Issued December 29, 1917.

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

INVENTORY
OF
SEEDS AND PLANTS IMPORTED
BY THE
OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION DURING THE PERIOD FROM OCTOBER 1 TO DECEMBER 31, 1914.

(No. 41; Nos. 39309 to 39681.)

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
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BUREAU OF PLANT INDUSTRY.

Chief of Bureau, WILLIAM A. TAYLOR.
Associate Chief of Bureau, KARL F. KELLERMAN.
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FOREIGN SEED AND PLANT INTRODUCTION.

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INVENTORY OF SEEDS AND PLANTS IMPORTED BY THE OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION DURING THE PERIOD FROM OCTOBER 1 TO DECEMBER 31, 1914 (NO. 41; NOS. 39309 TO 39681).

INTRODUCTORY STATEMENT.

Although a small one, this inventory contains descriptions of some very interesting new material.

A low-growing creeping legume (*Dolichos hosei*, the Sarawak bean), which keeps down the weeds successfully in rubber plantations in the Malay States and should be of value in citrus orchards in Florida (S. P. I. No. 39335), and a wild prostrate form of alfalfa from the mountains between Hotien, Honan, and Luanfu, Shansi, China, will interest those experimenting with forage and cover crops (S. P. I. No. 39426).

The *Rosa odorata gigantea* (S. P. I. No. 39593), a giant among the roses from the Himalayas, with white flowers 6 inches across and a more rampant growth than the Cherokee rose and which has already shown that it will cross on other roses, ought to open the way for a new race of climbing roses in the South.

Eight varieties of sweet potato from the Cuba Experiment Station (S. P. I. Nos. 39610 to 39617), among them a prize winner of the Camaguey exhibition, will be wanted for trial by southern stations, and the wild tomato of Funchal (S. P. I. No. 39362), introduced by Mr. Gable from the driest rocky locations on the island of Madeira, where it grows wild and is believed to be from the original stock from which the cultivated tomato has sprung, will probably interest tomato breeders because of its drought-resistant qualities.

An unusually large collection of Chinese barleys, 38 varieties (S. P. I. Nos. 39494 to 39531), presented by the special envoy for foreign affairs, through the United States consul general at Shanghai, may yield good new varieties for some sections of this country.

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

The chingma, the so-called China jute or Tientsin fiber (S. P. I. No. 39361), which yields a harsher and stronger fiber than the Indian jute and is used for carpet making, has been introduced from Ichang, China, and, if improved methods for extracting the fiber can be devised, may prove a profitable crop in America.

The attempt to save from extinction the last survivor of a species of tree closely related to our cultivated cotton, in order that hybrids with it may be made, has a great deal more than a sentimental interest. Seeds from the dying tree of this *Kokia drynarioides* (S. P. I. No. 39354) from Molokai, have been secured by Mr. Rock, of Hawaii.

The doorn boom of the South Africa veldt (*Acacia horrida*), the most widely distributed of all South African trees and the characteristic landscape tree in the pictures of big-game hunting in South Africa, appears to be a promising hedge plant and windbreak for trial in Texas (S. P. I. No. 39355).

The most beautiful of the flowering trees of Java (*Spathodea campanulata*), introduced from Africa into that island, which is in bloom there almost throughout the whole year, was sent in by Dr. B. T. Galloway several years ago and has flowered in southern Florida, and new importations of seed have consequently been made (S. P. I. No. 39415). To Mr. W. M. Matheson will go the honor of the first introduction of this tree into Florida, for he brought it in earlier from Jamaica.

The success of various species of Tamarix as low windbreaks in Texas has made it advisable to get together the other species of this genus, and two of these have been imported from the desert of Farab, Bokhara, Turkestan (S. P. I. Nos. 39628 and 39629).

The accounts of the Mahwa tree (*Madhuca indica*, S. P. I. No. 39325), the fleshy flowers of which produce food annually in India worth over a million dollars, have made it seem desirable to introduce it into Florida and Porto Rico, even though these dried flowers have an unpleasant odor of mice and appear to be somewhat indigestible. The value of this tree seems truly remarkable, and it deserves investigation from an American point of view.

The rapid growth of avocado groves in California and Florida and the growing realization that a fruit which produces over 29 percent of fat is more than a mere table delicacy make the dissemination of the Guatemalan and Mexican hard-shelled spring and winter ripening seedlings of remarkable shipping qualities, which have in recent years been grown in California, of much more than passing interest (S. P. I. Nos. 39369 to 39375).

American Consul Charles K. Moser's discovery of a delicious Ceylonese mango almost as large as a coconut, with a striking red blush and almost no fiber, shows that all of the most desirable types

of the mango varieties of India evidently can not be secured through correspondence (S. P. I. No. 39485).

