA MAYS L.* Poaceæ. Corn.

48655. RODGERSSIA PINNATA Franch. Saxifragaceæ.

From Ness, Neston, England. Seeds presented by Mr. A. K. Bulley. Received November 28, 1919.

"One of the finest of wild plants, which is apparently beginning to break under garden culture. Seedlings are varying greatly in color. There are some very fine reds. The seed generally germinates easily and the plant, espe-

cially in the deep red forms, is certainly one of the very finest of herbaceous perennials." (*Bulley.*)

48656. *RANDIA* sp. Rubiaceæ.

From Concepcion, Paraguay. Presented by Mr. R. Gwynn. Received November 29, 1919.

"A very ornamental bush, 12 to 15 feet high, growing on the bank of a stream about 7 miles from Rio Paraguay in the Chaco region. It is very handsome." (*Gwynn.*)

48657 to 48688.

From Montevideo, Uruguay. Presented by Sr. Luis Guillot, Direccion General de Paseos Publicos. Received October 17, 1919.

48657. *ARISTOLOCHIA FIMBRIATA* Cham. Aristolochiaceæ. (*A. ciliata* Hook.)

Fringed-flowered Aristolochia. A native of Buenos Aires, with a weak, slender stem, not climbing; the leaves are cordate-reniform and very obtuse. The tube of the perianth is green, much curved, like a hunting horn, swollen at the base, expanding above into a large 1-sided limb which is greenish brown outside and deep purple-brown inside, with yellow reticulations; the margin is beset with long, succulent hairs, each tipped with a gland. The very singular structure and color of the long-fringed flowers render this species particularly worthy of cultivation under glass or in favorable situations in the open. (Adapted from *Curtis's Botanical Magazine*, pl. 3756.)

48658. *BACCHARIS CORDIFOLIA* DC. Asteraceæ.

Mio-mio. This shrubby, much-branched plant is well known by farmers and herders to be a violent poison to herbivorous animals. Doubtless the danger is great enough for it to be recognized as poisonous by the animals, as thickets of the *mio-mio* in the pastures remain undisturbed. (Adapted from *Arechavaleta, Flora Uruguayana*, vol. 3, p. 234.)

48659. *BACCHARIS GENISTELLOIDES* (Lam.) Pers. Asteraceæ.

Carqueja. This erect, somewhat shrubby plant is found in grassy fields everywhere in Uruguay, Colombia, Ecuador, Peru, Argentina, and Paraguay. In Brazil it is used medicinally. (Adapted from *Arechavaleta, Flora Uruguayana*, vol. 3, p. 224.)

48660. *BLEPHAROCALYX LANCEOLATUS* Berg. Myrtaceæ.

Multa. A very abundant, tall, slender tree with fragrant leaves; the small yellow fruits are not edible. The wood of this tree is soft and nearly white. (Adapted from *Venturi and Lillo, Contribucion al Conocimiento de los Arboles de la Argentina*, p. 67.)

48661. *CARICA QUERCIFOLIA* (St. Hil.) Benth. and Hook. Papayaceæ.

"The fruit from this species is said to contain more papain than that of any other. The tree is very hardy, is uninjured by light frosts, and should prove of value for breeding purposes." (*David Fairchild.*)

For previous introduction, see S. P. I. No. 41298.

48662. *CELTIS AUSTRALIS* L. Ulmaceæ. Nettle tree.

The nettle tree is one of the best trees for replanting forests because of its rapid growth, even in poor and rocky soils. The value of its products (wood, leaves, and fruits) soon compensates for the expense incurred in planting and cultivating it.

48657 to 48688—Continued.

In the temperate zone, to which it is best suited, the nettle tree does well in any exposure and in any soil. Its different ways of propagation allow the grower to choose the method of planting which is best adapted to the local conditions and to the soil. The tree does well in soils where other trees grow only with difficulty and helps to cover rocky and arid ground. When grown on the pollarding system or in groups of coppice shoots, it supplies material for the manufacture of many agricultural implements. Each part of the tree is of value and supplies useful material; thus, the wood, by reason of its hardness, fine grain, delicate color, elasticity, and resistance, is excellent for turning or cabinetmaking; the leaves are valuable as fodder for animals, especially in seasons and districts in which there is a shortage of green fodder; cattle and goats willingly eat the young leaves which, when fresh, contain 6.30 per cent of nitrogenous substances, 0.15 per cent of fat, and 19.69 per cent of carbohydrates. Nearly every year the nettle tree gives an abundant crop of stone fruit very rich in sugar (39.40 per cent when completely ripe), which makes a very useful feedstuff for live stock, especially in districts where it is not possible to include sugar in the rations. The kernel contains 67.10 per cent of fat, that is to say, 7.02 per cent of that of the whole fruit. When ground the stones yield about 10 per cent of fat, but, if the kernels are separated from the woody part, this may amount to 60 per cent. In this case cakes containing about 12 per cent of protein, 12.4 per cent of fat, and 48.5 per cent of nitrogen-free extract are obtained. The oil extracted may be used for various purposes.

The nettle tree should be preferred to all other trees for replanting woods, and offers means of rapidly covering bare ground with plant growth. The speedy and large remuneration promised by its products may serve as an attraction to private landowners who wish to help in the regeneration of Italian forests. (Adapted from *Annali della Regia Scuola Superiore di Agricoltura in Portici, 2d ser., vol. 13, p. 1.*)

48663. *CELTIS TALA* Gillies. Ulmaceæ.

Tala. On the coast of the Atlantic and in the district of Tuyu immense thickets of *tala* exist. It is a tree with a short, stout, branched trunk. The wood is yellowish white and smooth; it is used for posts and firewood. (Adapted from *Venturi and Lillo, Contribucion al Conocimiento de los Arboles de la Argentina, p. 102.*)

For previous introduction, see S. P. I. No. 42285.

48664. *CISSUS SICYOIDES* L. Vitaceæ.

(*Vitis sicyoides* Miquel.)

The leaves of this vine are cooked with taros and castor oil and used as a poultice for abscesses. (Adapted from *Sack, Plantaardige Voortbrengselen van Suriname, p. 42.*)

48665. *CISTUS CANDIDISSIMUS* Dun. Cistaceæ.

A beautiful rapid-growing evergreen shrub, with silvery-white leaves and short-lived, pale rose-colored flowers, from the Canary Islands. It is an ideal rockery plant. (Adapted from *Flora and Sylva, vol. 2, p. 44.*)

48666. *CISTUS LADANIFERUS* L. Cistaceæ.

The gum cistus is the finest of the genus and one of the best and hardiest of small shrubs. It is a handsome, bushy evergreen, from 4 to

48657 to 48688—Continued.

8 feet in height, with scented foliage. The stem and the large, deep-green leaves, silvery white below, are clammy pubescent. The numerous, large, showy white flowers have a bold crimson blotch at the base of each petal. In parts of the East the gum is gathered from this plant by beating the branches with a sort of flail, the thick gummy juice being scraped off and made into a fragrant resin. (Adapted from *Flora and Sylva*, vol. 2, p. 44, and *Gardening Illustrated*, vol. 22, p. 212.)

48667. DODONAEA VISCOSA (L.) Jacq. Sapindaceæ.

Chirca de monte. A tree, 3 to 5 meters high, with erect branches and dark wrinkled bark. The leaves are of varying shapes, oblong to lanceolate; the greenish white flowers are very small; and the fruit is a deep red capsule. It is frequent in stony places along the coast and is also found in the interior. (Adapted from *Arechavaleta, Flora Uruguaya*, vol. 1, p. 290.)

For previous introduction, see S. P. I. No. 45726.

48668. DOLICHOS JACQUINII DC. Fabaceæ.

(*D. lignosus* Jacq. not L.)

A perennial twining plant, pilose throughout, with ovate-acute scabrous leaves about 2 inches long; the umbels of white flowers are followed by straight, terete legumes, 3 to 4 inches long, covered with yellow hairs and snow-white inside. The small, reniform, shining black seeds, 8 to 10 to a pod, have a white hilum. Native to Caribbean forests. (Adapted from *Jacquin, Selectarum Stirpium Americanarum Historia*, p. 205.)

For previous introduction, see S. P. I. No. 27534.

For discussions of the status of *Dolichos lignosus* and of *D. jacquini*, the following publications should be consulted: Piper, C. V., and Morse, W. J., "The Bonavist, Lablab, or Hyacinth Bean," U. S. Department of Agriculture Bulletin No. 318, 1915; Freeman, G. F., "The Purple Hyacinth Bean," *Botanical Gazette*, vol. 66, pp. 512 ff. 1918.

48669. DURANTA LORENTZII Griseb. Verbenaceæ.

"A shrub, 3 or 4 meters high, with lilac flowers and drupaceous succulent fruits." (*Guillot*.)

48670. EUGENIA AUSTRALIS Wendl. Myrtaceæ.

(*E. myrtifolia* Sims.)

A handsome evergreen shrub from East Australia, with graceful, slightly winged branches and smooth, shining, elliptic leaves. The dainty white flowers have persistent calyxes with spreading red sepals, small petals, and very many, extremely long, large-anthered stamens. The leaves and flowers have a pleasant aromatic taste. The palatable fruit is utilized particularly for jam, but the seed must be removed from the pulp. (Adapted from *Curtis's Botanical Magazine*, pl. 2230, and *Mueller, Select Extra-Tropical Plants*, p. 212.)

48671. EUGENIA GUABIJU Berg. Myrtaceæ.

Pitanga. This slender ornamental tree is found on the banks of streams. The immature fruit is red, turning black when mature; it is smaller than that of *Ñangapirý* (*Eugenia uniflora*), and is not edible. (Adapted from *Venturi and Lillo, Contribucion al Conocimiento de los Arboles de la Argentina*, p. 69.)

For previous introduction, see S. P. I. No. 3208.

48657 to 48688—Continued.

48672. FICUS SUBTRIPLINERVA Mart. Moraceæ.

A Brazilian forest tree with a dense crown of obtuse papery leaves, prominently 3-veined at the base. The small axillary fruits are globular. (Adapted from *Martius, Flora Brasiliensis, vol. 4, pt. 1, p. 99.*)

48673. GLEDITSIA AMORPHOIDES (Griseb.) Taub. Cæsalpiniaceæ.

A spiny Bolivian tree, flowering in December; it sometimes attains a height of 50 feet and the trunk diameter is often 2½ feet. Hieronymus states, according to Taubert, that the bark is used in place of soap for removing spots from woolen and cotton goods; hence the name "quillay." The leaves, young twigs, and roots have astringent properties. The wood is used in making vessels for holding liquids, in turning, house furniture, and for wooden soles and pegs. (Adapted from *Taubert, Berichte Deutsche Botanische Gesellschaft, vol. 10, p. 637.*)

For previous introduction, see S. P. I. No. 42327.

48674. HEIMIA MYRTIFOLIA Cham. and Schlecht. Lythraceæ.
(*Nesaea myrtifolia* Desf.)

A small, densely leafy ornamental shrub with deep yellow flowers; native to Brazil. (Adapted from *St. Hilaire, Flora Brasiliae Meridionalis, vol. 3, p. 138.*)

For previous introduction, see S. P. I. No. 36025.

48675. HELIANTHEMUM CHAMAECISTUS Mill. Cistaceæ.
(*Cistus lusitanicus* Mill.)

This beautiful evergreen shrub grows quickly into a shapely bush bearing multitudes of large white flowers with crimson spots at the bases of the petals. The narrow, bright-green leaves are slightly viscid. It flowers abundantly during the summer, is drought resistant, and if planted in a border extends itself 2 or 3 feet over. The original species is a native of Britain; it is readily propagated by cuttings and will grow in any moderately light soil. Bees are exceedingly fond of the *rock rose*, as this genus is called; and during dry seasons, when many other flowers fail, it is much frequented by bees; this probably accounts for the many natural hybrids known to botanists. (Adapted from *Flora and Sylva, vol. 2, p. 44; Gardening Illustrated, vol. 22, p. 212; and Loddiges, Botanical Cabinet, vol. 3, p. 202.*)

48676. HOMERIA COLLINA (Thunb.) Vent. Iridaceæ.
(*Moraea collina* Thunb.)

A perennial plant, native to the Cape of Good Hope, with a globose corm covered with fibrous coats, and usually one convolute-concave narrow leaf, much longer than the stem. The erect stem bears one or more clusters of handsome red-orange flowers grouped in twos or threes. (Adapted from *Curtis's Botanical Magazine, pl. 1033.*)

48677. JODINA RHOMBIFOLIA Hook. and Arn. Santalaceæ.

Quebrachillo. Generally a low, bushy, slender tree with 3-pointed spiny leaves. The wood is white and smooth; the bark is thick. It is native to Brazil. (Adapted from *Venturi and Lillo, Contribucion al Conocimiento de los Arboles de la Argentina, p. 92.*)

For previous introduction, see S. P. I. No. 33974.

48657 to 48688—Continued.

48678. MANIHOT TWEEDIANA Muell. Arg. Euphorbiaceæ.

A wild Brazilian species from which the Indians are said to obtain edible varieties by cultivating the plants for a few years.

For previous introduction, see S. P. I. No. 47971.

48679. MIMOSA RAMULOSA Benth. Mimosaceæ.

A small, much-branched shrub from Brazil, up to 5 feet high, with spiny stems, petioles, and peduncles. The solitary flower heads, which appear in the spring, are covered with inverted prickles. The nearly cylindrical pods are clothed with stout spines. It is quite similar to *Mimosa ciliata*, from which it is distinguished principally by its unjointed pods and its 3-nerved leaflets. (Adapted from *Arechavaleta, Flora Uruguaya, vol. 1, p. 427.*)

48680. MIMOSA URUGUENSIS Hook. and Arn. Mimosaceæ.

A small, branched shrub found along the banks of the Río Uruguay, 2 to 3 meters high, with a few stout, strong, straight spines. The small cylindrical shoots are lustrous and smooth. The calyx is very short, the corolla 3 to 4 mm. and glabrous; the pod is 2 to 2.5 cm. long and 4 to 6 mm. broad. (Adapted from *Arechavaleta, Flora Uruguaya, vol. 1, p. 431.*)

48681. MYRRHINIUM RUBRIFLORUM (Camb.) Berg. Myrtaceæ.

A forest tree from Brazil, with the young branches compressed and the puberulent leathery leaves soon becoming glabrous. The purplish flowers are in axillary cymes. (Adapted from *Martius, Flora Brasiliensis, vol. 14, pt. 1, p. 466.*)

48682. OCOTEA ARECHAVALETAE Mez. Lauraceæ.

"A tree, 10 to 12 meters high, with oval, entire, coriaceous leaves, shining green on top and pale green on the under side. The dark-yellow flowers are followed by dark-brown drupaceous fruits." (*Guillot.*)

48683. PASSIFLORA ADENOPODA Moc. and Sesse. Passifloraceæ.

A Mexican ornamental woody climber having cordate leaves with five ovate-acute lobes. The petioles are glandular and the bracts serrate incised. The fruits are inedible. (Adapted from *De Candolle's Prodrumus, vol. 3, p. 330.*)

48684. POMADERRIS APETALA Labill. Rhamnaceæ.

A tree occasionally attaining a height of 60 feet, but usually smaller; native to southeastern Australia. The foliage is eaten readily by stock, often in preference to their customary feed. (Adapted from *Mueller, Select Extra-Tropical Plants, p. 416.*)

48685. PROSOPIS NANDUBEY Lorentz. Mimosaceæ.

A glabrous tree of medium size, frequent in the mountains of Uruguay. The numerous small flowers appear in spring. The pods are falcate or semicircular, with a pulp of acid flavor. The wood is used industrially because of its lasting qualities. (Adapted from *Arechavaleta, Flora Uruguaya, vol. 1, p. 419.*)

48686. QUILLAJA BRASILIENSIS (St. Hil. and Tul.) Mart. Rosaceæ.

Quillay, or *jabon de palo*. A Brazilian tree, 6 to 8 meters high, with an erect trunk and an open crown. The alternate leaves are oblong-lanceolate and the white flowers are in distinct corymbs. The regular

48657 to 48688—Continued.

shape and very leafy crown of the tree make it a striking ornamental, especially when it is in flower. The bark and the wood cut into chips form articles of commerce from which are extracted certain constituents which are used in the saponification of greasy substances. (Adapted from *Arechavaleta, Flora Uruguaya, vol. 1, p. 451.*)

48687. *SCHINUS LENTISCIFOLIUS* March. Anacardiaceæ.

A small Brazilian tree, 50 to 100 cm. high, with crooked branches and dark ashy bark. The compound leaves are composed of 4 to 6 pairs of pinnæ with winged petioles. The whitish flowers in numerous axillary panicles appear in spring. (Adapted from *Arechavaleta, Flora Uruguaya, vol. 1, p. 297.*)

48688. *SYMPHYOPAPPUS* sp. Asteraceæ.

An ornamental composite received as *Eupatorium montevidense*, but identified by Dr. Blake as a species of *Symphypappus*.

48689 to 48750.

From China and Japan. Collected by Mr. J. B. Norton, Agricultural Explorer of the Bureau of Plant Industry. Received November 26 and December 1, 1919. Quoted notes by Mr. Norton.

48689. *ALLIUM* sp. Liliaceæ.

"(No. 18. Nagasaki, Japan. October 12, 1919.) A clustered garlic commonly grown around Nagasaki; also found wild, probably as an escape."

48690. *AMARANTHUS GANGETICUS MELANCHOLICUS* (L.) Voss. Amaranthaceæ. Joseph's-coat.

"(Nagasaki, Japan. October 21, 1919.) Closely related to *Amaranthus retroflexus*, with showy red, yellow, white, and green leaves; common in flower beds. This old foliage plant deserves attention from plant breeders, and if properly selected should produce a highly ornamental foliage plant for bedding purposes."

48691 to 48695. *AMYGDALUS PERSICA* L. Amygdalaceæ. Peach
(*Prunus persica* Stokes.)

48691. "(No. 3a. Foochow, Fukien, China. July 10, 1919.) The Pang San, or 'white peach,' from the market. Grown near Foochow, maturing in July and August."

48692. "(No. 4a. Foochow, Fukien, China. July 10, 1919.) The 'big red peach' (Chinese name translated) from the market. Grown near Foochow; matures from June to the middle of July."

48693. "(No. 4b. Foochow, Fukien, China. July 10, 1919.) The 'small red peach' (Chinese name translated) from the markets. Grown near Foochow; matures from June to the middle of July."

48694. "(No. 3b. Foochow, Fukien, China. July 10, 1919.) The 'Ngie,' a white peach obtained in the markets. Matures in July and August."

48695. "(No. 5. Foochow, Fukien, China. July 10, 1919.) Obtained from the market. A peach with dark-red flesh. While lacking in flavor when raw, this peach has a most excellent flavor when stewed with sugar. The juice becomes the color of dark Burgundy; this might be wonderful as a coloring for soft drinks."

48689 to 48750—Continued.

- 48696. ARDISIA JAPONICA** (Thunb.) Blume. Myrsinaceæ. Asparagus.
 "(Kobe, Japan. October 26, 1919.) A low, red-berried shrub growing in the woods above Kobe. This plant would probably make a very good Christmas green, as the berries probably remain fresh through the early winter."
- 48697. ASPARAGUS LUCIDUS** Lindl. Convallariaceæ. Asparagus.
 "(Kuliang Hills, near Foochow, Fukien, China. August 10, 1919.) A climbing vine of great beauty, growing commonly on the moist wooded slopes of ravines. Its graceful foliage and habit make it very attractive. The fleshy roots are said to be used by the Chinese for conserves."
- 48698. AVERRHOA CARAMBOLA** L. Oxalidaceæ. Carambola.
 "(Foochow, Fukien, China. September 17, 1919.) From the market. A characteristic fruit of Foochow at this season. The Chinese name means 'foreign peach,' indicating a recent introduction into this region. It does not seem to be eaten freely by the Chinese, perhaps because of its acid flavor, but it is found in all the better fruit markets."
- 48699. BENZOIN CITRIODORUM** Sieb. and Zucc. Lauraceæ.
 "(Kuliang Hills, near Foochow, Fukien, China. August 1, 1919.) A shrub or small tree with a lemon-verbena odor in the leaves and fruit. It is ornamental in appearance with its graceful habit and leaves. It is heavily loaded with oily berries; possibly this tree will yield a commercial oil more cheaply than lemon grass (*Cymbopogon citratus*)."
- 48700. CANNA** sp. Cannaceæ. Canna.
 "(Foochow, Fukien, China. September 15, 1919.) Growing in ditches in cultivated land; not used by the Chinese."
- 48701. CELOSIA CRISTATA** L. Amaranthaceæ. Cockscomb.
 "(Foochow, Fukien, China. September 15, 1919.) A very fine variegated yellow and red cockscomb, grown in pots on the front steps of the Y. M. C. A. building. The plants are cut back and made to branch so that one plant has many heads, which vary in color from red to light yellow."
- 48702. CEPHALANTHERA** sp. Orchidaceæ. Orchid.
 "(No. 16. Nagasaki, Japan. October 20, 1919.) From the grounds of the American consulate. An ornamental orchid growing in soil in large clumps like an iris. The flowers are said to be very beautiful."
- 48703. COIX LACRYMA-JOBI** L. Poaceæ. Job's-tears.
 "(Foochow, Fukien, China. September 15, 1919.) Seed from a plant growing as an escape along a ditch in the garden section of Nantai Island."
- 48704. DIANTHUS CHINENSIS** L. Silenaceæ.
 "(Mogi, near Nagasaki, Japan. October 14, 1919.) A cultivated single garden pink; no double varieties in this vicinity. Introduced for genetic work on inheritance of doubling."
- 48705. DIOSCOREA** sp. Dioscoreaceæ. Yam.
 "(No. 13. Nagasaki, Japan. October 14, 1919.) For experimental use."

48689 to 48750—Continued.

48706. *DIOSCOREA* sp. Dioscoreaceæ.

Yam.

"(No. 14. Nagasaki, Japan. October 14, 1919.) For experimental use."

48707. *DURANTA REPENS* L. Verbenaceæ.

"(Foochow, Fukien, China. September 15, 1919.) *Duranta repens* is probably the most common flowering shrub around Foochow. It is not only planted as a hedge in many native and foreign gardens, but grows as an escape everywhere. Its nodding racemes of blue flowers and persistent golden yellow berries which cover the unpruned plants give a very pleasing appearance to the dusty roadsides. As a close-pruned hedge *Duranta* is quite satisfactory to many foreign residents, as it stays green better than many other plants and quickly fills up gaps caused by neglect or typhoons."

48708. *EURYA JAPONICA NITIDA* (Korth.) Dyer. Theaceæ.

"(Kuliang Hills, near Foochow, Fukien, China. August 1, 1919.) 'Inkberry,' a small evergreen with black berries growing commonly over the dry hills near Foochow. Of value as a hedge border in the Southern States."

48709. *EUSCAPHIS JAPONICA* (Thunb.) Dipp. Staphyleaceæ.

(*E. staphyleoides* Sieb. and Zucc.)

"(No. 12. Saigo, near Nagasaki, Japan. October 10, 1919.) Shrub with bright crimson-purple fruits opening like *Euonymus*."

48710. *FICUS BEECHEYANA* Hook. and Arn. Moraceæ.

Fig.

"(Kuliang Hills, near Foochow, Fukien, China. August 10, 1919.) A wild fig with very strong bast fiber."

48711. *HOMIOCELTIS ASPERA* (Thunb.) Blume. Ulmaceæ.

(*Aphananthe aspera* Planch.)

"(No. 7. Nagasaki, Japan. October 22, 1919.) From the grounds of the American consulate. Seed from a Celtislike tree about 40 feet high; very ornamental. The foliage is not dense, and the tree has a light, feathery appearance."

48712. *HUMULUS JAPONICUS* Sieb. and Zucc. Moraceæ.

"(Foochow, Fukien, China. September 10, 1919.) Wild hops growing along a road; much liked by bees."

48713. *IPOMOEA REPTANS* (L.) Poir. Convolvulaceæ.

(*I. aquatica* Forsk.)

"(Foochow, Fukien, China. September 15, 1919.) Plant used for greens."

48714 and 48715. *LAGENARIA VULGARIS* Seringe. Cucurbitaceæ. Gourd.

"(Saigo, near Nagasaki, Japan. October 10, 1919.) Seeds of rather high-grade dipper gourds grown at a large orange plantation near Saigo."

48714. "(No. 19.) White-seeded form."

48715. "(No. 21.) Blue-seeded form."

48716. *LILIUM BROWNII* Poit. Liliaceæ.

Lily.

"(Kuliang Hills, near Foochow, Fukien, China. August 25, 1919.) The lily that makes Kuliang beautiful in June and July. The solitary trumpets of this large lily stand out in bold relief against the barren hillsides. The buds and young flowers are light yellow, but the full

48689 to 48750—Continued.

open flower gradually turns to a clear white with purple or brownish stripes on the outer petals. The bulbs are said to be eaten by the Chinese."

48717. *LUFFA CYLINDRICA* (L.) Roemer. Cucurbitaceæ.
(*L. aegyptiaca* Mill.)

"(No. 20. Saigo, near Nagasaki, Japan. October 10, 1919.) A high-grade form of this gourd selected from ripe gourds on the largest orange plantation at Saigo."

48718. *MELASTOMA REPENS* Desr. Melastomaceæ.

"(Kuliang Hills, near Foochow, Fukien, China. August 20, 1919.) 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."

48719. *MISCANTHUS SINENSIS* Anders. Poaceæ. **Grass.**

"(Kuliang Hills, near Foochow, Fukien, China. August 1, 1919.) Seeds of 'tiger grass,' the saw-edged grass which is said to kill sheep. The fruiting panicles are used to make the standard brooms of this region. In many respects these brooms are better than those made from broom corn."

48720. *OPHIPOGON JAPONICUS* (L. f.) Ker. Liliaceæ.

"(No. 2. Mogi, near Nagasaki, Japan. October 12, 1919.) This interesting grasslike plant is adapted to stand long drought and is one of the best shade-resisting plants known that could be used for lawn purposes."

48721 and 48722. *OSTERDAMIA JAPONICA* (Steud.) Hitchc. Poaceæ.
(*Zoysia japonica* Steud.) **Grass.**

"(Mogi, near Nagasaki, Japan. October 12, 1919.) Rhizomes from the same lawn from which seed was obtained in June."

48721. "(No. 3.)" **48722.** "(No. 4.)"

48723. *PAEDERIA* sp. Rubiaceæ.

"(No. 17. Saigo, near Nagasaki, Japan. October 10, 1919.) Seed of a semiherbaceous vine found along the coast from Foochow northward. A good climber, with large clusters of beautiful white and maroon, or dark purple, flowers. Good for covering fences, walls, etc."

48724. *PANICUM MILIACEUM* L. Poaceæ. **Proso.**

"(Nagasaki, Japan. October 14, 1919.) Apparently escaped from cultivation."

48725. *PHAENOSPERMA GLOBOSA* Munro. Poaceæ. **Grass.**

"(Kuliang Hills, near Foochow, Fukien, China. August 12, 1919.) A tall, large-seeded grass, apparently perennial, growing in a deep ravine. The size of the seeds suggests possibilities of improvement for feed for fowls or stock."

48726. *PITTIOSPORUM GLABRATUM* Lindl. Pittosporaceæ.

"(Shanghai, China. October 1, 1919.) From a hedge in the foreign cemetery, Bubbling Wells Road. The evergreen foliage contrasts very well with the orange fruits."

48689 to 48750—Continued.

48727. PITTOSPORUM TOBIRA (Willd.) Ait. Pittosporaceæ.

"(Nagasaki, Japan. October 10, 1919.) Grows wild in the hills back of the experiment station. Of value as an ornamental hedge."

48728. POLYGONUM sp. Polygonaceæ.

"(Nagasaki, Japan. October 20, 1919.) An ornamental wild vine growing on cliffs and embankments about Nagasaki. At a distance the plant looks like a flowering clematis, making a white mass on the rocks."

48729. PRUNUS sp. Amygdalaceæ. Plum.

"(Foochow, Fukien, China. July 10, 1919.) Obtained in market; a very good green plum."

48730. PRUNUS sp. Amygdalaceæ. Plum.

"(Foochow, Fukien, China. July 10, 1919.) A red plum; very dark flesh; a good variety."

48731. PRUNUS sp. Amygdalaceæ. Plum.

"(No. 8. Foochow, Fukien, China. July 10, 1919.) 'Nai,' a Green Gage plum grown near Foochow; season middle of June to end of July."

48732. PRUNUS sp. Amygdalaceæ. Plum.

"(Kuliang, near Foochow, Fukien, China. July 7, 1919.) A yellowish pink translucent plum of large size, obtained from Mr. James Ford, who obtained the plum from a missionary at Inghok, Fukien. This plum was not seen in the Foochow markets."

48733. RHUS SUCCEDANEA L. Anacardiaceæ.

"(No. 11. Saigo, near Nagasaki, Japan. October 10, 1919.) Very common south of Moji; formerly widely cultivated for its oil, but now neglected because of the introduction of kerosene and electricity."

"This plant produces a fruit containing a nut from which, when warmed, an oil is expressed which acquires the consistency of suet and serves for making candles." (*Hogg, Vegetable Kingdom, p. 242.*)

48734. RHYNCHOSIA VOLUBILIS Lour. Fabaceæ.

"(No. 15. Saigo, near Nagasaki, Japan. October 10, 1919.) A climbing vine, with ornamental flowers and clusters of bright-red pods."

48735. ROSA sp. Rosaceæ. Rose.

"(No. 8. Saigo, near Nagasaki. October 10, 1919.)"

48736. ROSA sp. Rosaceæ. Rose.

"(No. 9. Saigo, near Nagasaki. October 10, 1919.)"

48737. ROSA sp. Rosaceæ. Rose.

"(No. 23. Saigo, near Nagasaki. October 10, 1919.) A small wild rose growing on the barren hills."

48738. ROSA sp. Rosaceæ. Rose.

"(Nagasaki, Japan. October 14, 1919.) A clustered rose growing wild in the hills."

48739. RUBUS FUERGERI Miquel. Rosaceæ.

"(No. 28. Mogi, near Nagasaki, Japan. October 14, 1919.) The common creeping Rubus of this region. The red fruits are good but not large."

48689 to 48750—Continued.

48740. *RUBUS SWINHOU* Hance. Rosaceæ.

"(Kuliang Hills, near Foochow, Fukien, China. July 3, 1919.) The berries when ripe come off like thimbleberries; they are of good quality, rich dark red in color, with a distinct pleasantly bitter flavor, which makes them of value in hybridization work. The juice of this berry would add flavor to some of our more tasteless *Rubus* fruits."

48741 and 48742. *RUBUS TRIPHYLLUS* Thunb. Rosaceæ.

48741. "(Kuliang Hills, near Foochow, Fukien, China. October 12, 1919.) A low form, common on the hills."

48742. "(Kuliang Hills, near Foochow, Fukien, China. September 1, 1919.) A summer-fruited *Rubus* of good flavor, common in this region."

48743. *SMILAX CHINA* L. Smilacaceæ.

Smilax.

"(No. 10. Saigo, near Nagasaki, Japan. October 10, 1919.) The large bright-red berries make a beautiful show among the dark leaves. The tuberous rhizome has been used for centuries in medicine and is still recognized as having medicinal value."

48744. *SOLANUM* sp. Solanaceæ.

"(Kobe, Japan. October 26, 1919.) A showy red-berried *Solanum* growing in a mountain ravine; suitable for ornamental planting."

48745. *SOLANUM* sp. Solanaceæ.

"(Foochow, Fukien, China. September 6, 1919.) A red-fruited annual growing on walls and along roads."

48746. *STRIGA MASURIA* (Buch.-Ham.) Benth. Scrophulariaceæ.

"(Kuliang Hills, near Foochow, Fukien, China. July 16, 1919.) One plant, found in barren soil. It has an erect flower stalk with a rather showy creamy-white, 2-lipped flower suggesting a small butterfly orchid."

48747. *SYMPLOCOS CONGESTA* Benth. Symplocaceæ.

"(Kuliang Hills, near Foochow, Fukien, China. July 25, 1919.) A small tree or shrub much like the bay tree of formal gardens. Many were seen pruned like the bay trees grown in tubs in America."

48748. *TRICHOSANTHES CUCUMEROIDES* (Ser.) Maxim. Cucurbitaceæ.

"(No. 6. Nagasaki, Japan. October 11, 1919.) A climbing vine with very striking scarlet fruit, growing on the fence around the Nagasaki Agricultural Experiment Station citrus orchard."

48749. *VIBURNUM* sp. Caprifoliaceæ.

"(Saigo, near Nagasaki, Japan. October 10, 1919.) This plant has clusters of bright-red berries which, combined with the dark-green leaves, make it an ornamental highly appreciated by the residents of this region."

48750. *ZORNIA DIPHYLLA* (L.) Pers. Fabaceæ.

"(Foochow, Fukien, China. September 15, 1919.) This plant, which grows wild in the hills, may be of value as forage."

48751 and 48752. *RUBUS MACROCARPUS* Benth. Rosaceæ.

Columbian berry.

From Bogota, Colombia. Seeds and plants purchased from Mr. F. L. Rockwood. Received December 4 and 6, 1919.

48751 and 48752—Continued.

"The berry is not in clusters like the common berry, but on the end of a branch like a rose. There are always several together; they bring the bush down with weight. Some of the berries are over 2 inches long when ripe. One berry, which measured 2½ inches long, dropped to pieces while we were bringing it out of the forest. These berries are developed where there is constant moisture, clouds against the mountains, and a temperature of 65° to 68° F. They grow in abundance near Purification, Tolima, where they are pressed for a juice which is claimed to have medicinal properties for curing blood diseases. The line of mountains from Cibate to Fusagusaga, about 9,000 feet altitude, is very prolific in blackberry plants. These do not grow above the coffee line." (*Rockwood.*)

48751. Seeds.**48752.** Plants.

For previous introduction, see S. P. I. No. 45919.

48753 to 48797.

From Johannesburg, Transvaal. Collected by Dr. H. L. Shantz, Agricultural Explorer of the Bureau of Plant Industry. Received December 4, 1919. Quoted notes by Dr. Shantz, except as otherwise stated.

48753. *ACACIA CAFFRA* (Thunb.) Willd. Mimosaceæ.

"(No. 119. Taungs, Cape Province. September 30, 1919.) These seeds were collected from small trees on a stony ridge. The tree is used only as a timber tree in making native kraals and for firewood. It is one of the more attractive of the native acacias."

48754. *ACACIA DENTINENS* Burchell. Mimosaceæ.

"(No. 92. Kimberley, Cape Province. September 26, 1919.) Seeds of *Acacia dentinens*, the most prominent acacia of this region. A small, attractive tree, useful only as an ornamental. It grows especially well on rocky, shallow, red soil over limestone."

48755. *ACACIA STOLONIFERA* Burchell. Mimosaceæ.

"(No. 120. Taungs, Cape Province. September 30, 1919.) Seeds of one of the most attractive and fragrant plants I have found thus far. It is a low bush with upright branches, very little secondary branching, and produces a mass of white sweet-scented flowers. It comes into flower very early and is very pretty and attractive at that time. It is an exceptionally decorative plant."

48756. *ADENIA* sp. Passifloraceæ.

"(No. 151. East of Pretoria, Transvaal. October 12, 1919.) A plant with a large (storage) stem; interesting chiefly for botanical gardens, etc."

48757. *ATEPLEX* sp. Chenopodiaceæ.

"(No. 89. Kimberley, Cape Province. September 21, 1919.) Probably one of the introduced species from low land near Kimberley. Useful as a forage plant on near-alkali land of the southwestern desert area."

48758. *AVENA SATIVA* L. Poaceæ.**Oats.**

"(No. 102. Kimberley, Cape Province. September 27, 1919.) Oats in market; grown in Orange Free State."

"A small-kerneled variety probably similar to the Sixty-Day oat." (*Warburton.*)

48753 to 48797—Continued.

48759. *AVENA STERILIS* L. Poaceæ.

Oats.

“(No. 103. Kimberley, Cape Province. September 27, 1919.) Oats in market; grown in western province, probably near the Cape.”