The popularity of the Paraguayan fruit *Feijoa sellowiana* and its unexpected hardiness in the South make a large-fruited seedling of especial importance at this time (S. P. I. No. 39555).

The rosy fleshed anona called Ilama (*Annona diversifolia*), considered one of the best of this important class of fruits (S. P. I. No. 39567), and the *Annona purpurea* (S. P. I. No. 39358), a new, large, aromatic-fruited species, add two important fruit plants to the subtropical collection.

The Chinese wampi (*Clausena lansium*) has shown that it will grown in Florida, and either its pale yellow rough-skinned fruits of aromatic flavor or its ability as a stock to carry the grapefruit may make it of value (S. P. I. No. 39568).

The tropical ciruelas ,*Spondias lutea* (S. P. I. No. 39563), which are popular in the markets of Bogota three months of the year, should, if one can judge by the success of other species of the same genus there, thrive well in Florida.

A study seems not yet to have been made of the varieties of coconut and their comparative value for the different purposes to which coconuts are put, and the introduction by Mr. H. Pittier, from Punta Burica, Panama, of a rare variety rich in oil (S. P. I. No. 39356) emphasizes the need of a thorough study of this immensely valuable food plant.

The possible use of new stocks for the pear and an investigation of the origin of the blight-proof Kieffer and LeConte pears will make necessary close comparisons of the different Chinese species, and pear breeders will want plants coming from the original trees of *Pyrus betulaefolia* which were sent to Kew and the Arnold Arboretum by Dr. Bretschneider in 1882 (S. P. I. Nos. 39547 and 39548); also plants of *Pyrus bretschneideri* (S. P. I. No. 39538), which, at the arboretum, in addition to being a remarkable ornamental, yields yellow globose, juicy fruits of fair quality, from which it is thought by Prof. Sargent the best of the Chinese cultivated pears have been derived; and *Pyrus ovoidea* (S. P. I. No. 39541), which is possibly the parent of the Kieffer and has large, abundant flowers and foliage that colors scarlet in autumn; and particularly *Pyrus phaeocarpa* (S. P. I. No. 39540), with pyriform fruits, which has never been attacked by pear blight, although a large tree of it has been standing in the arboretum for many years, exposed to infection.

The woolly aphis is a serious pest of apple orchards in Chile, but four immune varieties of apple have been found there and extensively propagated by a large nursery firm at Santiago. They are deserving of trial in this country (S. P. I. Nos. 39320 to 39323).

Mr. Frank N. Meyer, Agricultural Explorer of the Department of Agriculture, has discovered in the Shansi Province of China a true wild apricot, the kernels of which are pickled in brine and eaten as appetizers by the natives (S. P. I. No. 39439), and in the mountains south of Sianfu, Shensi Province (S. P. I. No. 39428), and again in Chaoyu, Shansi Province (S. P. I. No. 39544), a small, sour, but freestone wild peach, which may be of decided importance to peach breeders. *Prinsepia uniflora*, which he found near Fucheng, a spiny shrub, very decorative in May, and bearing fruits which resemble cherries, being dark red in color, quite juicy, and sour, may add a useful hardy fruiting shrub to the gardens of this country (S. P. I. No. 39432). A Prinsepia introduced by Wilson has proved hardy in the Arnold Arboretum.

Chinese place and plant names in this inventory have been brought, as far as possible, into accord with the best authorities, the geographic names (except when fixed by decisions of the United States Geographic Board) being given in the form accepted by the Chinese Ministry of Communications Postal Guide. Many of the smaller village names, however, are not listed therein, and in all such cases the location of the village is given with reference to the nearest town mentioned in that work.

The manuscript of this inventory has been prepared by Miss May Riley, the botanical determinations of seeds introduced have been made and the notes on geographic distribution compiled by Mr. H. C. Skeels, and the descriptive notes arranged by Mr. S. C. Stuntz, who has also had general supervision of this inventory.

DAVID FAIRCHILD,
Agricultural Explorer in Charge.

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION,
Washington, D. C., November 25, 1916.

INVENTORY.

39309. MANGIFERA INDICA L. Anacardiaceæ. **Mango.**

From Punjab, India. Presented by Mr. A. H. Brydges, Loomis, Cal. Received at the Plant Introduction Field Station, Chico, Cal.

"Seeds from the village of Aliwal, District of Jhalandar, Punjab, India. They are the earliest fruiting varieties in that locality, ripening in August." (*Brydges.*)

39310 to 39313. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**

(*Sorghum vulgare* Pers.)

From Hamburg, Germany. Presented by the Botanische Staats-Institut.

39310. From German East Africa.

39311. From Kamerun.

39312. From Togo.

39313. From German East Africa.

39314. DOLICHOS LABLAB L. Fabaceæ. **Bonavist bean.**

From Mbale Sana, Lumbwa, British East Africa. Presented by Mrs. E. L. Smith. Received October 3, 1914.

"*Njai*, a Kikuyu bean much liked and valued by the natives." (*Mrs. Smith.*)

39315 to 39317.

From Boulder, Colo. Presented by Mr. Theo. D. A. Cockerell. Received October 1, 1914. Quoted notes by Mr. Cockerell, except as otherwise indicated.

39315 and 39316. PENTSTEMON HUMILIS Nutt. Scrophulariaceæ.

"From Flagstaff Hill." Low-branching perennial occurring in the Rocky Mountains and westward. It is well suited for the hardy border, but does not usually grow higher than 6 inches. The flowers, which are one-half inch in length, are rather narrow and of a deep-blue color, sometimes ranging to white. It grows well in fairly good soil. The flower stalks should be supported by light stakes to keep them from being blown about by the winds or borne down by heavy waterings. (Adapted from *Bailey, Cyclopedia of American Horticulture*, and *McLaren, Gardening in California.*)

39315. "A very beautiful variation with bright blue flowers, a different shade of color from the normal. It may have to be taken to the F^2 generation to show its true colors."

39316. "A variety with very pale flowers. Probably will not appear with pale color until the F^2 generation.

39315 to 39317—Con. (Quoted notes by Mr. T. D. A. Cockerell.)

39317. ROSA ANGUSTIARUM Cockerell. Rosaceæ. **Rose.**

"From Wood Mountain, Colo., September, 1914 (D. M. Andrews). Published as *Rosa pratincola angustiarum* in Daniels' Flora of Boulder, Colo., and Vicinity (University of Missouri Studies, 1911, p. 148). I now consider it a distinct species. The fruits vary in shape on the same branch."

39318 and 39319.

From Burringbar, New South Wales, Australia. Presented by Mr. B. Harrison. Received October 1, 1914.

39318. ANGOPHORA LANCEOLATA Cavanilles. Myrtaceæ. **Apple myrtle.**

"An evergreen tree found in New South Wales and Queensland, 24 to 36 inches in diameter, 70 to 80 feet in height. The tree produces a kino or gum which, when freshly exuded, has (like other Angophora and a few Eucalyptus kinos) a smell like sour wine, but more disagreeable. Even when quite freshly exuded it is exceedingly brittle. It has a bright fracture, and is of a ruby color, with a tinge of brown. Color of powder orange-brown. Water acts but slowly upon it, forming a pale reddish brown solution, and leaving abundance of sediment. Timber strong, heavy, subject to gum veins; used for naves of wheels, slabs, rough building, and fuel." (*Maiden, Useful Native Plants of Australia, pp. 236 and 376.*)

39319. CHENOPODIUM sp. Chenopodiaceæ.

"Said to grow to a height of 11 feet in arid country; a splendid fodder for dairy stock." (*Harrison.*)

39320 to 39323. MALUS SYLVESTRIS Miller. Malaceæ. Apple.

(*Pyrus malus* L.)

From Santiago, Chile. Presented by Señor Salvador Izquierdo.

"These scions are of apple varieties which are free from the woolly aphis and are cultivated with much success in Santa Ines." (*Izquierdo.*)

39320. No. 993. *Gobernador Civit.*

39321. No. 991. *Esquisita de Santa Ines.*

39322. No. 994. *Huidobro.*

39323. No. 984. *Admirable de Otoño.*

39324 and 39325.

From Allahabad, India. Presented by Mr. William Bembower, Ewing Christian College. Received October 8, 1914.

39324. DIOSPYROS NIGRICANS Wallich. Diospyraceæ.

"A tree 50 feet high, with many lax cinereous, glabrescent branches; young shoots and petioles minutely puberulous. Leaves oval oblong, much acuminate at apex, somewhat narrowed at base, alternate, turning black when dry, firmly membranous, glabrous, except on midrib which is puberulous and depressed on the upper surface; lateral veins and net veins delicate, not conspicuous above; 3 to 5 inches long by 1 to 1¾ inches wide; petioles one-tenth to one-seventh inch long.

"Male plants. Flowers in few flowered (3 to 6) short axillary puberulous cymes, subsessile, one-quarter to one-third inch long, bracts small, imbricated. Calyx with scattered short ferruginous hairs outside, shortly 4-lobed. Corolla with few scattered short hairs outside,

39324 and 39325—Continued.

deeply (two-thirds) lobed, slender; lobes reflexed at apex. Stamens 32 in one case, very unequal, many minute, glabrous.