“The north African (Algerian) type, also commonly grown in South Africa.” (*Warburton.*)

48760 to 48762. *CITRULLUS VULGARIS* Schrad. Cucurbitaceæ.

Watermelon.

48760. “(No. 80. Prieska, Cape Province. September 27, 1919.)

Seeds of a Kafir melon grown extensively throughout South Africa; used as feed for stock and also for pickles and preserves. After five months on the shelf at Prieska the flesh of this melon was firm and still white. It is especially valuable on account of its long-keeping qualities. Should do well anywhere in the United States. Grown along with corn by the Kafirs, either under irrigation or under semihumid conditions. It pushes into dry land, but not so far as No. 81 [S. P. I. No. 48761].”

48761. “(No. 81. Seeds of m'tsama melon of the Kalahari collected at Gibeon, German Southwest Africa, by G. W. Lawrence, of Prieska.) This melon grows wild on the great desert and constitutes the chief water supply to travelers and dwellers of that region. This seed may contain both the bitter and the sweet varieties. It should be planted at the beginning of the summer and winter rainy period on both dry land and irrigated land (to insure a supply of seed) at San Antonio, Sacaton, Yuma, Indio, Mecca, Hazen, and Chico.

“By far the most important plant of the Kalahari Desert, if we except the forage grasses, it is valued here as a stock feed and as a food for the natives. It is cooked and the water extracted. Buried in the soil it forms a reservoir of water and a storehouse of food for both man and beast. I see no reason why it should not thrive in a wild state in our warmer deserts, and it may survive on dry lands throughout the Great Plains and intermountain region.”

48762. “(No. 117. Taungs, Cape Province. September 30, 1919.)

Watermelon seeds from Chief Malala, one of the Batlapin tribe of Bechuanas of the Taungs district (1,400 square miles). These seeds represent the type of watermelon grown by the natives. They are planted about November 1, when the spring rains come. This melon should be adapted to conditions of the South and Southwest, and possibly the Great Plains. Taungs is a region of scattered camel thorn over a grassland cover somewhat more luxuriant than our mesquite country in Texas. The soil is deep, red, sandy, and shows no hardpan. Apparently, the natives grow fairly good crops of kafir, mealies, and beans. They also keep cattle.”

48763. *CITRUS* sp. Rutaceæ.

“(No. 155. Pretoria, Transvaal. October 13, 1919.) Seeds of a rough lemon used widely as a stock for citrus. These seeds were taken from fruit grown on the grounds at Pretoria. The seeds were not in the center of the fruit, but often far out toward the rind. The flavor of the over-ripe lemons is very good. The fruits are about 1½ inches in diameter.”

48753 to 48797—Continued.

48764 to 48767. *CUCURBITA MAXIMA* Duchesne. Cucurbitaceæ.

Pumpkin.

48764. "(No. 83. Upington, Cape Province. September 18, 1919.) A large light-colored pumpkin, a staple feed for stock and also for the table, where it is served as we serve squash. This strain is probably well known and is one of the more common types of Boer pumpkin grown throughout South Africa. Almost every kraal has a quantity of these pumpkins on the flat roofs, where they constitute a reserve food supply for man and beast. Produced in a climate similar to that at Yuma, Ariz."

48765. "(No. 118. Taungs, Cape Province. September 30, 1919.) From Chief Malala, of the Batlapin tribe of Bechuanas of the Taungs district (1,400 square miles). This pumpkin is grown with mealies (corn) or kafir, one of the staple crops."

48766 and 48767. "(No. 121. From Kenkelbosch, Transvaal, September 10, 1919.) A few seeds, somewhat smaller than No. 83 [S. P. I. No. 49764], secured from a cattle train. Cattle are fed largely on pumpkin in this section, and this is the variety most often seen."

48766. Brown seeds.

48767. White seeds.

48768. *DIMORPHOTHECA SPECTABILIS* Schlechter. Asteraceæ.

"(No. 152. East of Pretoria, Transvaal. October 12, 1919.) Seeds of an attractive flowering composite with a daisylike or chrysanthemumlike flower. Plants of this character should form a pleasing variety, especially when we see the same old asters, marigolds, etc., in every garden in the world. The plant is very attractive and may prove especially suited to our drought country, the Great Plains and western desert."

48769. *GAZANIA* sp. Asteraceæ.

"(No. 90. Kimberley, Cape Province. September 22, 1919.) A cichoriaceous plant with orange-colored 'single' flowers, 1 to 1½ inches across, produced in great numbers and very attractive border. There seem to be several species similar to this one, some of them white."

48770 to 48772. *HOLCUS SORGHUM* L. Poaceæ.

Sorghum.

(Sorghum vulgare Pers.)

48770. "(No. 111. Kimberley, Cape Province. September 27, 1919.) From the market in Kimberley; ordinary Kafir corn, probably grown in Orange Free State."

48771. "(No. 112. Kimberley, Cape Province. September 27, 1919.) From the market in Kimberley. Egyptian Kafir corn, probably grown in Orange Free State."

48772. "(No. 115. Taungs, Cape Province. September 30, 1919.) *Kafir*. I was unable to see any but the old fields where some of the stubble remained. The kafir is planted November 1, or as near that date as the spring rains permit. It is planted on ground plowed with a moldboard plow but not worked level. In June or July it is harvested, thrashed by the women with a flail, and winnowed in the wind. The seeds are ground by hand on a flat stone and used as a porridge. The stalks, leaves, etc., are

48753 to 48797—Continued.

fed to cattle. The rainfall in Taungs is about 20 inches, the temperature high, and the soil a deep red sandy loam.

"There appears to be little sale for kafir corn. Mealies (corn) is a money crop, kafir a food crop. From the size of the stems, this seems to be a rather small variety."

48773. HORDEUM VULGARE PALLIDUM Seringe. Poaceæ. **Barley.**

"(No. 108. Kimberley, Cape Province, September 27, 1919.) A hulled awned barley sold in market. Grown in Orange Free State."

48774. LATHYRUS SATIVUS L. Fabaceæ. **Bitter vetch.**

"(No. 97. Kimberley, Cape Province. September 27, 1919.) These seeds were found in bulk in the market mixed with the garden pea, *Pisum sativum*. They were probably all grown at Cape of Good Hope and in the Cape district."

48775 and 48776. MEDICAGO SATIVA L. Fabaceæ. **Alfalfa.**

48775. "(No. 84. Upington, Cape Province. September 18, 1919.) This alfalfa is the type grown on the Orange River. Small fields of alfalfa are the chief source of feed aside from the native grasses. This plant, as seen growing at Upington, looks much like Peruvian alfalfa. It has grown under conditions similar to those at Yuma, Ariz., and the southwestern desert region. (The *Province* variety grown most extensively of any in South Africa seems to be more like our *Grimm*.) This may possibly be that variety. I have no name for it. The plant is always known as *lucern* in South Africa."

48776. "(No. 104. Kimberley, Cape Province. September 27, 1919.) Alfalfa. Bulk seed sold in market at Kimberley, probably the variety known as *Province*, a favorite strain in South Africa."

48777. MIMUSOPS ZEYHERI Sond. Sapotaceæ.

"(No. 154. East Pretoria, Transvaal. October 12, 1919.) Seeds of *Mimusops zeyheri*, a yellow fruit about 1 inch long, with dry sweet flesh, similar to that of a jujube. This is apparently a very large fruited species of this genus, of which the fruits are said to be delicious. I did not have an opportunity to test them, for I could not find the tree from which the fruits came, and only those not thoroughly ripe had been cast aside by the children who were eating them. It may be well worth cultivating and should be tried first in the South and West (southern Texas seems about the best place, although it may grow much farther north)."

For previous introduction, see S. P. I. No. 29373.

48778. PENNISETUM GLAUCUM (L.) R. Br. Poaceæ. **Pearl millet.**
(*P. typhoideum* Rich.)

"(No. 113. Kimberley, Cape Province. September 27, 1919.) Pennisetum from market; said to be grown in Rhodesia or Transvaal. A cereal common in northern and central Africa."

48779 and 48780. PHASEOLUS VULGARIS L. Fabaceæ. **Common bean.**

48779. "(No. 95. Kimberley, Cape Province. September 27, 1919.) A Kafir native bean sold in bulk in the market, probably grown in Natal by the natives. It is striped and a purer type than No. 94 [S. P. I. No. 48791]."

48753 to 48797—Continued.

48780. "(No. 96. Kimberley, Cape Province. September 27, 1919.) *Sugar beans* or *butter beans*, grown in the Cape region and sold throughout Cape Province. One of the most common beans for human consumption."

48781 to 48783. *PISUM SATIVUM* L. Fabaceæ. Garden pea.

"(Nos. 98 to 100. Kimberley, Cape Province. September 27, 1919.) Peas in bulk from the market, probably all grown at Cape of Good Hope and in the Cape district. These are all in the trade, and apparently they are staple food varieties."

48781. "(No. 98.) Very badly mixed."

48782. "(No. 99.) Looks like a field pea."

48783. "(No. 100.) Probably *Stratagem*."

48784. *SALVIA CLANDISTINA ANGUSTIFOLIA* Benth. Menthaceæ.

"(No. 93. Kimberley, Cape Province. September 26, 1919.) A small sage which is a biennial with very fragrant foliage. I have not seen it in flower."

48785. *SECALE CEREALE* L. Poaceæ. Rye.

"(No. 101. Kimberley, Cape Province. September 27, 1919.) This seems to be a winter rye grown in Orange Free State, near Kimberley. These seeds were obtained from the market."

48786. *STRYCHNOS PUNGENS* Solereder. Loganiaceæ.

"(No. 149. East of Pretoria. October 12, 1919.) The *Kafir orange*. A small tree bearing a large pummelolike fruit with large, pulp-covered seeds."

For previous introduction, see S. P. I. No. 34712.

48787. *THEMEDA TRIANDRA* Forsk. Poaceæ. Grass.

"(No. 87. Kimberley, Cape Province. September 21, 1919.) A rather coarse Andropogonlike grass occurring occasionally on sandy land. This is one of the most dominant grasses of the sweet veld of Africa."

For previous introduction, see S. P. I. No. 47812.

48788 and 48789. *TRITICUM AESTIVUM* L. Poaceæ. Common wheat.
(*T. vulgare* Vill.)

48788. "(No. 106. Kimberley, Cape Province. September 27, 1919.) Wheat from the Douglas district; as sold in the market."

48789. "(No. 107. Kimberley, Cape Province. September 27, 1919.) Wheat from near Kimberley on the Modder River, Orange Free State."

48790. *TRIUMFETTA TRICHOCARPA* Sond. Tiliaceæ.

"(No. 150. East Pretoria, Transvaal. October 12, 1919.) A rather inferior fiber plant. It may have other properties worth considering."

48791 to 48793. *VIGNA SINENSIS* (Torner) Savi. Fabaceæ. Cowpea.

48791. "(No. 94. Kimberley, Cape Province. September 27, 1919.) Kafir beans, mostly black, grown by natives and used by them. Collected in market where they are sold in bulk. Probably grown in Orange Free State. Seed mixed; no attempt made to separate the different types. These native beans should be valuable as dry-land crops, and many types of cowpeas may be separated from them. They constitute one of the chief native foods, next to corn and kafir."

48753 to 48797—Continued.

48792. "(No. 105. Kimberley, Cape Province. September 27, 1919.) Kafir beans, known as 'native beans,' grown from Natal to the Zambezi River. They are sold to natives, but are not used to any extent for food by Europeans."

48793. "(No. 116. Taungs, Cape Province. September 30, 1919.) Kafir beans grown by Bechuanas of the Batlapin tribe. The climate is extremely dry except for a short rainy period coming in spring, November 1. Beans grown in dry land. Several types can be separated from this lot. Usually the natives dispose of all their seed and bring back seed from the local 'shop.' Should be tried in the Great Plains, the Southwest, and the South. The soil here is deep and red, but the rainfall is not more than about 20 inches. It is warm, however, and in all probability these beans will do better south of central Colorado than north of that line."

48794 and 48795. *ZEA MAYS* L. Poaceæ. Corn.

48794. "(No. 109. From market at Kimberley, Cape Province. September 27, 1919.) Corn used chiefly for stock feed; a yellow flintlike variety. Probably grown in Orange Free State."

48795. "(No. 114. Taungs, Cape Province. September 29, 1919.) Corn grown by the Batlapins, a tribe of Bechuanas, whose chief, Malala, lives in the staat at Taungs. This type would seem to be ill adapted to so dry a country. The rainfall appears to be about 20 inches. Corn is planted November 1, or when the rains begin, and harvested about June or July. The soil is a deep-red sandy loam. Conditions would require a drought-resistant corn adapted to high temperature, conditions such as are found in western Texas. There seems to be little attempt in Africa to adapt crops to conditions not favorable for them. Corn is selected which gives the best yield in the best corn country and this variety is then grown everywhere. Nor is a short-season corn substituted when rains delay the planting too late a date; the crop is given up for that year."

48796. *ZIZIPHUS* sp. Rhamnaceæ.

"(No. 153. East of Pretoria, Transvaal. October 12, 1919.) A native Ziziphus, prolific, and an attractive ornamental. Adapted to southern and southwestern Texas."

48797. *MORAEA* sp. Iridaceæ.

"(No. 85. Krankuil, Cape Province. September 19, 1919.) Seed (rather immature) of an attractive yellow lily very abundant along the track at Krankuil. Found in desert regions similar to those in the Southwestern States."

48798 and 48799.

From Johannesburg, Transvaal. Bulbs collected by Dr. H. L. Shantz, Agricultural Explorer of the Bureau of Plant Industry. Received December 4, 1919. Quoted notes by Dr. Shantz.

48798. *MORAEA* sp. Iridaceæ.

"(No. 91. Longlands, Cape Province. September 26, 1919.) A very pretty plant like a small iris, but with long leaves and bulbs buried deep in the soil; seems a troublesome plant in irrigated lands where

48798 and 48799—Continued.

wild, but should prove valuable as a decorative plant. The flowers are unusually attractive."

48799. (Undetermined.)

"(No. 88. Kimberley, Cape Province. September 21, 1919.) Unidentified bulbs called *fighol*, probably poisonous to stock, since the bulbs are often found on the top of the ground. Said to have a white flower; may be valuable as an ornamental. Found growing in sandy land north of Kimberley."

48800 and 48801. *ACROTRICHE DEPRESSA* R. Br. Epacridaceæ.

From Blackwood, South Australia. Presented by Mr. Edwin Ashby. Received December 5, 1919. Quoted notes by Mr. Ashby.

48800. "The better sort from the Barossa Ranges, where they grow in decomposed quartzite with a good deal of humus on rocky hillsides often lightly shaded by gum trees; the rainfall here is at least 25 inches. The fruit is very juicy and is astringent until cooked. The bushes are about 2 feet high. I have a dozen plants in my wild plant garden and in the cultivated part as well. The latter are doing best; they are too young to fruit but will do so next year. The one bush which is bearing carries a good many pints of fruit in masses low down on the main stems, so that they can be gathered in handfuls. The seed germinates very slowly, and will probably be more successful if treated with boiling water. I had one large shrub which died in the drought of 1914; I burnt the dead bush and young plants made their appearance only last spring; it is therefore likely that seed will germinate after being several years in the ground."

48801. "The best known variety of our native currant, which is becoming very scarce since the breaking down of its habitat, the mallee, or dense brushwood, the thicket formed by low-growing eucalypts. The leaf of this variety is smaller than that of the Barossa Range form, as is also the fruit. It grows in the dry country where the rainfall is often under 15 inches and the soil sandy, usually a red sand with superficial limestone rock (travertin)."

Received as *Styphelia depressa*, a later name for the same plant.

48802 to 48833.

From Pretoria, Transvaal. Plant material collected by Dr. H. L. Shantz, Agricultural Explorer of the Bureau of Plant Industry. Received December 16, 1919. Quoted notes by Dr. Shantz.

48802. *ACACIA ROBUSTA* Burchell. Mimosaceæ.

"(No. 158. West of Pretoria. October 14, 1919.) Seed of *Acacia robusta*, a medium-sized tree, good for tannin."

48803. *ACACIA SCORPIOIDES* (L.) W. F. Wight. Mimosaceæ.
(*A. arabica* Willd.)

"(No. 144. Wonderboom, Pretoria. October 12, 1919.) A valuable tannin plant. Pods excellent feed, very heavy and nutritious. It is also an attractive tree.

48804. *BURKEA AFRICANA* Hook. Cæsalpinaceæ. **Rhodesian ash.**

"(No. 142. Wonderboom, Pretoria. October 12, 1919.) A beautiful tree; one of the most widely distributed of the African trees."

48802 to 48833—Continued.

A small tree, 6 to 10 feet high, with an open, broad crown. It is found in sandy forests in Mata de Monino. It flowers in November, and the fruits ripen in February. (Adapted from *Hiern, A Catalogue of Welwitsch's African Plants, vol. 1, p. 304.*)

An illustration of this tree is shown in Plate IV.

48805. CAILLIEA NUTANS (Pers.) Skeels. Mimosaceæ. *Dichrostachys nutans* Benth.)

“(No. 137. Wonderboom, Pretoria. October 12, 1919.) A beautiful shrub or hedge plant; also valuable for posts (not eaten by termites). It has yellow and purple flowers and large, curly pods. It may stand light frost, possibly heavy, but they do not occur where it is found. It is a tree of good form and should grow anywhere in the South, especially at a place like San Antonio, Tex., where the climatic conditions are similar to those of Pretoria.”

48806. CYPERUS SEXANGULARIS Nees. Cyperaceæ. **Sedge.**

“(No. 173. Nelspruit, Transvaal. October 21, 1919.) Root of a sedge with a hexagonal stem. It has a very strong fiber and is most useful for baskets, mats, rugs, and woven work. One of the most promising plants of this kind thus far seen.”

48807. CARISSA BISPINOSA (L.) Desf. Apocynaceæ. **Amatungulu.**
(*C. arduina* Lam.)

“(No. 140. Wonderboom, Pretoria. October 12, 1919.) A beautiful plant for hedges, which bears a small fruit and has very fragrant flowers and fine foliage. It is very drought resistant here. May be valuable as a breeding stock.”

48808. CHAETOCHELOA ITALICA (L.) Scribn. Poaceæ. **Millet.**
(*Setaria italica* Beauv.)

“(No. 168. Johannesburg, Transvaal. October 17, 1919.) Seed of Boer manna purchased in the market.”