"Female plants. Fruit glabrous, ovoid or globose, pointed at apex, about two-thirds inch long, 4-celled, 4-seeded, solitary. Fruiting calyx 4-partite, with scattered ferruginous hairs outside, nearly glabrous inside, with oval, flat, spreading or reflexed lobes, one-third inch long. Seeds oblong, two-thirds inch long; albumen not ruminated, embryo nearly as long as the albumen. Fruiting peduncles shortly hispid, one-fifth inch long, patent, unilateral, bearing 2 small bracts." (*Hiern, Monograph of the Ebenaceæ.*)

39325. MADHUCA INDICA Gmelin. Sapotaceæ. **Mahwa.**
(*Bassia latifolia* Roxb.)

"I hope you will get a few *Mahwa* plants, though I know the percentage of vitality is very small in these seeds." (*Bembower.*)

For previous introduction and description, see S. P. I. No. 39182.

39326 to 39329. OPUNTIA spp. Cactaceæ. **Prickly-pear.**

From Strathmore, North Quay, Brisbane, Queensland, Australia. Presented by Mr. Arthur Temple Clerk. Plants received at the Plant Introduction Field Station, Chico, Cal.

39326. OPUNTIA VULGARIS Miller.

39327. OPUNTIA TOMENTOSA Salm-Dyck.

39328. OPUNTIA BRASILIENSIS (Willd.) Haworth.

39329. OPUNTIA STRICTA Haworth.

39330. ATALANTIA MONOPHYLLA DC. Rutaceæ.

From Sibpur, near Calcutta, India. Presented by the Royal Botanic Garden. Received October 17, 1914.

See S. P. I. No. 38511 for previous introduction and description.

39331. GLIRICIDIA SEPIUM (Jacq.) Kunth. Fabaceæ.

(*Gliricidia maculata* H. B. K.)

From Manila, Philippine Islands. Presented by Mr. D. LeRoy Topping, Bureau of the Treasury, Manila. Received October 8, 1914.

"*Madre de cacao.* I used it for a house decoration and had stalks of it fully 10 feet long that were a mass of bloom, and everybody exclaimed, 'Quite like a bit of Japan.' The plant is inclined to sprawl, and if wanted purely for ornamental purposes it would be well to prune it." (*Topping.*)

39332 to 39334.

From Lavras, Minas Geraes, Brazil. Presented by Mr. Benjamin H. Hunnicutt, director, Escola Agricola de Lavras. Received October 17, 1914. Quoted notes by Mr. Hunnicutt, except as otherwise indicated.

39332. PANICUM BARBINODE Trinius. Poaceæ. **Carib grass.**

Capim d'Angola.

See S. P. I. No. 37998 for previous introduction and description.

39333. TIBOUCHINA STENOCARPA (DC.) Cogn. Melastomaceæ.

"Seeds of a wild flowering shrub, commonly called *Quaresma* or *Lent*, as it blooms at Lent. It has a beautiful purple flower, and the blooming

39332 to 39334—Con. (Quoted notes by Mr. B. H. Hunnicutt.)

season covers a number of months. It grows well on the poorest, driest grounds we have and blooms during the dry season. I think it has been cultivated in some gardens in Brazil, although I never have seen it. Ornamental only."

39334. STRYPHNODENDRON BARBATIMAM Mart. Mimosaceæ. **Barbatimão.**

"*Barbatimão.* The bark of this is used for tanning purposes."

"Total dissolved solids, 31.6 per cent; solids soluble in cold water, 28.6 per cent; nontannins, 6.7 per cent; tannins, 20.1 per cent." (Letter from *Bureau of Chemistry, November 21, 1914.*)

39335. DOLICHOS HOSEI Craib. Fabaceæ. **Sarawak bean.**

From Kuala Lumpur, Malay States. Presented by the director, Department of Agriculture. Received October 16, 1914.

Seed from plants sent by Mr. Hose to Kuala Lumpur Experimental Plantation.

"I have found a small creeping bean of the Vigna family which is indigenous to Sarawak, but as yet I have been unable to ascertain its name; and I think it is just possible that it has never been reported from Sarawak. This bean appears to fulfil all that is required (a low-growing leguminous plant which can be dug into the soil and reproduce itself in time to check the growth of weeds and grows readily from cuttings), but seeds are very difficult to procure. The flower is yellow and the leaf a rich light green; the roots do not penetrate the ground more than 1 inch; the plant forms a thick level mass about 6 inches thick on the ground; it will grow on almost any soil, but for preference a light soil, and in six months after planting should prevent all wash if planted 3 feet apart. I have been planting this bean with rubber for three years and have now 200 acres planted with it, and it has proved itself in every way a success." (*Hose, in Agricultural Bulletin of the Federated Malay States, p. 276.*)

39336. CHORISIA SPECIOSA St. Hil. Bombacaceæ. **Samuu.**

From Asuncion, Paraguay. Presented by Mr. C. F. Mead. Received October 15, 1914.