48809 and 48810. COMBRETUM SALICIFOLIUM E. Mey. Combretaceæ.

48809. “(No. 134. Wonderboom, Pretoria. October 12, 1919.) A valuable tree for semidesert river banks, such as are found in the States of the Southwest and the southern Great Plains; yields quantities of gum. A beautiful tree which grows along all water-courses in this arid country, especially along the Vaal and Orange Rivers. Excellent color and good shade.”

48810. “(No. 138. Wonderboom, Pretoria. October 12, 1919.) Another Combretum of similar habit to No. 135, *Combretum* sp. [S. P. I. No. 48812]. There are many species of Combretum in this section; none of them seem as important (to us) as *C. salicifolium*, which should be found useful in the Southwest. Nos. 135 and 138 are good dry-land trees. I have not noticed gum on either, but they are attractive trees and should do well in southern Texas and possibly in southern California. They may be able to stand light frosts.”

Probably a form of *C. salicifolium* different from No. 134 [S. P. I. No. 48809].

48802 to 48833—Continued.

48811. COMBRETUM ZEYHERI Sond. Combretaceæ.

"(No. 156. West of Pretoria. October 14, 1919.) Seed of large-fruited *Combretum zeyheri*. Probably the largest fruited species of the genus found in the bush veld of this region. It forms an attractive tree."

48812. COMBRETUM sp. Combretaceæ.

"(No. 135. Wonderboom, Pretoria. October 12, 1919.) Grows on dry land away from the river. Not as interesting as No. 134 [S. P. I. No. 48809]."

48813. CUCURBITA MAXIMA Duchesne. Cucurbitaceæ. **Pumpkin.**

"(No. 169. Johannesburg, Transvaal. October 17, 1919.) Seeds of the Boer pumpkin purchased in the market. For stock and table use."

48814. CUCURBITA PEPO L. Cucurbitaceæ. **Squash.**

"(No. 170. Johannesburg, Transvaal. October 17, 1919.) Vegetable marrow. *Long White* bush. Seeds purchased in the market. For table use, like a summer squash; may be fried also."

48815. ERAGROSTIS ABYSSINICA (Jacq.) Schrad. Poaceæ. **Teff.**
(*Poa abyssinica* Jacq.)

"(No. 166. Teff seed from The Colonial Seed Supply Co., Newton, Johannesburg. October 17, 1919.) Staple hay crop of the high veld. From what I have seen of teff I could almost write a book. It should be tried on the high Plains as far north as Montana. It is the most important plant next to corn in the Transvaal. It grows where there is summer rain; would probably be no good for the Southwest, except the high grasslands of the boundary region of Arizona and New Mexico, where it might do on the high mesas. But it should grow from Amarillo, Tex., to Judith Basin, Mont. When it does well it makes a wonderful hay crop."

48816. LINUM USITATISSIMUM L. Linaceæ. **Flax.**

"(No. 167. Johannesburg, Transvaal. October 17, 1919.) Seed purchased in the market. Standard flax of the high veld."

48817. OSYRIS ABYSSINICA Hochst. Santalaceæ.

"(No. 143. Wonderboom, Pretoria. October 12, 1919.) A most prized tannin plant. Try in summer-rain region, say Brownsville or San Antonio, Tex.; also Chico, Calif. It produces a leather of an especially desirable color, and if it could be produced would be in great demand as soon as its value became known to tanners. It would be especially valuable for fancy leathers."

48818. PENNISETUM CLANDESTINUM Hochst. Poaceæ. **Kikuyu grass.**

"(No. 174. Nelspruit, Transvaal. October 21, 1919.) Roots of kikuyu grass."

A perennial running grass which grows well on any soil and adapts itself to the varying climatic conditions of South Africa. It is a summer grass, but withstands a considerable degree of cold. In a wet winter it keeps green all the time, in spite of heavy frosts, and even makes some growth. In the spring it starts growing before the veld grasses. For drought-resistance kikuyu is great and has no rival. When the surrounding veld is dry and withered it remains green, giving one the impression of an irrigated field of forage. All kinds of stock

48802 to 48833—Continued.

are extremely fond of it, prefer it to other grasses, and will even break fences to get it. The food value is very high, being superior to any of our other grasses.

For soiling dairy cows it is the grass par excellence, and we know of no other to equal it in this respect. The grass grows almost as rapidly as lucern, and four or five cuttings can be had in a season. On account of its ability to grow on practically any type of soil and its creeping and bending characteristics, it is an excellent soil binder, on dam walls, on sandy soils, and on eroding slopes. It can be recommended as a grass for planting in a poultry run. Fowls seem very fond of the leaves, and owing to its aggressive nature it can withstand their ravages. Yielding no seed, there is no fear of kikuyu establishing itself voluntarily in an adjoining field. (Adapted from *Agricultural Grasses and Their Culture, Union of South Africa Department of Agriculture Bulletin No. 5, 1918, p. 32.*)

For previous introduction, see S. P. I. No. 41055.

A plat of this grass as it grows wild in Kenia is shown in Plate V.

48819. PHRAGMITES VULGARIS (Lam.) B. S. P. Poaceæ. Grass.

“(No. 136. Wonderboom, Pretoria. October 12, 1919.) A bamboolike plant abundant along the river.”

48820. PISUM SATIVUM L. Fabaceæ. Garden pea.

“(No. 171. Johannesburg, Transvaal. October 17, 1919.) A Boer pea which may prove valuable as a summer crop.”

48821. RHUS LANCEA L. f. Anacardiaceæ.

“(No. 141. Wonderboom, Pretoria. October 12, 1919.) A fine tree for timber, shade, and browse. This tree deserves careful consideration for southern Texas and the Southwest. It is possible that some of these trees will withstand frost and can be pushed farther north.”

48822. RICINUS COMMUNIS L. Euphorbiaceæ. Castor-bean.

“(No. 147. Wonderboom, Pretoria. October 12, 1919.) Castor-oil bean, a common weed in this section. In order not to miss any of the more important strains I am collecting these beans wherever found.”

48823. SCLEROCARYA CAFFRA Sond. Anacardiaceæ.

“(No. 139. Wonderboom, Pretoria. October 12, 1919.) *Morula*. A valuable oil-nut tree.”

An illustration of this tree is shown in Plate VI.

48824 and 48825. STRYCHNOS PUNGENS Solereder. Loganiaceæ.

48824. “(No. 148. East of Pretoria. October 12, 1919.) Fruit of *Strychnos pungens* (Kafir orange), a large pummelolike fruit with large pulp-covered seeds. A small tree.”

48825. “(No. 149a. Nelspruit, Transvaal. October 20, 1919.) This fruit is said to constitute an important element of the elephant feed in Mozambique. The trees are abundant about Lourenco Marques, and the fruit often lies thick on the ground. If poisonous, the poison is probably in the seeds themselves; these would not be digested by the elephant. But according to Marloth the seeds of some of the species are eaten. It is all but impossible to clean the pulp from the seeds; these were scoured in dry sand.”



KIKUYU GRASS, ONE OF THE MOST VALUABLE FORAGE GRASSES OF AFRICA. (PENNISETUM CLANDESTINUM HOCHST., S. P. I. No. 48818.)

Kikuyu grass has leaves and creeping stems much like those of carpet grass, though much larger and more succulent. It makes a very dense growth; at first the stems are erect, but when they reach 15 or more inches in height they become very decumbent at the base, matting down so that the lower leaves soon die. Hence, this grass is not well suited for making hay. It bears frost about as well as carpet grass, is much more vigorous and productive, is eaten greedily by horses, cattle, and hogs, and promises to be of great value as a pasture grass in the Southern States. (Photographed by Dr. H. L. Shantz, Meru, Kenia, May 30, 1920.)



THE MORULA, A VALUABLE NUT TREE FROM NORTHERN TRANSSVAAL. (*SCLEROCARYA CAFFRA* SOND., S. P. I. No. 48823.)

For dry, practically frost-free regions, the morula may have value. It bears in great abundance small hard-shelled nuts of very pleasant flavor. The fleshy pulp which surrounds these nuts is also edible. The valuable morula oil is extracted from the kernels. The tree, which grows throughout southeastern Africa and in Madagascar, seems likely to succeed in some parts of California. (Photographed by Dr. H. L. Shantz, Wonderboom, near Pretoria, Transvaal, October 12, 1919; P36431FS.)

48802 to 48833—Continued.

48826. VIGNA SINENSIS (Torner) Savi. Fabaceæ. **Cowpea.**

“(No. 165. Johannesburg, Transvaal. October 17, 1919.) White cow-peas purchased in the market. Standard cowpea of the high veld.”

48827 to 48832. ZEA MAYS L. Poaceæ. **Corn.**

48827. “(No. 164. Johannesburg, Transvaal. October 17, 1919.) A bread mealie eaten green; purchased in the market.”

48828 to 48832. “(Nos. 159 to 163. Pretoria. October 14, 1919.) Ears collected by Madame A. Dieterlin and presented to me by Dr. E. P. Phillips. Types grown by the Basutos. I am sending in the whole ear in the hope that in this way a judgment may be formed in advance as to any value they may have in breeding work. I consider it unusually fortunate that we could obtain these ears, for they come from one of the least disturbed sections of South Africa, since the Basutos still control their country. This French missionary had lived for years with the natives and probably has given us the most important varieties of corn grown by them. Nos. 159 and 163 I should expect to be of especial interest.”

48828. “(No. 159.) Waxy type; mixed.”

48829. “(No. 160.) Yellow flint.”

48830. “(No. 161.) White flint.”

48831. “(No. 162.) White dent.”

48832. “(No. 163.) Small waxy.”

48833. (Undetermined.) Araceæ.

“(No. 172. Nelspruit, Transvaal. October 21, 1919.) Tubers of a callalike aroid found in dry soil.”

48834. CUCUMIS METULIFERUS E. Mey. Cucurbitaceæ.

From Natal, South Africa. Presented by Mr. W. W. Masterson, American consul, Durban. Received December 6, 1919.

“Seed and dried rind of a cucumber that is of a very different variety from the ordinary kind raised in our gardens the world over. * * * The fruits present the appearance of the ordinary cucumber in regard to size and shape, except that they are possibly a little nearer round, and shorter; but the thing that particularly attracts the attention is the long prickles over the outside, like those on the seed pod of a jimson weed. The vegetable is so tender and so easily digested that I have with some difficulty procured this mature specimen for introduction into our country. The taste of the cucumber is there, but the inside of the rind cuts so easily and is so juicy and well flavored that I feel the cultivation of this variety is well worth while.” (*Masterson.*)

48835 to 48837.

From Sydney, New South Wales. Presented by the Forestry Commission of New South Wales. Received December 11, 1919.

48835. ATALAYA HEMIGLAUCA F. Muell. Sapindaceæ. **Cattle bush.**

One of the inland fodder trees which favorably attracted the attention of stock owners in the early days of pastoral occupation. This tree attains a height of about 30 feet, and is found on large tracts

48835 to 48837—Continued.

of the droughty inlands. It has large, whitish leaves and numerous flowers in terminal clusters, and at all stages of its growth is decidedly ornamental. When grass and other herbage fail it is cut down and the leaves fed to sheep and cattle, which seem to thrive on them. (Adapted from *The Pastoral Finance Association Magazine, Sydney, vol. 5, p. 33.*)

48836. GELJERA PARVIFLORA Lindl. Rutaceæ.**Wilga.**

A tall shrub or tree, up to 30 feet in height, native to the interior of New South Wales. It has slender branches and narrow leaves, and when full grown is very ornamental, resembling somewhat the weeping willow. Its drought-enduring qualities are remarkable, as it will continue to grow under the most adverse climatic conditions. It is often cut down for feeding to stock, especially sheep, which eat it readily and seem to do well on it. (Adapted from *The Pastoral Finance Association Magazine, Sydney, vol. 5, p. 132.*)

48837. MIDA ACUMINATA (R. Br.) Kuntze. Santalaceæ.**Quandong.**

The quandong, sometimes called "native peach," attains a height of 20 to 30 feet, and is found in the hotter and drier parts of New South Wales. The lanceolate leaves are much relished by cattle, and because of the remarkable drought-enduring properties of this tree it is very valuable in times of scarcity of rain. The fruit is red, from 1½ to 3 inches in circumference, and of considerable economic value. The succulent outer part is edible, and makes an excellent conserve and jelly. The edible kernels have a pleasant flavor and contain a large percentage of oil, which when burned gives a good light. (Adapted from *The Pastoral Finance Association Magazine, Sydney, vol. 5, p. 33.*)

48838. MOURIRIA PUSA Gardn. Melastomaceæ.**Pusa.***(Ciposia mandapuca Alv. Silv.)*

From Minas Geraes, Brazil. Presented by Dr. Alvaro da Silveira, Bello Horizonte. Received December 27, 1919.

"The fruit is edible; the pulp is sweet and of a flavor most pleasing to the natives." (*Silveira.*)

A small tree, about 10 feet high, with an upright stem and horizontal branches. The obliquely globose, edible fruit is as large as that of the common wild cherry. It is called *pusa* by the natives, who esteem it for its sweet pulp and pleasing flavor. (Adapted from *Hooker's Journal of Botany, p. 23.*)

48839. SAMBUCUS NIGRA L. Caprifoliaceæ.**Elderberry.**

From Wiesbaden, Germany. Presented by Mr. Hugo Mulertt. Received October 15, 1919.

"Last year I found growing in an abandoned quarry in the Taunus Mountains, here near the Rhine, a young elderbush (*Sambucus*), bearing apparently for the first time. The fruits instead of being black were greenish golden in color and semitransparent when ripe; the individual berries were about three or four times as large of those of the common *Sambucus nigra* and very sweet and spicy. They were used in cookery and found excellent and quite distinct in taste. The fact, too, that the juice does not stain table linen nor one's teeth is of no little importance. I have propagated it from seeds and cuttings successfully. The bush bore 2½ pounds of fruit last year; this year I gathered 21 pounds from it." (*Mulertt.*)

48840 to 48842.

From Queensland. Presented by Mr. J. A. Hamilton, Kulare, via Cairns. Received December 4, 1919. Quoted notes by Mr. Hamilton.

48840. BUCKINGHAMIA CELSISSIMA F. Muell. Proteaceæ.

"A very ornamental native tree; much frequented by bees."

A tall tree, up to 60 feet in height, with dark-green leaves 3 to 5 inches long, and large racemes of silvery flowers. (Adapted from *Bentham, Flora Australiensis, vol. 5, p. 532.*)

48841. HELIANTHUS ANNUUS L. Asteraceæ. Sunflower.

"A double sunflower; very good."

48842. PITTOSPORUM REVOLUTUM Dryand. Pittosporaceæ.

"An ornamental bush; sweet scented."

A tall shrub with elliptic leaves 2 to 3 inches long, with rusty-pubescent lower surfaces; the pale-yellow flowers are up to half an inch in length. (Adapted from *Bailey, Standard Cyclopedia of Horticulture, vol. 5, p. 2654.*)

48843 and 48844. TRICHOLAENA ROSEA Nees. Poaceæ.

Natal grass.

From Auckland, New Zealand. Purchased from Arthur Yates & Co. Received December 4, 1919.

"This is a very striking grass, its highly colored appearance when in flower making it very handsome. It is a vigorous grower and attains a height of 3½ feet. A dense mass of leafy succulent herbage is quickly produced in spring and remains until cut down by heavy frosts. It flowers in November and December, and produces a large amount of seed which germinates freely. It resists drought well, and flourishes in poor sandy soil. For growing as green food for poultry it is very valuable, and can be recommended for sowing in fowl yards which require resting." (*A. H. McDonald, Agricultural Gazette of New South Wales, vol. 19, p. 122.*)

48843. Variety atropurpurea.

48844. Variety rosea.

48845. ROSA LAXA Retz. Rosaceæ.

Rose.

From Paris, France. Presented by the Hon. Vicary Gibbs, Aldenham House, Elstree, Hertford, England, through Vilmorin-Andrieux & Co. Received December 4, 1919.

"The longer my experience the more I am impressed with the value of this Siberian brier as a stock for use on medium and light soils. And, further, the testimony of those whom I have persuaded to try it has more than repaid me for my championship of this stock." (*George M. Taylor, Florists' Exchange, May 13, 1916.*)

For previous introduction, see S. P. I. No. 47161.

48846. NICOTIANA TABACUM L. Solanaceæ.

Tobacco.

From Santiago de las Vegas, Cuba. Presented by Dr. M. Calvino, director, Agricultural Experiment Station. Received December 4, 1919.

"This seed is the product of four years of field selection, carried out with the greatest possible care and with the purpose of restoring the old genuine Cuban tobacco, the *Havanensis* variety. We sent experts to the very best 'vegas' (tobacco fields) in the Vuelta Abajo region, a comparatively small area

in the central portion of the Province of Pinar del Rio, and they selected the very best plant in all the fields which they visited. That seed was brought to the station and we have been keeping up selection of what we have considered to be the best plants, in order to propagate from them." (*Calvino*.)

48847 and 48848.

From Dunedin, New Zealand. Purchased from Nimmo & Blair, Ltd. Received December 5, 1919.

48847. *PASPALUM RACEMOSUM* Lam. Poaceæ. **Grass.**

"A native of tropical America. Best adapted to moist or alluvial soils of the South. Grows from a rootstock, with rather coarse, tender stems and leaves, reaching a height of about 2 feet. Promising as a hay or pasture grass." (*C. V. Piper*.)

48848. *STIPA ELEGANTISSIMA* Labill. Poaceæ. **Grass.**

"A native of Australia. Grows well in sandy soil. It has a plumelike spike 6 to 8 inches long, and is frequently used as an ornamental. The leaves are too narrow and stiff to make it of much value for stock, and its sharp-pointed seed with short, stiff reflexed hairs make it objectionable on sheep ranges, where it sometimes works its way through the wool, penetrates the skin, and sometimes even invades the internal organs." (*C. V. Piper*.)

Received as *S. pennata*; a misidentification.

48849 to 48859. *HOLCUS SORGHUM* L. Poaceæ. **Sorghum.** (*Sorghum vulgare* Pers.)

From Pretoria, Transvaal. Presented by Madame A. Dieterlen, through Dr. H. L. Shantz, Agricultural Explorer of the Bureau of Plant Industry. Received December 6, 1919.

"(Nos. 125 to 133b. Seed from Leribe, Basutoland. Collected by Madame A. Dieterlen, French missionary.) Heads from a collection in the National Herbarium at Pretoria collected in Basutoland. A valuable collection accompanied by Basuto names of each variety, with Madame Dieterlen's numbers in parentheses." (*Shantz*.)

48849. "No. 125. (A. D. No. 641g. Collected in 1909.) Called by the natives *lejakane*; said to be degenerated Kafir corn. The word 'hojaka' means to leave one's country to go to another, or one's faith to adopt another. It is a name of derision given by the Basutos to those of their people who have adopted Christianity. They are no longer true or pure Basutos. Thus this grain, when mixed with other kinds, is no longer pure *mabèlè* (the generic name for Kafir corn) but a *lejakane*." (*Dieterlen*.)

48850. "No. 126. (A. D. No. 641b. Collected in 1908.) This variety is called by the natives *Letsoeyane*." (*Dieterlen*.)

48851. "No. 127. (A. D. No. 641a. Collected in 1908.) Generic native name, *mabèlè*; this particular variety is called *Kobo-Kholo*, *Kokobala*, or *Seboeane*." (*Dieterlen*.)

48852. "No. 128. (A. D. No. 641b. Collected in 1908.) Called by the natives *Letsoeyane*." (*Dieterlen*.)

48853. "No. 129. (A. D. No. 698.) Height 5 to 7 feet. Flowers summer to autumn. Cultivated by the Basutos. Native name *ntsoe*. The sweet stem is chewed. A preparation of this and *Erigeron canadense*

48849 to 48859—Continued.

- is used for eczema; it is applied to the eruption, which is then rubbed with fat. This operation must be performed by the first cousin of the sick person; otherwise, the natives believe it will have no effect. Said to be indigenous." (*Dieterlen.*)
48854. "No. 130. (A. D. No. 641c. Collected in 1909.) Cultivated by Basutos as Kafir corn. Generic Basuto name is *mabèlè*, but this variety is known as *Seghobane.*" (*Dieterlen.*)
48855. "No. 131. (A. D. No. 641f. Collected in 1908.) Native name *pakollane.*"
48856. "No. 132. (A. D. No. 641g.) See note with No. 125 [S. P. I. No. 48849]."
48857. "No. 133. (A. D. No. 641d. Collected in 1908.) This special variety is called by the natives *Monkoane.*" (*Dieterlen.*)
48858. "No. 133a. (A. D. 641h. Collected in 1909.) Near Phuthiat-sana River. Generic Basuto name *mabèlè*, but this variety is known as *Mothulo.*" (*Dieterlen.*)
48859. "No. 133b. (A. D. No. 641e. Collected in 1908.) Generic native name *mabèlè*; name for this variety is *Mosothi.*" (*Dieterlen.*)

48860 to 48921.

From Northern Circle, Burma. Presented by Mr. E. Thompstone, Deputy Director of Agriculture. Received December 5, 1919. Quoted notes by Mr. Thompstone, except where otherwise noted.

- 48860 and 48861. COIX LACRYMA-JOBI L. Poaceæ. Job's-tears.
48860. "Small spherical white seed from Mongpai, Southern Shan States."
48861. "Ovoid, large, gray-to-blue seed from the Northern Shan States."
- 48862 to 48868. COIX LACRYMA-JOBI MA-YUEN (Rom.) Stapf. Poaceæ. Ma-yuen.
48862. "Medium-sized, subcylindrical, mixed, white seed, more slender than the preceding number; from Mongpai, Southern Shan States."
48863. "*Mung-gawng-n'baw*, the local Kachin name for an ovoid large-seeded variety collected at Htawgaw, Kachin Hills in the Myitkyina District of northern Burma, February 25, 1919."
48864. "*Mung-gawng-n'hpaw*, the local Kachin name for a small-seeded variety collected at Htawgaw, Kachin Hills, of the Myitkyina District of northern Burma, February 25, 1919."
48865. "Ovoid, large, blue-to-brown, streaked, edible seed from the Southern Shan States."
48866. "Ovoid, large, brown seed from the Southern Shan States."
48867. "Ovoid, large, gray-to-blue seed from the Northern Shan States."
48868. "Small, subspherical, furrowed, white seed from Lauksauk, Southern Shan States."
- 48869 to 48875. COIX LACRYMA-JOBI STENOCARPA (Oliver) Stapf. Poaceæ.
48869. "Cylindrical, long, blue seed from the Northern Shan States."

48860 to 48921—Continued.

48870. "Cylindrical, long, blue seed from the Northern Shan States."

48871. "Cylindrical, small, white seed from the Northern Shan States."

48872. "Large, ovoid, furrowed, gray seed from Lauksauk, Southern Shan States."

48873. "Medium-sized, cylindrical, white-to-brown seed from Mongpai, Southern Shan States."

48874. "Medium-sized, subcylindrical, white seed from Mongpai, Southern Shan States."

48875. "Small, cylindrical, white seed from Mongpai, Southern Shan States."

48876 to 48921. ZEA MAYS L. Poaceæ.

Corn.

"This corn collection represents a new type, having a waxy endosperm."
(G. N. Collins.)

48876. "*Akyán*, a coarse, early variety, ripening in three months, from the Pakokku Hill tracts."

48877. "*Akyán*, a coarse, late variety from the Pakokku Hill tracts."

48878. "*Asè*, an early variety of grain maize, ripening in three months; from the Pakokku Hill tracts."

48879. "*Asè*, a late variety of grain maize from Pakokku Hill tracts."

48880. "*Black Burmese* maize from the Southern Shan States."

48881. "Black maize from the Southern Shan States."

48882. "Fragrant maize from the Southern Shan States."

48883. "Hard-stemmed maize from the Southern Shan States."

48884. "*Hsumhsai*, a late variety from the Northern Shan States."

48885. "*Kala-pyaung* (foreign maize; imported maize) from the Southern Shan States."

48886. "*Kayin-pyaung-awa* (yellow Karen maize) from the Southern Shan States."

48887. "*Kayin-pyaung-pyu* (white Karen maize) from the Southern Shan States."

48888. "*Pyaung-wa-kyit* (yellow hard maize) from the Southern Shan States."

48889. "*Mine-sauk-taik-apyá-myo* (blue variety from Mine-sauk-taik) from the Southern Shan States."

48890. "*Nan-mi*, maize from the Southern Shan States."

48891. "Pink maize from the Southern Shan States."

48892. "*Po-thu-daw* maize from the Southern Shan States."

48893. "*Pyaung-amè* (black maize) from the Southern Shan States."

48894. "*Pyaung-apyá-myo* (blue maize) from the Southern Shan States."

48895. "*Pyaung-bu-si-apyu-myo* (white-seeded variety of maize) from the Southern Shan States."

48896. "*Pyaung-bu-si, Pan-pyaung-myo* (pink maize) from the Southern Shan States."

48897. "*Pyaung-gyi-myo, Monè* (large maize from Monè) from the Southern Shan States."

48860 to 48921—Continued.

48898. "*Pyauung-hmwè-asi* (fragrant maize) from the Southern Shan States."
48899. "*Pyauung-kaùk* (crooked maize) from the Southern Shan States."
48900. "*Pyauung-kaukhnyin* (black fragrant) from the Southern Shan States."
48901. "*Pyauung-kaukhnyin*, white, from the Southern Shan States."
48902. "*Pyauung-kyaukhnyin-payaung* from the Southern Shan States."
48903. "*Pyauung-pyu* (white maize, early variety) from the Southern Shan States."
48904. "*Pyauung-pyùk-myo* (maize, boiling variety) from the Southern Shan States."
48905. "*Pyauung-sán, Monè* (grain maize from Monè) from the Southern Shan States."
48906. "*Pyauung-thu-daw* (honest or true maize) from the Southern Shan States."
48907. "*Pyauung-wa-akyán* (coarse yellow maize) from the Southern Shan States."
48908. "*Se-gyi* maize from the Southern Shan States."
48909. "*Shan-pyaung-asi-myo* (Shan grain maize) from the Southern Shan States."
48910. "*Shan-pyaung-pyu* (white Shan maize) from the Southern Shan States."
48911. "*Shan-pyaung-wa* (yellow Shan maize) from the Southern Shan States."
48912. "*Thadin-kyôt-pyaung, Monè* (October maize from Monè) from the Southern Shan States."
48913. "*Thi-kaung-awa* (yellow 'good grain') from the Southern Shan States."
48914. "Unnamed variety from the Northern Shan States."
48915. "*Wét-ma-lât-pyaung-ani-myo* (red dwarf maize) from the Southern Shan States."
48916. "*Wét-ma-lât-pyaung-wa* (yellow dwarf maize) from the Southern Shan States."
48917. "*We-wun-wot-saung*, maize from the Southern Shan States."
48918. "White-seeded variety from the Southern Shan States."
48919. "*Yun-pyaung, apwin-hla-ka-myo, Mine-sauk-taik* (pretty-flowered maize from Mine-sauk-taik) from the Southern Shan States."
48920. "*Yun-pyaung-awa* (yellow maize) from the Southern Shan States."
48921. "*Ywin-pyaung-ni-kyât* (stiff red Ywin maize) from the Southern Shan States."

48922. PENTAGONIA PHYSALODES (L.) Hiern. Solanaceæ.

(*Nicandra physaloides* Gaertn.)

From Alta Vera Paz, Guatemala. Presented by Mr. Harry Johnson.
Received December 8, 1919.

"A blue-flowered solanaceous plant; fruit inclosed in husk as in *Physalis*. Flowers campanulate, an inch or more in diameter, light blue with lighter throat; produced singly in the axils of the leaves similar to the Canterbury bell." (*Johnson*.)

48923. ALLIUM ANGULOSUM L. Liliaceæ.

Onion.

From Algiers, Algeria. Presented by Dr. L. Trabut. Received December 9, 1919.

"An onion, originally from Tonkin, French Indo-China, the leaves of which are used like chives." (*Trabut*.)

48924 to 48974. MANIHOT ESCULENTA Crantz. Euphorbiaceæ.

(*M. utilissima* Pohl.)

Cassava.

From the Belgian Kongo. Cuttings presented by Prof. Edmund Leplae, director general, Ministère des Colonies, Brussels, Belgium. Received December 10, 1919. Quoted notes by Prof. Leplae.

48924. "No. 1."	48929. "No. 6."
48925. "No. 2."	48930. "No. 7."
48926. "No. 3."	48931. "No. 8."
48927. "No. 4."	48932. "No. 9."
48928. "No. 5."	

"The preceding numbers were without varietal names and are the collection of M. Glisseire, originally from the Botanic Garden, Buitenzorg, Java."

48933. "No. 10. <i>Mandungu lo-poma</i> ."	48953. "No. 31. <i>Ysakama</i> ."
48934. "No. 11. <i>Likimi molem-be</i> ."	48954. "No. 32. <i>Lokaka</i> ."
48935. "No. 12. <i>Musa gombe</i> ."	48955. "No. 33. <i>Yambevua</i> ."
48936. "No. 13. <i>Mandungu mokonga</i> ."	48956. "No. 35. <i>Elemeka</i> ."
48937. "No. 14. <i>Songi</i> ."	48957. "No. 36. <i>Lokole</i> ."
48938. "No. 15. <i>Molangola</i> ."	48958. "No. 37. <i>Bolibo</i> ."
48939. "No. 16. <i>Ikeke</i> ."	48959. "No. 38. <i>Kanga</i> ."
48940. "No. 17. <i>Pensentumba</i> ."	48960. "No. 39. <i>Longere</i> ."
48941. "No. 19. <i>Ekakasi</i> ."	48961. "No. 40. <i>Keka</i> ."
48942. "No. 20. <i>Bichi-le</i> ."	48962. "No. 41. <i>Gombe</i> ."
48943. "No. 21. <i>Bogambo</i> ."	48963. "No. 42. <i>Yewaka</i> ."
48944. "No. 22. <i>Ketu</i> ."	48964. "No. 45. <i>Mobwana bilikwi</i> ."
48945. "No. 23. <i>Gubu</i> ."	48965. "No. 51. <i>Bokoletaka</i> ."
48946. "No. 24. <i>Itolo</i> ."	48966. "No. 59. <i>Langombo</i> ."
48947. "No. 25. <i>Bomai</i> ."	48967. "No. 63. <i>Djibondji</i> ."
48948. "No. 26. <i>Soli</i> ."	48968. "No. 71. <i>Yagadjo</i> ."
48949. "No. 27. <i>Elemba</i> ."	48969. "No. 78." (No name.)
48950. "No. 28. <i>Sumboela</i> ."	48970. "No. 91." (No name.)
48951. "No. 29. <i>Benzo</i> ."	48971. "No. 93. <i>Emeta</i> ."
48952. "No. 30. <i>Songi</i> ."	48972. "No. 103." (No name.)
	48973. No. 28438. (No name.)
	48974. No. 29439. (No name.)

48975. PHYTOLACCA DIOICA L. Phytolaccaceæ.

Ombu.

From Sawtelle, Calif. Fruits presented by Mr. P. D. Barnhart. Received December 11, 1919.

An ornamental evergreen tree, native to Brazil, ranging from Sao Paulo up to Rio Grande do Sul and Minas Geraes. The wood is used for making boxes

and chests; when reduced to ashes it is a valuable source of potash. The roots are nutritious, and are eaten by pigs; the bark of the roots is medicinal. (Adapted from *Correa, Flora do Brazil*, p. 71.)

For previous introduction, see S. P. I. No. 42542.

48976 to 48979.

From Adelaide, South Australia. Purchased from E. & W. Hackett, Ltd. Received December 12, 1919.

48976. *AGROSTIS NEBULOSA* Boiss. and Reut. Poaceæ. **Grass.**

"*Bouquet grass.* A slender perennial grass, native to the Mediterranean region, grown chiefly as an ornamental for dry bouquets. It has little promise as forage, but may be useful as a turf grass." (C. V. Piper.)

48977. *ASTREBLA TRITICOIDES* (Lindl.) F. Muell. Poaceæ. **Grass.**

"*Mitchell grass.* This is a perennial, native to Australia, where it is highly valued as a range grass and to some extent has been brought into cultivation. Experiments with it thus far in the United States have not shown that it is of any particular promise under the conditions tried, but in view of its high value in Australia further investigations of this kind are being carried on. Like many of our native western grasses, cattle fatten on the grass even after it is entirely dried." (C. V. Piper.)

48978 and 48979. *ORYZOPSIS MILIACEA* (L.) Benth. and Hook. Poaceæ. **Grass.**

48978. "*Smilo grass.* A perennial grass, native to the Mediterranean region, and in Australia it is known as veld grass. In California it has been called smilo grass, San Diego grass, mountain rice, and many-flowered millet. Under Californian conditions it has exhibited considerable promise and may prove to be an important grass. It has been generally introduced into Australia and New Zealand, where it possesses considerable merit." (C. V. Piper.)

48979. Received as *Piptatherum thomasi*.

48980. *MENTHA PIPERITA* L. Menthaceæ. **Peppermint.**

From Sapporo, Japan. Rhizomes presented by Mr. Koji Abiko, agronomist, Hokkaido Agricultural Experiment Station. Received December 12, 1919.

"*Akamura* peppermint, the Japanese variety which yields the most oil. The name *Akamura* means that the plant has red stalks and round leaves. This is the best variety and the one most popularly cultivated in Hokkaido." (Abiko.)

Introduced for experimental purposes.

48981. *CANARIUM INDICUM* Stickm. Balsameaceæ. **Kanari.**
(*C. commune* L.)

From Buitenzorg, Java. Purchased from Mr. R. D. Rands, Department of Agriculture. Received December 13, 1919.

The Java almond, cultivated in the Dutch Indies on account of its seeds, which resemble in form the almonds of *Prunus amygdalus*; they are somewhat longer than these almond kernels, with a slanting surface at the top and two wartlike protuberances on the under side toward the tip. From the kernels, 65.73 per cent oil can be obtained by extraction with petroleum ether; by

pressure 56.12 per cent may be obtained. The pressed residue gives a pleasant cocoalike odor. The contained oil is bright yellow, odorless, of a pure, pleasant taste, and might very well be used as a food fat. The air-dried kernels contain the following constituents (per cent): Fat, 65.73; crude protein, 12.24; crude fiber, 3.81; nitrogen-free extractives, 6.00; ash, 3.19; water, 9.03. (Adapted from *Pastrovitch, Chemiker-Zeitung, No. 63, p. 781.*)

For previous introduction, see S. P. I. No. 43375.

48982 to 49002.

From Castlemaine, Victoria. Presented by Mr. John W. B. Field. Received December 11, 1919.