"Seeds of the *Samuu,* as called here. As to its beauty as an ornamental plant, I have every confidence in its making good. I wish to call your attention to one difference this variety has in comparison with the kind described in the department bulletins, which is that this tree does not need a humid atmosphere, and it will stand a very decided nip from frost, though to what degree I have not registered." (*Mead.*)

39337 to 39340. MANIHOT spp. Euphorbiaceæ. **Maniçoba.**

From Bahia, Brazil. Presented by Dr. V. A. Argollo Ferrão. Received October 5, 1914. Quoted notes by Dr. Argollo.

"The good name that *Jequie* rubber had was on account of being prepared in sheets and pure, because the *Manihot dichotoma* is tapped on the bark in *porangos* (tins) like *Hevea,* so such rubber is clean from impurities and is easily prepared in thin sheets of nice appearance. *Manihot heptaphylla* (Rio Sao Francisco zone) and *M. piauhyensis* (State of Piauhy) being tapped near the roots, if not tapped carefully, give rubber that has a large proportion of sand

39337 to 39340—Con. (Quoted notes by Dr. V. A. Argollo.)

and clay. As to quality, the *Jequie* is the worst, for it has resins and less elasticity. Growers who planted *M. dichotoma* succeeded badly because the growth of trees is extraordinarily variable. Seedlings from the same tree show an extraordinary variability of leaves and growth. *M. dichotoma* requires at least 6 years, as a rule, before tapping. The best variety for plantations is *M. piauhyensis*, for it gives the best rubber, and can be tapped at 3 years (even at 2 years under good conditions). With low prices of maniçoba rubber, maniçoba can only give profits if labor is very cheap, not exceeding 0.3 milreis (16 cents) per day. Maniçobas will not stand frost. (I have seen some severely injured in Sao Paulo by slight frosts in coffee districts.) Maniçoba requires a rainy season in summer. The *M. heptaphylla* and *M. dichotoma* are found in parts of the State of Bahia on the other side of the chains of mountains that divide the State in two climates. Between the mountains and the sea the rains are during winter, and on the other side, from the mountains to the Rio Sao Francisco, the rainfall is in summer. Maniçoba grows in the second zone if planted, but does not give much rubber nor good quality, as Villa Nova plantations show, although the trees have the best appearance. (Villa Nova is on the mountain that divides the climatic zones of the State. In the mountains you have rains in summer and *neblinas* (fog rain) in winter.) In the maniçoba districts there are heavy rains during summer for 4 to 6 months; such rains may last for 10 days, day and night. There are no rains during the dry season, and from time to time there happens a dry year and summer rains fail (about once in 10 years). In our State people who have maniçoba forests or plantations are investing in cotton, because the low price of rubber does not give enough profits to pay for the tapping of trees. Maniçoba will not stand stagnant water. I am going to gather for you seeds of the three varieties. I do not know whether any of them can be successfully cultivated in the States, but if you have the proper climatic conditions—rains in summer, no frosts, and soil from decomposed granite (red clayey sandy or sandy clayey)—I think you will prefer the small *M. piauhyensis*."

39337. MANIHOT GLAZIOVII Muell. Arg.

"*Maniçoba Ceara.* These small seeds with dark colorations are quite different from other varieties. This is the commonly known maniçoba for the first time tapped. It gives a good rubber and is tapped on the bark that is naturally exfoliated, which makes the tapping and collecting of clean rubber difficult."

39338. MANIHOT DICHOTOMA Ule.

"*Maniçoba Jequie.* Seeds long, of which the largest are quite typical."

39339. MANIHOT PIAUHYENSIS Ule.

"*Maniçoba Piauhy.*"

39340. MANIHOT HEPTAPHYLLA Ule.

"*Maniçoba Sao Francisco;* round seeds."

39341. (Undetermined.)

From San Jose, Costa Rica. Presented by Mr. Carlos Wercklé, through Mr. Ad. Tonduz, Department of Agriculture, San Jose. Received October 21, 1914.

39342. VERSCHAFFELTIA SPLENDIDA Wendl. Phœnicaceæ. **Palm.**

From Port Louis, Mauritius. Presented by Mr. G. Regnard. Received October 19, 1914.

See S. P. I. No. 34083 for previous introduction.

39343 to 39351.

From Paris, France. Purchased from Vilmorin-Andrieux & Co. at the request of Mr. C. V. Piper, of the Bureau of Plant Industry. Received at the seed warehouse on October 20, 1914. Quoted notes by Mr. J. M. Westgate.