48982. ACACIA ACUMINATA Benth. Mimosaceæ. **Raspberry jam.**

An Australian tree, 30 to 40 feet in height, whose wood has a scent resembling that of raspberry jam; hence its name. The wood of this tree is dark reddish brown, close grained, and hard, is suitable for ornamental purposes, and is much sought after for fence posts. (Adapted from *Maiden, Useful Native Plants of Australia, p. 349.*)

48983. CALLITRIS ROBUSTA R. Br. Pinaceæ.
(*Frenela robusta* A. Cunn.)

A tall tree, 60 to 70 feet in height, related to the pine, found throughout Australia, except in the north-central portion. The timber is straight grained, durable, and beautifully figured, varying from light to dark brown, with pinkish streaks. The wood is fragrant, having a somewhat camphoraceous odor, and resists, to a great extent, attacks of white ants. It is used for furniture, flooring, weatherboards, etc. (Adapted from *Maiden, Useful Native Plants of Australia, p. 544.*)

48984. CANNA sp. Cannaceæ. **Canna.**
"Field's Branching Scarlet. A great blooming variety." (*Field.*)

48985. CANNA sp. Cannaceæ. **Canna.**
"Very large, yellow, spotted with red. A continuous bloomer." (*Field.*)

48986. EUCALYPTUS ACEDENS Fitzg. Myrtaceæ. **Powder-bark wandoo.**

An Australian tree which attains a height of 60 feet, with a crooked trunk 2 feet in diameter, and smooth grayish or white bark. The alternate, ovate or lanceolate leaves are thick, rigid, and pale green, and less than 4 inches in length. Analysis of the bark has shown it to contain nearly 45 per cent of tannic principle. (Adapted from *The Journal of the West Australian Natural History Society, vol. 1, p. 21.*)

48987. EUCALYPTUS CORNUTA Labill. Myrtaceæ.

A rapid-growing Australian tree, usually not of great height, often planted as a windbreak. The wood is very hard, heavy, tough, and elastic, and is used for vehicles, implements, and boat ribs. The tree prefers moist soil and will endure much rain, but is also quite drought resistant. It has endured a minimum temperature of 23° F. in southern Florida. (Adapted from *Zon and Briscoe, Eucalypts in Florida, Forest Service Bulletin No. 87, p. 44.*)

48988. EUCALYPTUS DIVERSICOLOR F. Muell. Myrtaceæ. **Karri gum.**

A tall tree, up to 350 feet in height, native of western Australia, straight in habit and a fairly rapid grower. The very dense and elastic wood is considered superior timber, being used by wheelwrights and

48982 to 49002—Continued.

for shipbuilding. In Florida this tree does best near the coast on granite soils; it prefers a moist climate and is quite frost resistant, but it does not endure a dry heat. (Adapted from *Zon and Briscoe, Eucalypts in Florida, Forest Service Bulletin No. 87, p. 44.*)

48989. EUCALYPTUS GOMPHOCEPHALA DC. Myrtaceæ. Tooart.

A large, symmetrical Australian tree of fairly rapid growth, reaching a height of 100 to 120 feet. The wood is very heavy, tough, and strong and is difficult to split. It is used for shipbuilding, bridges, and docks. The tree will endure but little frost and prefers limestone soils. (Adapted from *Zon and Briscoe, Eucalypts in Florida, Forest Service Bulletin No. 87, p. 44.*)

48990. EUCALYPTUS MACROCARPA Hook. Myrtaceæ.

A stout shrub or small tree, 6 to 15 feet in height, with very thick, rigid leaves 6 inches or more in length, and very large, solitary, orange to crimson flowers. It is a native of western Australia, and is chiefly valuable because of the ornamental character of its glaucous foliage and brilliant bloom. (Adapted from *Bentham, Flora Australiensis, vol. 3, p. 224*, and from *Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 1153.*)

48991. EUCALYPTUS MARGINATA J. E. Smith. Myrtaceæ. Jarrah.

A very large, tall, slender Australian tree, often clear of branches for two-thirds of its height. The hard, very durable wood is used for timber, piles, and railway ties. The tree will grow in a great variety of soils, but prefers moist, well-drained situations. (Adapted from *Zon and Briscoe, Eucalypts in Florida, Forest Service Bulletin No. 87, p. 44.*)

48992. EUCALYPTUS MEGACARPA F. Muell. Myrtaceæ. Blue gum.

A tall tree, native to western Australia, with smooth, grayish white bark and thick, smooth, lanceolate leaves up to 6 inches in length. The thick, hard fruits are depressed-globular and about an inch in diameter. (Adapted from *Bentham, Flora Australiensis, vol. 3, p. 232*, and from *Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 1156.*)

48993. EUCALYPTUS OCCIDENTALIS Endl. Myrtaceæ. Brown mallet.

A spreading shrub or medium-sized tree, native to southwestern Australia, with lanceolate leaves up to 5 inches in length. The stamens are yellowish or orange, and the fruits are bell-shaped with a spreading rim. The timber is hard, strong, and durable and is much used for posts, fence rails, etc. (Adapted from *Maiden, Useful Native Plants of Australia, p. 499*, and from *Bailey, Standard Cyclopedia of Horticulture, vol. 2, p. 1154.*)

48994. EUCALYPTUS OLEOSA F. Muell. Myrtaceæ.

A shrub or small tree with thick, smooth, mostly lanceolate leaves less than 4 inches long. From the foliage of this Australian tree is obtained a yellowish oil with a pleasant mintlike or camphoraceous odor. Baron von Mueller found that 100 pounds of this foliage (of which perhaps half the weight consisted of branchlets) yielded 62½ ounces of oil of 0.911 specific gravity at 70° F., boiling at 341° F. (Adapted from *Maiden, Useful Native Plants of Australia, p. 272*, and from *Bentham, Flora Australiensis, vol. 3, p. 248.*)

48982 to 49002—Continued.

48995. EUCALYPTUS PATENS Benth. Myrtaceæ. **Blackbutt.**

This eucalypt is found in southwestern Australia, where it attains a height of 100 feet and a diameter up to 6 feet. The durable, tough timber is used by wheelwrights, and is said not to split. (Adapted from *Maiden, Useful Native Plants of Australia*, p. 501.)

48996 and 48997. EUCALYPTUS PYRIFORMIS Turcz. Myrtaceæ.

A shrub or small tree, found in western and southern Australia, where it attains a height of 8 to 12 feet. The very thick narrow leaves are rarely more than 3 inches long, and the large flowers are red when fresh. The yellowish white timber is hard, heavy, and durable. (Adapted from *Bentham, Flora Australiensis*, vol. 3, p. 226, and from *Maiden, Useful Native Plants of Australia*, p. 507.)

48996. "Yellow Mallet." (*Field.*) **48997.** "Red Mallet." (*Field.*)

48998. EUCALYPTUS REDUNCA Schauer. Myrtaceæ. **Wandoo gum.**

This tree, which reaches a height of 120 feet in western Australia, where it is native, furnishes a pale, hard, particularly tough and durable timber, much prized for building purposes, various implements, etc. The seasoned wood weighs about 70 pounds per cubic foot. (Adapted from *Maiden, Useful Native Plants of Australia*, p. 508.)

48999. EUCALYPTUS SALMONOPHLOIA F. Muell. Myrtaceæ. **Salmon gum.**

An Australian tree with shining green leaves which have numerous oil dots; the slender-stalked umbels of flowers are solitary. It is a smooth-barked species and is considered promising for dry interior valleys of the southwestern United States. (Adapted from *McClatchie, Eucalypts Cultivated in the United States, Bureau of Forestry Bulletin No. 35*, p. 96.)

49000. EUCALYPTUS SALUBRIS F. Muell. Myrtaceæ. **Gimlet wood.**

A tree with smooth shining bark and thin, dark-green leaves with numerous oil dots. The timber is valuable, and the leaves are rich in oil. It is a native of Australia, endures high temperatures and considerable frost, and is considered promising for desert regions in the United States. (Adapted from *McClatchie, Eucalypts Cultivated in the United States, Bureau of Forestry Bulletin No. 35*, p. 98.)

49001. EUCALYPTUS TETRAPTERA Turcz. Myrtaceæ.

A shrub or small tree, native to western Australia, with very thick and rigid narrow leaves which occasionally become 10 inches in length. The tree is very ornamental because of the foliage and because of the fact that just before the lid falls off the fruit the calyx tube and the stalk become a brilliant crimson. (Adapted from *Bentham, Flora Australiensis*, vol. 3, p. 228, and from *Bailey, Standard Cyclopedia of Horticulture*, vol. 2, p. 1154.)

49002. STERCULIA DIVERSIFOLIA Don. Sterculiaceæ. **Kurrajong.**

This exceedingly fine ornamental evergreen tree occurs over a great part of New South Wales from the vicinity of the coast to far inland. Its shining-green leaves, from 2 to 6 inches long, are variable in shape, some being deeply lobed and some entire. The nearly ovoid fruit, up to 3 inches long, contains about 20 seeds, which, when ground, form an excellent substitute for coffee. On the dry lands in the interior in adverse seasons the leaves of the *kurrajong* are fed to stock, and cattle

48982 to 49002—Continued.

and sheep are very fond of this fodder. The tree is easily grown from seeds. (Adapted from *The Pastoral Finance Association Magazine, Sydney, New South Wales, vol. 5, p. 32.*)

49003. PENNISETUM LATIFOLIUM Spreng. Poaceæ. Grass.

From Algiers, Algeria. Presented by Dr. L. Trabut. Received December 16, 1919.

"An ornamental and forage grass from the Algiers Botanic Garden; obtained November, 1919." (*Trabut.*)

A tall perennial, quick-growing, nutritious grass, native to Argentina, forming large tufts and readily spreading from the roots and seeds. (Adapted from *Mueller, Select Extra-Tropical Plants, p. 364.*)

49004. PROSOPIS CHILENSIS (Molina) Stuntz. Mimosaceæ. Algaroba.

From Honolulu, Hawaii. Presented by Mr. J. M. Westgate, agronomist in charge, Hawaii Agricultural Experiment Station. Received December 20, 1919.

This tree is one of the most valuable that has been introduced into the Hawaiian Archipelago, where it flourishes at an altitude between 800 and 1,000 feet and often forms thick forest belts. In addition to being one of the best sources of honey, the pods and seeds of the algaroba are valuable for cattle and poultry, the quantity consumed in this way each year being estimated at 500,000 sacks. It is stated that the seeds might be more digestible if they were crushed, but to accomplish this they must either be soaked in water or special crushers must be used. They can be kept in perfectly good condition for six to eight months; their market value is between \$7.50 and \$10 per ton. (Adapted from *Journal d'Agriculture Tropicale, No. 113, p. 351.*)

For previous introduction, see S. P. I. No. 46973.

49005. BARLERIA CRISTATA L. Acanthaceæ.

From Cairo, Egypt. Presented by the director, Horticultural Section, Gizeh Branch, Ministry of Agriculture. Received December 22, 1919.

A small, elegant shrub, found throughout India, with showy, blue, funnel-shaped flowers. It is often grown in gardens and is useful as a hedge plant. (Adapted from *Watt, Dictionary of the Economic Plants of India, vol. 1, p. 399.*)

49006 to 49015.

From Medellin, Colombia. Presented by Mr. W. O. Wolcott. Received December 23, 1919. Quoted notes by Mr. Wolcott.

49006. ANNONA MURICATA L. Annonaceæ. Soursop.

"Seed taken from a fruit that measured 19 inches in length and 13 inches in diameter and weighed 23 pounds. The outside was covered with hooked spines, 1 to 1½ inch long. The whole fruit had no rust or blemish, such as is usually found on fruits weighing from 6 to 10 pounds. I have never seen one like this before."

For previous introduction, see S. P. I. No. 45933.

49007. ANNONA RETICULATA L. Annonaceæ. Custard-apple.

"*Marmon* seeds."

For previous introduction, see S. P. I. No. 45955.

49006 to 49015—Continued.

49008. *ANNONA SQUAMOSA* L. Annonaceæ. Sugar-apple.

"*Guanabana* seeds."

For previous introduction, see S. P. I. No. 47875.

49009. *CARICA PAPAYA* L. Papayaceæ. Papaya.

"*Papaya* seed."

For previous introduction, see S. P. I. No. 47586.

49010. *CITRUS NOBILIS DELICIOSA* (Ten.) Swingle. Rutaceæ. Mandarin orange.

The so-called Mandarin orange, said to have been introduced from China into England in 1805 by Mr. Barrow and now grown in all warmer parts of the globe, is undoubtedly a native Chinese species, probably improved by selection through centuries of cultivation. (Adapted from *Sargent, Plantae Wilsonianae, vol. 2, p. 143.*)

For previous introduction, see S. P. I. No. 45933.

49011. *CUCURBITA FICIFOLIA* Bouche. Cucurbitaceæ. Alcallota.

"*Oyama* (green pumpkin) seed."

For previous introduction, see S. P. I. No. 42970.

49012. *CUCURBITA MAXIMA* Duchesne. Cucurbitaceæ. Squash.

"Seed of 3-foot yellow *ayama* (pumpkin squash)."

49013. *HELIANTHUS ANNUUS* L. Asteraceæ. Sunflower.

"Seed of a 16-inch sunflower."

49014. *HYLOCEREUS POLYRHIZUS* (Weber) Britt. and Rose. Cactaceæ.

"Seed from a light-red fruit with blood-red pulp of pleasing taste. This fruit weighed 18 ounces, but they often grow to a weight of 1½ to 2 pounds. The stalk is long and straggly, and three-fourths of an inch in diameter."

A slender vine, normally 3-angled, at first green or purplish but soon becoming white and afterwards green again; the ribs or wings are comparatively thin, although in age becoming more turgid. The vine bears two to four rather stout brownish spines and strongly fragrant flowers, purple in the bud, the outer perianth segments later reddish, the inner nearly white; the ovary is covered with red or deep-purple margined scales which later are entirely red. (Adapted from a note by *Dr. J. N. Rose.*)

49015. *PASSIFLORA QUADRANGULARIS* L. Passifloraceæ. Granadilla.

"Seeds from a fine *badea* fruit, from 10 to 12 inches long and 4 to 6 inches in diameter, similar in appearance to a big ripe cucumber, but twice as thick. The pulp is fine to eat with a spoon; the rind is very thick (half an inch or more), and might be used for making preserves or sweet pickles. The vine is very long and thick and should be trained on a fence or trellis, or even up a tree."

For previous introduction, see S. P. I. No. 45016.

49016. *PASPALUM Plicatum* Michx. Poaceæ. Black-grass.

From Bogota, Colombia. Collected by Mr. M. T. Dawe. Received December 24, 1919.

"A pasture grass indigenous to and now cultivated to some extent on the Llanos of San Martin and known as *black-grass* (*pasto negro*)."
(*Dawe.*)

49017 to 49019.

From Auckland, New Zealand. Purchased from E. C. Pilkington & Co. Received December 24 and 27, 1919.

49017. DANTHONIA PILOSA R. Br. Poaceæ. **Grass.**

An excellent pasture grass which, like others of the genus, seeds freely and gives good feed in early spring. Native to southern Australia. (Adapted from *Bailey, Queensland Flora*, p. 1891.)

For previous introduction, see S. P. I. No. 31496.

49018. DANTHONIA SEMIANNULARIS (Labill.) R. Br. Poaceæ. **Grass.**

Spreading through the pastures, this native species, known as *Wallaby grass*, is becoming very popular, and rightly so, too. It is a perennial tufted grass, producing fair crops of succulent soft fodder, suitable for either sheep or cattle. The leaves are narrow, usually hairy, and light green. The flower stems grow to a height of 2 to 2½ feet; the seed, which sheds easily, is produced in clusters that have a woolly white appearance when ripe. *Wallaby grass* provides good feed during the spring and summer and remains green in the winter months. (Adapted from *The Agricultural Gazette of New South Wales*, vol. 28, p. 286.)

49019. MICROLAENA STIPOIDES (Labill.) R. Br. Poaceæ.

Meadow rice-grass.

A slender perennial grass plentiful in lowland districts of Australia and New Zealand, chiefly near the sea. It is a most valuable pasture and lawn grass, deserving of far more attention than has hitherto been given to it. (Adapted from *Cheeseman, Manual of the New Zealand Flora*, p. 852.)

For previous introduction, see S. P. I. No. 44802.

49020. COLOCASIA ESCULENTA (L.) Schott. Araceæ. **Taro.**

From Kaying, Kwangtung, China. Tubers presented by Rev. J. H. Giffin, American Baptist Academy. Received December 26, 1919.

"*Penang*. Here in Kaying the *Penang* taro is considered delicious, but it does not grow large. The corm of the *Penang* taro is usually larger than that of other kinds, but the small tubers are smaller than those of other kinds. There are also fewer tubers; that is, a *Penang* corm has usually not more than four small tubers, while other varieties have many." (*Griffin*.)

"The *Penang* taro is considered to be the finest flavored of all the known varieties of this important food crop. It is distinguished from other taros by the purple fibers which traverse the white flesh and by a characteristic delicious fragrance which develops during cooking. The *Penang* differs also from the *Trinidad* dasheen and many other varieties of taro in that the corm, when grown under favorable conditions, is distinctly elongated instead of being roundish or oval. Unlike the *Trinidad* dasheen and similar varieties, the *Penang* taro produces usually not more than two or three cormels, or lateral 'tubers,' of marketable size; the crop therefore consists mainly of corms, which range from one to eight pounds or more each in weight. Unfortunately, this delicious taro is a rather poor keeper as compared with varieties of the dasheen type. Corms and cormels are acrid in the raw state.

"The meaning of the name *Penang* as applied to this taro is uncertain, but the Chinese character from which it is derived is said to be the same as that for 'betel nut.' Other renderings of the name are *Pat-long*, *Paan-long*, and *Banlung*." (*R. A. Young*.)

49021. CAPSICUM ANNUM L. Solanaceæ. Red pepper.

From Barcelona, Spain. Purchased from Hijos de Nonell through Mr. C. B. Hurst, American consul general. Received December 27, 1919.

"Spanish sweet pepper, known as *pimiento dulce morrón muy grande*. The seed is to be sown from February to June. The first sowing should be in a hothouse or in a sheltered place." (*Nonell*.)

49022. BARLERIA STRIGOSA Willd. Acanthaceæ.

From Cairo, Egypt. Presented by the director, Horticultural Section, Gizeh Branch, Ministry of Agriculture. Received December 29, 1919.

A small, unarmed shrub, 2 to 4 feet in height, much cultivated in India and the Malay Peninsula, and native to northeastern India. The large, ovate leaves and dense, almost globose spikes of blue flowers make this a very showy garden plant. (Adapted from *Hooker, Flora of British India, vol. 4, p. 489*.)

Received as *Barleria caerulea*, a later name for this species. For previous introduction, see S. P. I. No. 47834.

49023. PROSOPIS CHILENSIS (Molina) Stuntz. Mimosaceæ.

(*P. juliflora* DC.)

Algaroba.

From Puerto Cabello, Venezuela. Presented by Mr. George R. Phelan, American vice consul. Received December 30, 1919.

"The trees producing these pods, known by the name of *Cuji*, grow extensively in this region." (*Phelan*.)

For previous introduction, see S. P. I. No. 46972.

49024. BRASSICA OLERACEA VIRIDIS L. Brassicaceæ.

Jersey tree-kale.

From St. John, Jersey, Channel Islands. Presented by Mr. D. R. Bisson. Received December 30, 1919.

"This plant is found very useful here as food for chickens, rabbits, and pigs, as the leaves can be stripped off continually and the plant keeps growing. In Jersey the stalks of this plant have been known to attain a height of 18 feet and when dried are turned into light and strong walking sticks. The young sprouts in early spring form a very acceptable vegetable for the table." (*Bisson*.)