39343. ONOBRYCHIS VULGARIS Hill. Fabaceæ. **Common sainfoin.** (*Onobrychis viciaefolia* Scop.)

"This seed was obtained for trial on sandstone hills. It is a deep-rooted perennial forage crop which is to be tried in humid and subhumid sections."

39344. MEDICAGO LUPULINA L. Fabaceæ. **Yellow trefoil.**

"This seed was obtained for experiments with clover substitutes and as a pasture plant in the Southern States and northward."

39345. ORNITHOPUS SATIVUS Brot. Fabaceæ. **Serradella.**

"This seed was obtained for experiments with clover substitutes and as a pasture constituent in humid and subhumid climates."

39346. ULEX EUROPAEUS L. Fabaceæ. **Gorse or whin.**

"This seed was obtained for trial as a browsing shrub in limestone sections in humid and subhumid parts of the country."

39347 to 39349. LUPINUS spp. Fabaceæ. **Lupine.**

"This seed was obtained for use as a substitute for crimson clover in green-manuring experiments in the Northern States."

39347. LUPINUS ALBUS L. **White lupine.**

39348. LUPINUS ANGUSTIFOLIUS L. **Blue lupine.**

39349. LUPINUS LUTEUS L. **Yellow lupine.**

39350. CYTISUS SCOPARIUS (L.) Link. Fabaceæ. **Scotch broom.**

"This seed was obtained for trial as a browsing shrub in limestone sections in humid and subhumid parts of the country."

39351. SPERGULA ARVENSIS L. Silenaceæ. **Giant spurry.**

"This seed was obtained for trial as a green-manure crop and a forage crop."

39[redacted] ANNONA CHERIMOLA Miller. Annonaceæ. **Cherimoya.**

From Bogota, Colombia. Presented by Capt. H. R. Lemly, United States Army, retired. Received October 17, 1914.

"Seeds from a particularly fine specimen." (*Lemly.*)

"The principal fruit cultivated by the aboriginal inhabitants of western South America. Endemic in the Andes, and subtropical rather than tropical in its natural habitat. Fruit with an abundance of slightly acidulous sweet juicy pulp, with a flavor somewhat like that of a pineapple. Recommended for planting in southern California in the foothills near the coast." (*W. E. Safford.*)

39353. COFFEA AMARA F. F. Bruijning. Rubiaceæ. **Coffee.**

From Tamatave, Madagascar. Presented by Mr. James G. Carter, American consul. Received October 12, 1914.

"*Mautsaka,* the so-called caffein-free coffee grown in the south of Madagascar." (*Carter.*)

"This coffee was collected in the Fort Dauphin district. It occurs frequently in the southeastern portion of Madagascar, grows from 5 to 5½ meters high, and resembles the ordinary coffee very much, although the leaves are smaller. The ripe fruit assumes a yellowish color; the seeds, which are harvested in February and March, contain no caffeine. The smell of the roasted coffee is pleasant, although the taste of the drink prepared therefrom is bitter and unpleasant. This species of coffee has not yet come into cultivation." (*F. F. Bruijning, in Verslagen van Landbouwkundige Onderzoekningen der Rijkslandbouwproefstations, no. 18, p. 115, 1915.*)

39354. KOKIA DRYNARIOIDES (Seem.) Lewton. Malvaceæ.
(*Gossypium drynarioides* Seem.)

From Mahana, Molokai, Hawaii. Presented by Mr. Joseph F. Rock, botanist, College of Hawaii, Honolulu, who secured them from Mr. Joseph P. Cooke. Received October 28, 1914.

"A few weeks ago I wrote Mr. Cooke, the owner of Molokai Ranch, on whose grounds the only tree of this species grows, asking if there were any seeds to be found on it, as you know this species was declared extinct, but it has revived again and one single branch produced some leaves and flowers as well as a few seeds. I am propagating a number of them here." (*Rock.*)

39355. ACACIA HORRIDA (L.) Willd. Mimosacæ. **Doorn boom.**

From Johannesburg, Union of South Africa. Presented by Mr. J. Burtt Davy, Agricultural Supply Association. Received October 24, 1914.

See S. P. I. Nos. 1805 and 3330 for previous introductions and description.

"A glabrous, flat-topped tree, usually spreading more than its height. The most widely distributed of all South African trees, extending from Capetown through the Karroo to Damaraland, Orange River Colony, Transvaal, Natal, and Delagoa Bay. Its range is, however, curiously affected in places, it being absent, possibly through frost, in several large flat alluvial localities where single trees have grown to perfection. It ascends to about 4,000 feet altitude from the eastern coast and considerably further from the western, but is absent from the higher parts of the Drakenburg, and seldom mixes with Proteaceæ, thus indicating that soil as well as climate controls its distribution. Occasionally it forms a fine spreading tree 30 to 40 feet in height, and with a stem 2 feet in diameter; much more frequently it is a small umbrella-shaped tree of 10 to 15 feet in height with a clear bole only to 6 or 8 feet, and the constant regrowth dots or covers the veld with smaller sizes in localities where it is not kept down.

"Although usually evergreen, yet in dry, cold, carroid localities it is often leafless for a considerable part of the year, and in some localities for years in succession, and is then enormously spiny and colors the veld white instead of green. In most places its use is principally for fuel, for which purpose there is no better wood; but as this does not, except near the towns, use up all that grows, its increase in remote localities is a difficult matter to check. Fire burns

the grass under mature thorn trees without doing them much damage, and as the seeds germinate most readily after being soaked in boiling water or half roasted, these grass fires aid rather than retard regrowth. Chopping off trees to the ground only induces an abundant coppice growth, but it is found that by chopping them off 2 feet above ground during summer the coppice growth is more easily controlled, and the stump often dies. Native localities usually become free of thorn trees eventually, partly through the unrestricted native demand for fuel, kraalwood, etc., and partly through the browsing of goats, which of all artificial methods is the surest means of keeping the tree down. A small brown scale insect, however (*Prosopophora prosopidis* var. *mimosae*), is found to kill the trees wholesale on the occasions of its visits in the Bedford district. During very dry winters it is not an uncommon practice to fell a few leafy thorn trees daily as a green bite for stock; during summer the shade of the spreading tree is sought after by cattle and sheep; young plants are always browsed, and where obtainable the roots are relished by goats; and for scenic effect there is perhaps no prettier tree, growing as it often does on a flat, rocky subsoil which will carry no better growth; on hot, rocky banks it is common, but it is never found in high, dense forest. Bark rough, thick, dark; formerly much used locally in the tanning of leather, and even now, at about half the price per ton as compared with black wattle, it pays to employ it for local use but not for export, as the percentage of tannin for the bulk is too low.

"The *doorn boom* is the host of an innumerable lot of pests, being often cleared of foliage by caterpillars of several large moths and by bagworms; its timber is often bored by *Apate dorsalis* and *Chrysobothris dorsata;* certain ants occasionally inhabit the thorns and induce a most thorny development; strange gall abortions or malformations of pods are caused by a fungus; another fungus (*Oecidium ornamentale*) makes artistic floriated curls of the young twigs; and Loranthus and mistletoe are frequent parasites.

"*Doorn boom* makes a strong, rough hedge if soaked seed is sown in line and kept watered till germination has taken place. It is also useful for sowing in beds of intermittent rivers with a view to arresting silt during future floods. It suffers severely during soft snowstorms, the horizontal branches and foliage breaking under a heavy weight of snow." (*Sim, Forest Flora of Cape Colony.*)

39356. Cocos NUCIFERA L. Phœnicaceæ. **Coconut.**

From Panama. Secured by Mr. H. Pittier, of the Bureau of Plant Industry. Received October 29, 1914.

"The small Burica nut, of which I have not been able to obtain a whole specimen, but I send along the three shelled ones which I have been keeping here till I could do better. This is said to be very rich in oil and to be scarce also, except around Punta Burica on the boundary between Costa Rica and Panama." (*Pittier.*)

39357 and 39358.

From San Jose, Costa Rica. Presented by the National Museum, San Jose. Received October 24, 1914.

39357. ACHRADELPHA MAMMOSA (L.) O. F. Cook. Sapotaceæ. (*Lucuma mammosa* Gaertn. f.) **Sapote.**

See S. P. I. Nos. 35673 and 37813 for previous introductions and description.

39357 and 39358—Continued.

39358. ANNONA PURPUREA Moç. and Sesse. Annonaceæ.

"This species has large aromatic fruit, velvety on the outside, with raised hooked tubercles; yellow aromatic pulp which is edible when ripe, but said to be unwholesome if eaten to excess. A medium-sized forest tree ranging from Mexico to Panama and Venezuela." (*W. E. Safford.*)

39359 and 39360.

From Bogota, Colombia. Presented by Mr. Roberto Ancizar, secretary to the Colombian Legation, through Mr. W. E. Safford, of the Bureau of Plant Industry. Received October 29, 1914.