For previous introduction, see S. P. I. No. 46475.

49025 and 49026.

From St. Jean-le-Blanc, Loiret, France. Presented by Edmond Versin. Received December 30, 1919.

49025. ALBIZZIA LOPHANTHA (Willd.) Benth. Mimosaceæ.

Variety *Neumanniana*. A tall shrub or small tree with velvety pubescent branches and stems, and compound leaves composed of 8 to 10 pairs of pinnæ and 20 to 30 pairs of pinnules. The flowers are in loose, cylindrical, axillary spikes up to 3 inches in length, and the pods are very flat and often more than 3 inches long. Cattle are fond of browsing on the leaves of this tree, which is of rapid growth. The bark contains about 8 per cent of tannin, and the dry root contains about 10 per cent of saponin. (Adapted from *Bentham, Flora Australiensis, vol. 2, p. 421*, and from *Maiden, Useful Native Plants of Australia, p. 116*.)

For previous introduction, see S. P. I. No. 44957.

49025 and 49026—Continued.**49026. PASSIFLORA GRACILIS** Jacq. Passifloraceæ.

A Brazilian granadilla of climbing habit and with smooth slender stems. The 3-lobed, membranous leaves are up to 3 inches long and as wide. The apetalous flowers, about 2 inches in diameter, are borne singly in the axils, and the ovoid, purplish fruits are about 2 inches in length. Adapted from *Martius, Flora Brasiliensis, vol. 13, p. 578.*)

49027. LESPEDEZA STIPULACEA Maxim. Fabaceæ.

From Seoul, Chosen (Korea). Presented by Mr. Ralph G. Mills, Research Department, Severance Union Medical College. Received December 30, 1919.

"This plant seemed to me peculiar in that it was able to grow clear down to the water's edge along the coast where the salt content of the soil must have been considerable. The extent of the growth and the nearness to the high-water mark made me wonder whether this particular strain might be of use in some of our Western States where the alkali or saline content of the soil is trying to most forms of plant life." (*Mills.*)

49028 and 49029.

From Puerto Varas, Chile. Presented by Dr. E. W. D. Holway. Received December 30, 1919.

49028. HIPPEASTRUM sp. Amaryllidaceæ.

"Seeds of a *Hippeastrum* about 2 feet tall, with brilliant crimson flowers, growing on the hills near the sea." (*Holway.*)

49029. SOPHORA TETRAPTERA J. Miller. Fabaceæ.

(*Edwardsia tetraptera* Poir.)

A small tree with exceedingly hard and durable wood. The trunk may attain a diameter of 3 feet. Native to New Zealand, Lord Howe's Island, and also to Juan Fernandez Island, Chile, and Patagonia, where it is called *pelu*. (Adapted from *Mueller, Select Extra-Tropical Plants, p. 512.*)

For previous introduction, see S. P. I. No. 4413.

49030. STADMANNIA OPPOSITIFOLIA Lam. Sapindaceæ.

From Port Louis, Mauritius. Presented by Mr. G. Regnard. Received December 30, 1919.

"The fruits make an excellent jelly, very much like that of the quince." (*Regnard.*)

A large hardwood tree, once frequent in the primeval forests of the island of Mauritius but now becoming scarce. It has alternate, pinnate leaves, dense panicles of inconspicuous flowers, and hard spherical fruits nearly an inch in diameter. (Adapted from *Baker, Flora of Mauritius, p. 60.*)

For previous introductions, see S. P. I. No. 45663.

49031. PETREA ARBOREA H. B. K. Verbenaceæ.

From Bucaranga, Colombia. Seeds purchased from Dr. Enrique Lopez. Received December 31, 1919.

"Seed of a valuable ornamental shrub from the Cordillera de los Andes, known as *mireya*, suitable for parks and gardens. The glossy dark-green leaves are long, slender, and leathery; and the dense globose crown of foliage

is profusely ornamented with long pendent racemes of purple flowers. The small corolla is intensely colored and looks like a violet in the center of the paler lavender of the showy, star-shaped calyx." (*Lopez.*)

49032 to 49050.

From Rochester, N. Y. Collected by Mr. H. E. Allanson and through the courtesy of Mr. Dunbar, of the city parks of Rochester, presented to this office for distribution. Numbered December 31, 1919.

49032. COTONEASTER ZABELI C. Schneid. Malaceæ.

This is the common cotoneaster of the thickets in western Hupeh, China, where it forms a bush up to 8 feet in height, with oval elliptic leaves, pink flowers, and red fruits. (Adapted from *Sargent, Plantae Wilsonianae, vol. 1, p. 166.*)

For previous introduction, see S. P. I. No. 45707.

49033 and 49034. JUGLANS RUPESTRIS Engelm. Juglandaceæ. **Walnut.**

A tree about 50 feet in height, with a short trunk sometimes 5 feet thick and dark yellow-green pinnate leaves 7 to 15 inches in length. The nuts are nearly globose, dark reddish brown to black, and up to 1½ inches in diameter. This walnut is distributed throughout central and western Texas, Arizona, and northern Mexico. (Adapted from *Sargent, Manual of the Trees of North America, p. 129.*)

49033. Ordinary form.

49034. Form with large nuts.

49035. × MALUS DAWSONIANA Rehder. Malaceæ.

Apple.

A tree with ascending or spreading branches, reddish brown bark, clusters of very small white flowers, and yellow or greenish yellow fruits which are pulpy and acid when ripe. This species is interesting as the first known hybrid of *M. fusca*. (Adapted from *Sargent, Trees and Shrubs, vol. 2, p. 23.*)

49036. MALUS GLAUDESCENS Rehder. Malaceæ.

Apple.

(*Pyrus glaucescens* Bailey.)

An arborescent shrub or small tree, with a slender trunk and spreading branches. The leaves are bronze in color when they unfold, becoming yellowish green and turning in autumn to a dull yellow or dark purple. The white or pink flowers, up to 4 cm. in diameter, are borne in umbellike racemes, and the fragrant yellow fruits are from 3 to 4 cm. in diameter. This tree is native to the eastern United States. (Adapted from *Sargent, Trees and Shrubs, vol. 2, p. 139.*)

For previous introduction, see S. P. I. No. 42760.

49037. MALUS NIEDZWETSKYANA Dieck. Malaceæ.

Apple.

(*Pyrus niedzwetskyana* Hemsl.)

A small tree, with dark bark and twigs, purple leaves, and dark purplish red flowers and fruit, even the flesh of the fruit being purple. It is native to Turkestan. (Adapted from *Bulletin of Popular Information No. 39, Arnold Arboretum.*)

49038. MALUS PRUNIFOLIA (Willd.) Borkh. Malaceæ.

Apple.

(*Pyrus prunifolia* Willd.)

"For years this was considered a hybrid between *Pyrus baccata* and *P. malus* or other species, but it is now considered by Rehder to be a good species, as yet known only in cultivation, although supposed to

49032 to 49050—Continued.

come from Siberia. It has sessile clusters of white flowers and green, yellow, and red fruits about an inch in diameter." (Bailey.)

For previous introduction, see S. P. I. No. 37617.

49039. MALUS SIEBOLDII (Regel) Rehder. Malaceæ. **Apple.**
(*Pyrus sieboldii* Regel.)

A low shrub, broader than high, with arching stems. It has the merit of flowering later than other Asiatic crab apples. It produces great quantities of fruits about the size of peas; these vary in color from bright red to yellow. (Adapted from *Bulletin of Popular Information, Arnold Arboretum, vol. 4, p. 47.*)

For previous introduction, see S. P. I. No. 27128.

49040. POPULUS ADENOPODA Maxim. Salicaceæ. **Poplar.**

A rather slender, shapely tree, 25 meters or more tall, with a straight trunk and smooth pale-gray bark which on old trees becomes dark and slightly fissured. The leaves are greenish beneath. This is the common low-level poplar of Hupeh and Szechwan, China. (Adapted from *Sargent, Plantae Wilsonianae, vol. 3, p. 21.*)

49041. POPULUS MAXIMOWICZII A. Henry. Salicaceæ. **Poplar.**

This poplar is a native of eastern Siberia and northern Japan. It is the largest tree of eastern Siberia, where it sometimes attains a height of 80 feet, with a broad head of massive branches. The leaves are finely toothed, pale green and lustrous above, silvery white below, and 3 or 4 inches long. (Adapted from *Bulletin of Popular Information, Arnold Arboretum, vol. 1, p. 41.*)

For previous introduction, see S. P. I. No. 43862.

49042. PYRUS MALIFOLIA Spach. Malaceæ. **Pear.**

"This may be a hybrid between *Pyrus auricularis* and some other species of *Pyrus* (*Malus*), but this has not yet been determined." (Schneider, *Illustriertes Handbuch der Laubholzkunde, vol. 2, p. 995.*)

For previous introduction, see S. P. I. No. 44048.

49043. ROSA MICRANTHA J. E. Smith. Rosaceæ. **Rose.**

A rose which closely resembles *Rosa canina*; it is native to the mountains of central Europe. The leaflets are often tinged with red, and the pink flowers are borne in corymbs. The ovoid fruits are bright red. (Adapted from Willmott, *The Genus Rosa, p. 461.*)

49044. ROSA PALUSTRIS Marsh. Rosaceæ. **Rose.**
(*R. carolina* of Auth., not L.)

Variety *nuttalliana*. "Flowers larger and appearing later than in the species, lasting until September." (Alfred Rehder.)

The typical form of this species is an erect, very tall shrub, distributed through eastern North America from Canada to Florida. It has reddish stems, bright-pink single flowers which appear very late, and bright-scarlet fruit. (Adapted from Willmott, *The Genus Rosa, pt. 11, p. 211.*)

49045. ROSA sp. Rosaceæ. **Rose.**

"No. 1135."

49046. ROSA sp. Rosaceæ. **Rose.**

"No. 1136."

49032 to 49050—Continued.

49047. *ROSA* sp. Rosaceæ. **Rose.**
 "No. 1140."
49048. *ROSA* sp. Rosaceæ. **Rose.**
 Variety *Catherine*.
49049. *ROSA* sp. Rosaceæ. **Rose.**
 "A *Rosa multiflora* hybrid." (*Alfred Rehder*.)
49050. *ULMUS* sp. Ulmaceæ. **Elm.**
 "Dwarf form."

49051 to 49123.

From Jamaica Plain, Mass. Plant material collected by Mr. H. E. Allanson in the Arnold Arboretum through the courtesy of Prof. Sargent, its director. Numbered December 31, 1919. Quoted notes by Mr. Allanson.

49051. *AESCULUS TURBINATA* Blume. Æsculaceæ.

The hardy Chinese *Aesculus*, "Tochnoki," which attains a height of 40 feet. It is valuable as a shade tree. The seeds are used for food in Japan. (Adapted from *Mueller, Select Extra-Tropical Plants, p. 22.*)

49052. *BERBERIS AMURENSIS* Rupr. Berberidaceæ. **Barberry.**

A very decorative ornamental with branches covered with drooping clusters of showy red fruits. (Adapted from *Bulletin of Popular Information, Arnold Arboretum, No. 35, Oct. 25, 1912.*)

49053. *BERBERIS AMURENSIS JAPONICA* (Regal) Rehder. Berberidaceæ. **Barberry.**

(*B. sieboldii* Hort., not Miquel.)

A stout compact shrub, indigenous to Japan, 3 to 4 feet in height, with pale-gray bark and dark-green, leathery, obovate leaves which turn in autumn to brilliant shades of scarlet and orange. The racemes of greenish yellow flowers and the scarlet berries resemble those of the common barberry. (Adapted from *Garden and Forest, vol. 3, p. 248.*)

49054. *BERBERIS BRETSCHNEIDERI* Rehder. Berberidaceæ. **Barberry.**

An upright fast-growing shrub, 2 to 3 meters in height, found in the mountains near Peking, China. The small, pale-yellow flowers are borne in pendent racemes and are succeeded by racemes of purplish pear-shaped fruits. This shrub is hardy as far north as Massachusetts and is particularly ornamental in late autumn when the leaves change to brilliant shades of orange and scarlet. (Adapted from *Sargent, Trees and Shrubs, vol. 2, p. 21, pl. 110.*)

49055. *BERBERIS CANADENSIS* Mill. Berberidaceæ. **Barberry.**

An ornamental of great decorative value. Its showy fruits are very ornamental in the house. (Adapted from *Bulletin of Popular Information, Arnold Arboretum, No. 35, Nov. 7, 1912.*)

49056. *BERBERIS DICTYOPHYLLA* Franch. Berberidaceæ. **Barberry.**

This barberry was introduced from Yunnan many years ago, but it is not common nor grown to the extent it deserves. It forms a medium-sized shrub some 4 feet or so in height and is somewhat broad in proportion. The branches are erect when young, but become semiarching with age. The ovate leaves are borne in clusters of five at each node, each leaf being about half an inch long and having a few irregular teeth on the

49051 to 49123—Continued.

edges. They are bright grass-green above and intensely glaucous beneath. This glaucescence is also present on the stems, more especially the younger ones, the blue-whiteness of the whole plant being especially striking in summer. The usual three spines found in most of the barberries are present beneath the leaves at each node, each spine being somewhat less than one inch in length and sharply pointed. The flowers are small, pale yellow in color, and are succeeded by oval berries which are red when ripe. Neither the flowers nor the fruits are very striking, the chief beauty of the plant being the peculiar glaucescence of the stems and the under sides of the leaves. It is easily propagated by seeds or by layering. (Adapted from *The Gardeners' Chronicle*, Sept. 28, 1912.)

49057. BERBERIS DIELSIANA Fedde. Berberidaceæ. Barberry.

A spreading loosely branched shrub, $1\frac{1}{2}$ to 3 meters (5 to 10 feet) tall, with narrowly elliptic, acute leaves which are distinctly whitish underneath, yellow flowers, and red fruits. The foliage is often bronzy. (Adapted from *Sargent, Plantae Wilsonianae*, vol. 3, pt. 3, p. 441.)

49058. BERBERIS GILGIANA Fedde. Berberidaceæ. Barberry.

An ashy-barked ornamental shrub, native to central China. The lanceolate or obovate leaves are somewhat coriaceous and up to 4 cm. long. The flowers are borne in dense racemes. (Adapted from *Engler's Botanische Jahrbücher*, vol. 36, Beiblatt No. 82, p. 43.)

49059. BERBERIS HENRYANA C. Schneid. Berberidaceæ. Barberry.

This barberry represents apparently *Berberis vulgaris* in Hupeh and eastern Szechwan, but it is very different from the European species and its nearest relatives, especially in its brownish, sometimes almost purplish branches which are yellowish gray in *B. vulgaris* L. and *B. amurensis* Rupr. (Adapted from *Sargent, Plantae Wilsonianae*, vol. 3, pt. 3, p. 440.)

49060. BERBERIS INTEGERRIMA Bunge. Berberidaceæ. Barberry.

A shrub up to 6 feet in height, with grayish green leaves, dense racemes of small flowers, and black fruits. It flowers in May. (Adapted from *Bailey, Standard Cyclopedia of Horticulture*, vol. 1, p. 490.)

49061. BERBERIS KOREANA Palibin. Berberidaceæ. Barberry.

An ornamental shrub, up to 6 feet in height, with the young branches shining purplish, short simple spines, oval or obovate leaves up to $2\frac{1}{2}$ inches long, and dense lax racemes of yellow flowers. The roundish fruits are scarlet. This shrub is a native of Chosen (Korea). (Adapted from *Palibin, Conspectus Florae Koreae*, p. 22, and from *Bailey, Standard Cyclopedia of Horticulture*, vol. 1, p. 490.)

49062. BERBERIS LUCIDA Schrad. Berberidaceæ. Barberry.

This barberry resembles in general habit *Berberis vulgaris*. It has oblong-elliptical spiny-toothed leaves and spreading racemes of elliptical red berries. It is said to be a native of the Iberian Peninsula. (Adapted from *Linnaea*, vol. 12, p. 363.)

49063. BERBERIS REHDERIANA C. Schneid. Berberidaceæ. Barberry.

This *Berberis* is supposed to be a native of Japan: it is a shrub with weak spines, oblanceolate or ovate-oblong leaves about 2 cm. in length, racemes of small yellow flowers, and yellowish red globose fruits. (Adapted from *Bulletin l'Herbier Boissier*, 2d ser. vol. 5, p. 659.)

49051 to 49123—Continued.

49064. *BERBERIS SEROTINA* Lange. Berberidaceæ. **Barberry.**

A form said by C. Schneider to be closely related to *B. sinensis* Poir.

49065. *BERBERIS THUNBERGII* MAXIMOWICZII Regel. Berberidaceæ.

Barberry.

A plant larger than the type, with arching stems, larger leaves, and larger flowers and fruits. In the autumn the color of the leaves is as beautiful as those of *B. thunbergii*. (Adapted from *Bulletin of Popular Information, Arnold Arboretum, No. 33.*)

49066 and 49067. *BERBERIS VULGARIS* L. Berberidaceæ. **Barberry.**

49066. Variety *purpurea*. 49067. European garden variety.

49068. *BERBERIS* sp. Berberidaceæ. **Barberry.**

Received as *B. ottawensis*, which has not yet been published.

49069. *BERBERIS* sp. Berberidaceæ. **Barberry.**

Received at *B. ottawensis*, which has not yet been published.

49070. *BERBERIS* sp. Berberidaceæ. **Barberry.**

Received as *B. wilsonae stappiana*, which has not yet been published.

49071. × *CRATAEGUS CARRIEREI* Bean. Malaceæ.

"(No. 41. November 17, 1919.) Beautiful tree, leaves rich green to brown and red; large scarlet fruits."

A hybrid hawthorn which originated in France and which is one of the most attractive members of this genus. The identity of the parents does not seem to be very clear. M. Carriers described it as a seedling of *Crataegus mexicana*; the other parent may be *C. crus-galli*. *C. punctata* is also mentioned as one of the parents. The glistening white flowers are nearly an inch in diameter, with attractive pink stamens, borne in flattish corymbs in May and June. During the autumn the orange-red fruits, three-fourths of an inch in diameter, make the tree very attractive. (Adapted from *The Garden, vol. 78, p. 64.*)

For previous introduction, see S. P. I. No. 35095.

49072. *CRATAEGUS DAWSONIANA* Sarg. Malaceæ.

"(No. 39. November 21, 1919.) Beautiful tree; large crop of pink berries."

A small tree with spreading branches forming an irregular crown. It has dark yellow-green, oval, acuminate leaves, many-flowered corymbs, and usually orange-red, yellow-fleshed obovate fruits which are borne on long, slender, red pedicels. The tree is a native of Illinois. (Adapted from *Report of the Missouri Botanical Garden, p. 88, 1908.*)

49073. *CRATAEGUS NITIDA* (Engelm.) Sarg. Malaceæ.

"(No. 40. November 11, 1919.) Beautiful, deep-red fruit; leaves all gone."

A tall, straight tree, about 30 feet high, common on the bottom lands of the Mississippi River in Illinois. The leaves turn to brilliant shades in autumn, and the flowers are borne in broad compound corymbs. (Adapted from *Sargent, Manual of the Trees of North America, p. 406.*)

For previous introduction, see S. P. I. No. 44388.

49074. *CRATAEGUS* sp. Malaceæ.

"(No. 42. November 21, 1919.) Much like × *Crataegus carrieriei*."

49051 to 49123—Continued.

49075. *MALUS ANGUSTIFOLIA* Michx. Malaceæ. Apple.
(*Pyrus angustifolia* Ait.)

A tree rarely 30 feet in height, with rigid branches forming a broad, open head, lanceolate-oblong leaves, very fragrant white or pink flowers borne in few-flowered clusters, and very fragrant, pale yellow-green fruits about an inch in diameter. The tree is common in the southeastern United States. (Adapted from *Sargent, Manual of the Trees of North America*, p. 352.)

49076. × *MALUS ATROSANGUINEA* C. Schneid. Malaceæ. Apple.
(*Pyrus atrosanguinea* Hort.)

A handsome floriferous species of doubtful origin. It is probably *Pyrus halliana* × *P. sieboldii*, and resembles it in general but differs in that its deep carmine flowers do not fade to white, in its rather narrower petals, and in its more shining and finally glabrous leaves. The fruit is dark red. (Adapted from *Bailey, Standard Cyclopaedia of Horticulture*, vol. 5, p. 2875.)

49077. *MALUS BACCATA* (L.) Moench. Malaceæ. Siberian crab apple.
(*Pyrus baccata* L.)

The crab apple of eastern Siberia is a tall slender tree with white flowers borne on long drooping stems, and very small yellow fruits, from which the calyx falls before the fruit is ripe. (Adapted from *Bulletin of Popular Information, Arnold Arboretum, No. 22.*)

For previous introduction, see S. P. I. No. 44283.

49078. *MALUS CORONARIA* (L.) Mill. Malaceæ. Wild crab apple.
(*Pyrus coronaria* L.)

A beautiful tree, native to the eastern United States. In May it is covered with fragrant rose-colored flowers. The fruits, about 1½ inches in diameter, are yellow-green and valued for making preserves. (Adapted from *Curtis's Botanical Magazine, pl. 2009.*)

49079. × *MALUS DAWSONIANA* Rehder. Malaceæ. Apple.

For description, see S. P. I. No. 49035.

49080. *MALUS FLORIBUNDA* Siebold. Malaceæ. Crab apple.
(*Pyrus pulcherrima* Aschers. and Graebn.)

One of the handsomest of all the crab apples, and one of the earliest to flower. It is a broad shrub with abundant dark-green foliage and a great profusion of pink flowers. The yellow or orange fruits are not much larger than peas. The origin of this plant is uncertain, although it appears to be known in China as a wild plant. (Adapted from *Bulletin of Popular Information, Arnold Arboretum, No. 22.*)

49081. *MALUS HALLIANA* Koehne. Malaceæ. Apple.

Variety *parkmanii*. "The double-flowered form; named for Francis Parkman, the historian, in whose garden near Boston it was first grown in this country." (*L. H. Bailey.*)

49082. *MALUS MICROMALUS* Makino. Malaceæ. Apple.

This little-known species is unusually attractive with its small pink flowers. It is a tree with erect branches which form a narrow pyramidal head; the bark is pale and smooth. (Adapted from *Bulletin of Popular Information, Arnold Arboretum, vol. 4, p. 12.*)

49051 to 49123—Continued.

- 49083.** MALUS PRUNIFOLIA RINKI (Koidz.) Rehder. Malaceæ. **Apple.**
(*Pyrus prunifolia rinki* Bailey.)

A very handsome tree, native to northern and western China, which produces an abundance of roundish fruits, smaller than those of the typical species and varying in color from green to yellow or red. Its handsome and abundant fruits make it well worthy of cultivation in American gardens. (Adapted from *Bulletin of Popular Information, Arnold Arboretum, vol. 4, p. 46.*)

For previous introduction, see S. P. I. No. 46700.

- 49084 and 49085.** MALUS SARGENTII Rehder. Malaceæ. **Apple.**
(*Pyrus sargentii* Bean.)

49084. A shrub from northern Japan which grows only a few feet in height, but spreads by semiprostrate stems to a wide diameter. The scarlet fruit, which is produced in great quantities, remains in good condition on the branches until the following spring. (Adapted from *Bulletin of Popular Information, Arnold Arboretum, vol. 4, p. 47.*)

For previous introduction, see S. P. I. No. 43558.

49085. "A dwarf form."

- 49086 and 49087.** MALUS SIEBOLDII (Regel) Rehder. Malaceæ. **Apple.**
(*Pyrus sieboldii* Regel.)

49086. For description, see S. P. I. No. 49039.

49087. Received as *Malus toringo*, which is now referred to *M. sieboldii*.

- 49088.** MALUS SIEBOLDII ARBORESCENS Rehder. Malaceæ.
(*Pyrus sieboldii arborescens* Bailey.)

"A form widely distributed in Japan. It differs from the type in its more treelike habit, somewhat larger and less divided leaves, and in the color of the flowers, which are often nearly white." (*L. H. Bailey.*)

For previous introduction, see S. P. I. No. 43704.

- 49089.** MALUS SIEBOLDII CALOCARPA Rehder. Malaceæ. **Apple.**

This variety of *M. sieboldii* has larger flowers and fruit and is a large arborescent shrub. As a flowering plant and when its bright-red, lustrous fruit is ripe, it is one of the handsomest of the crab apples. (Adapted from *Bulletin of Popular Information, Arnold Arboretum, vol. 4, p. 47.*)

- 49090.** MALUS SOULARDI (Bailey) Britton. Malaceæ. **Apple.**
(*Pyrus soulardi* Bailey.)

The Soulard crab, with ovate or obovate leaves with wrinkled lower surfaces and greenish yellow fruits, is found occasionally from Minnesota to eastern Texas, and is believed to be a natural hybrid between the common apple and *M. ioensis*. (Adapted from *Sargent, Manual of the Trees of North America, p. 355.*)

- 49091.** MALUS SPECTABILIS (Ait.) Borkh. Malaceæ. **Chinese flowering apple.**
(*Pyrus spectabilis* Ait.)

A tall shrub or small tree from northern China, with erect, slightly spreading branches, large pink flowers which in the cultivated forms are more or less double, and medium-sized yellow fruits. (Adapted from *Bulletin of Popular Information, Arnold Arboretum, No. 22.*)

For previous introduction, see S. P. I. No. 44281.

49051 to 49123—Continued.

49092. MALUS sp. Malaceæ. **Apple.**

"(No. 5009.) *Fluke* apple. Fruits."

49093. MALUS sp. Malaceæ. **Apple.**

"*Kashmere*. Fruits."

49094. MALUS sp. Malaceæ. **Apple.**

"(No. 329.) *Purdom*. Fruits."

49095. MALUS sp. Malaceæ. **Apple.**

"Red-fruited crab apple bought in Chinese market."

49096. MALUS sp. Malaceæ. **Apple.**

"Apparently a hybrid between *Malus baccata* and *M. prunifolia*."
(*Rehder*.)

49097. PYRUS CALLERYANA Decaisne. Malaceæ. **Pear.**

A wild Chinese pear, not uncommon in western Hupeh at altitudes of 1,000 to 1,500 meters. It is easily recognizable by its comparatively small, crenate leaves and small flowers. This pear maintains a vigorous and healthy appearance under the most trying conditions, and might prove to be a very desirable blight-resistant stock. The woolly aphid has not been known to touch this species. (Adapted from *Monthly Bulletin of the California State Commission of Horticulture*, vol. 4, p. 313.)

For previous introduction, see S. P. I. No. 47261.

49098. PYRUS CALLERYANA GRACILIFLORA Rehder. Malaceæ. **Pear.**

"This form looks at flowering time quite distinct from the plants we consider typical *Pyrus calleryana* on account of its looser and slenderer inflorescence and the smaller flowers with pink, not purple, anthers."
(*Journal of the Arnold Arboretum*, July, 1920, p. 61.)

49099. PYRUS CALLERYANA TOMENTELLA Rehder. Malaceæ. **Pear.**

"This form is readily distinguished from the type by the dense white tomentum of the young growth and of the inflorescence, which on the branchlets often persists until the following year."
(*Journal of the Arnold Arboretum*, July, 1920, p. 61.)

49100. PYRUS SERRULATA Rehder. Malaceæ. **Pear.**

A tree, native to western China, 22 to 26 feet in height, with oval or oval-oblong, serrulate leaves up to 4½ inches in length, racemes of white flowers, and nearly globular brown fruits about half an inch long. (Adapted from *Rehder*, *Proceedings of the American Academy of Arts and Sciences*, vol. 50, p. 234.)

For previous introduction, see S. P. I. No. 46748.

49101. ROSA ABIETINA Grenier. Rosaceæ. **Rose.**

A small, hardy, pink-flowered rose from Switzerland and the French provinces nearest that country. The bush is usually from 5 to 6 feet tall. (Adapted from *Schneider*, *Handbuch der Laubholzkunde*, pt. 1, p. 567.)

For previous introduction, see S. P. I. No. 43706.

49102. ROSA ALBA L. Rosaceæ. **Rose.**

"An upright shrub, about 6 feet high, with white, more or less double fragrant flowers and ovate scarlet fruits. Its origin is unknown; it

49051 to 49123—Continued.

may possibly be a hybrid between *Rosa gallica* and *R. dumetorum*." (*Rehder*.)

For previous introduction, see S. P. I. No. 30254.

49103. ROSA ALBERTI Regel. Rosaceæ. **Rose.**

"Slender-branched rose from Turkestan, allied to *Rosa willmottiae*. Flowers white, 1½ inches wide." (*Rehder*.)

For previous introduction, see S. P. I. No. 37977.

49104. ROSA ARVENSIS Huds. Rosaceæ. **Ayrshire rose.**

This is a British species readily recognized by its long, slender, trailing stems. Popularly known as the Ayrshire rose, the habit of the plant makes it very suitable for covering banks and terraces. The white single flowers, with a tuft of yellow stamens in the center, appear during June and July, and the small oval fruits are red. (Adapted from *The Garden*, vol. 18, p. 511.)

49105. ROSA BELGRADENSIS Panic. Rosaceæ. **Rose.**

"This resembles *Rosa rubiginosa* or *R. dumetorum*. It is a medium-sized shrub with rather small, slightly glandular-pubescent foliage and clustered pink flowers about 1½ inches across." (*Rehder*.)

49106. ROSA BLANDA Ait. Rosaceæ. **Rose.**

"(No. 10. November 14, 1919.) Forms a thicketlike growth; free seeder. No thorns."

An erect shrub, 4 to 6 feet high, found generally in damp situations from Labrador throughout the northern United States. The pink flowers, which are sweet scented, are single and rather large. It is one of the earliest roses to flower. (Adapted from *Willmott, The Genus Rosa*, pt. 16, pl. 104.)

49107 and 49108. ROSA CANINA L. Rosaceæ. **Rose.**

49107. "(No. 16. November 21, 1919.)" A stout shrub, 6 to 13 feet high, with scattered hooked thorns and clusters of fragrant white or pinkish flowers. The roundish fruits are bright red. This rose is found throughout most of the cooler parts of Europe and western Asia and has many varieties. (Adapted from *Bean, Trees and Shrubs Hardy in the British Isles*, vol. 2, p. 422.)

For previous introduction, see S. P. I. No. 43709.

49108. Variety *subinermis*. "(No. 5. November 14, 1919.) Small plant, sparse seeder."

49109. ROSA CAROLINA L. Rosaceæ. **Rose.**

"(No. 1. November 14, 1919.) Eastern North America. Spreading bush, about 3 or 4 feet high, very much covered with thorns. Fair quantity of small red round hips."

49110. ROSA CORIIFOLIA Fries. Rosaceæ. **Rose.**

"(No. 14. November 14, 1919.) Large bush, heavily fruited."

This is a very attractive single white rose, common throughout Europe, extending to western Asia. The stems are erect or arching, and the flowers are borne singly or in clusters of two to four. The bright-red fruits ripen in September. (Adapted from *Willmott, The Genus Rosa*, pt. 20, pl. 129.)

For previous introduction, see S. P. I. No. 43713.

49051 to 49123—Continued.

49111. *ROSA DUMETORUM* Thuill. Rosaceæ. **Rose.**

"(No. 21. November 21, 1919.) Beautiful deep-red hips; vigorous grower."

A tall, arching shrub, generally distributed throughout England, with stout scattered prickles, pubescent leaves, few-flowered corymbs of single pink flowers, and oblong, bright-red, early-ripening fruits. (Adapted from *Willmott, The Genus Rosa, pt. 21, pl. 132.*)

49112. *ROSA GAYIANA* Wallr. Rosaceæ. **Rose.**

"(No. 26. November 21, 1919.)"

A European rose closely allied to *Rosa villosa* L., from which it appears to differ chiefly by its larger, oblong-ovate leaflets. The thorns are straight, and the flowers solitary. (Adapted from *Wallroth, Rosa Plantarum Generis Historia Succincta, p. 171.*)

For previous introduction, see S. P. I. No. 43715.

49113. *ROSA HELENÆ* Rehd. and Wils. Rosaceæ. **Rose.**

"(No. 22. November 21, 1919.)"

A vigorous and hardy shrub with slender, arching stems, 5 or 6 feet high, with cheerful light-green foliage and many-flowered clusters of pure white, fragrant flowers $1\frac{1}{2}$ inches in diameter. It is native to western China. (Adapted from *Bulletin of Popular Information, Arnold Arboretum, vol. 1, p. 39.*)

For previous introduction, see S. P. I. No. 45729.

49114. *ROSA MONTANA* Chaix. Rosaceæ. **Rose.**

"(No. 7. November 14, 1919.) Small; smooth red bark; good seeder."

"Allied to *Rosa canina*. It has hooked prickles and small, pale-pink flowers." (*Rehder.*)

49115. *ROSA MULTIFLORA CATHAYENSIS* Rehd. and Wils. Rosaceæ. **Rose.**

This is a very common rose growing in sandy and rocky places besides streams everywhere in western Hupeh and in Szechwan, from river level to an altitude of 1,300 meters. The flowers are always pink and larger than those of the type, and like the type it is a very variable plant. The stems may be prostrate or erect; the leaves vary extremely in size, and the leaflets vary from narrow-lanceolate to suborbicular and are nearly glabrous or very pubescent. (Adapted from *Sargent, Plantae Wilsonianae, vol. 2, pt. 2, p. 305.*)

49116. *ROSA NUTKANA* Presl. Rosaceæ. **Rose.**

"(No. 7. November 14, 1919.) Vigorous; much barbed."

An erect shrub, 3 to 4 feet high, with bright-brown stems and stout scattered prickles. It is found from Alaska to northern California. The flowers are large, single, and pink and the fruits red and pulpy. (Adapted from *Willmott, The Genus Rosa, pt. 12, pl. 75.*)

For previous introduction, see S. P. I. No. 30261.

49117. *ROSA OXYODON* Boiss. Rosaceæ. **Rose.**

"(No. 15. November 21, 1919.) Large spring variety."

A prickly-stemmed shrub with solitary pink flowers. It is native to eastern Caucasia. (Adapted from *Boissier, Flora Orientalis, vol. 2, p. 647.*)

For previous introduction, see S. P. I. No. 43722.

49051 to 49123—Continued.

- 49118 and 49119. *ROSA RUBIGINOSA* L. Rosaceæ. **Sweetbrier.**
49118. "(No. 3. November 14, 1919.)" An erect, compact shrub, 3 to 5 feet high, with stout, scattered, hooked prickles and 5 to 7 small, ovate, acute, dull-green leaflets that are nearly or quite glabrous above and densely glandular (scented) and slightly hairy beneath. It bears one to four bright-pink, corymbose flowers; the fruit is dark red and does not ripen until October. The sweetbrier is wild throughout Europe; it extends to Teneriffe and Persia, and is naturalized in the eastern United States. (Adapted from *Willmott, The Genus Rosa, pt. 23, p. 449.*)
49119. "(No. 11. November 14, 1919.)"
49120. *ROSA SATURATA* Baker. Rosaceæ. **Rose.**
- "(No. 13. November 14, 1919.)"
- A shrub, up to 8 feet in height, native to central China. The deep-red flowers are about 2 inches in diameter and are borne singly or in twos or threes. The obovoid fruits are coral red. (Adapted from *Willmott, The Genus Rosa, pt. 25, p. 503.*)
- For previous introduction, see S. P. I. No. 43911.
49121. *ROSA SETIGERA* Michx. Rosaceæ. **Prairie rose.**
- "(No. 27. November 14, 1919.)"
- A very tall rose with arching stems, small scattered prickles, and large single pink or white flowers borne in few-flowered lax corymbs. The fruits are red. The prairie rose, as this is called, is found from Florida and Texas northward to the Great Lakes. (Adapted from *Willmott, The Genus Rosa, pt. 4, pl. 23.*)
49122. *ROSA TURKESTANICA* Regel. Rosaceæ. **Rose.**
- "(No. 2. November 14, 1919.) Erect, tall, not many thorns. Fairly good grower; scant seeder. Oblong bright-red hips three-fourths of an inch long and three-eighths of an inch in diameter."
49123. *ROSA* sp. Rosaceæ. **Rose.**
- "(No. 4. November 14, 1919.)"
- Received as *Rosa obtusiloba*, for which a place of publication has not been found.

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