39359. ANNONA CHERIMOLA Miller. Annonaceæ. **Cherimoya.**

"One of the most delicious of the fruits of the higher regions of western South America; this variety is juicy and of a sweet acidulous flavor. Seeds relatively small in proportion to the pulp. Suitable for cultivation in the foothills of southern California." (*Safford.*)

39360. PASSIFLORA LIGULARIS Juss. Passifloraceæ. **Granadilla.**

"An egg-shaped fruit with parchmentlike shell filled with an abundance of sweet juice and many small seeds. Used in tropical America for making sherbets and ices alone or with the addition of lemon juice or spices. Of easy culture in all warm localities, growing in the form of a vine from trellises and arbors, and desirable not only for its fruit but for its beautiful flowers." (*W. E. Safford.*)

39361. ABUTILON THEOPHRASTI Medic. Malvaceæ. **Ch'ingma.**
(*Abutilon avicennae* Gaertn.)

Grown at Arlington Farm from seed received from Mr. R. A. Currie, Ichang, China, through Mr. A. H. Sugden, acting commissioner of customs, Hankow, China.

"Seeds of what purports to be *ta ma*. The capsules look to me small, and I am nearly sure that I have seen much larger ones, and I fear that these may be only the common hemp." (*Currie.*)

"The seeds from China are evidently those of the *ch'ingma* (*Abutilon theophrasti*), producing the so-called China jute or Tientsin fiber of commerce. *Ch'ingma* is cultivated from central China northward. Its fiber is stronger but somewhat harsher than that of India jute. It is used in this country to a limited extent, chiefly in the manufacture of jute carpets and rugs. The plant is adapted to the climate from Virginia to New York and westward to the Missouri Valley. It may be regarded as a promising fiber plant for introduction into this country, provided suitable methods can be devised for extracting the fiber and preparing it for market. We planted some of the seeds at Arlington Farm and secured 16 excellent plants about 3 meters high. The plants and also the leaves, flowers, and fruits were nearly twice the size of those of the ordinary velvet leaf planted at the same time, but otherwise no distinct difference has been detected between the two forms. We have harvested a quantity of seed from the plants this season, so as to have stock for sowing next year." (*L. H. Dewey.*)

39362. LYCOPERSICON ESCULENTUM Miller. Solanaceæ.
Wild tomato.

From Funchal, Madeira. Presented by Mr. Charles H. Gable, director, Junta Agricola. Received October 31, 1914.

"The little wild tomato *Lycopersicum vulgare cerasiforme* which is found in Madeira is considered by Lowe (*A Manual Flora of Madeira*) as being the original stock from which our cultivated varieties have been derived. The same author states that besides 'growing spontaneously everywhere below 2,000 feet about Funchal and other towns and villages in Madeira, it is completely naturalized on the central rocky crest of the North Deserta.' The North Desert is an almost barren, uninhabited island which lies about 30 miles from Madeira. To quote further: 'It has been found also in the Great Salvage by Sr. C. C. Noronha; and the interior of Sao Iago, one of the Cape Verdes, between the Ribeira dos Pices and the Boa Entrada of Sta. Catarina. I found it mixed with *Momordica charantia* L., overspreading in vast tangled beds or masses whole miles of mountain tracts at an elevation of 3,000 to 4,000 feet above the sea.' The selection which has taken place in the development of our cultivated varieties has not greatly changed the general appearance of the plant. The writer has not had the opportunity of making the careful botanical study necessary for the intelligent comparison of the characters presented by this wild tomato and our cultivated varieties, so there will be presented here only very brief observations of the conditions in which the plants grow. One of these plants was transplanted to a favorable part of the garden where the ground was rich and had plenty of moisture. It made a tremendous growth, and at the end of three months the plant was 5 feet in diameter and 3½ feet high. Unfortunately, the plant was destroyed, so that it was impossible to complete the record. Another plant was found where it could not have had a drop of water for at least three months. It probably had started to grow during the last few rains of the spring, but had completed its growth during the heat and drought of summer. The particular spot where it grew was the hottest of the hot parts of the island. When it was found, the vine was apparently entirely dead and lying flat on the ground; the leaves had dried up and dropped off; but the fruits, every one of which was ripe, were clinging to the vine. It also seemed very strange to find that the fruits were all plump and firm—over 300 of them on this one vine. The fruits are so very acid that they can be used for little else besides soups, and the natives do not use them a great deal for even that. Their keeping quality, however, might prove a desirable characteristic in crossing with some of the highly developed varieties with the object of obtaining a good shipping tomato of pleasing flavor." (*Gable.*)

39363. HORDEUM VULGARE COELESTE L. Poaceæ. **Barley.**

From Jerusalem, Palestine. Presented by Mr. Ernest F. Beaumont, American Colony. Received October 28, 1914.

"*Prophet's* barley. This is grown around Mecca and is esteemed as sacred by the Mohammedans. No animal is made use of in its planting, harvesting, or thrashing, as such use would be considered as defiling it. You will notice that the kernels shell out from the husk quite clean, like wheat." (*Beaumont.*)

39364. ORYZA SATIVA L. Poaceæ. **Rice.**

From Salisbury, Southern Rhodesia. Presented by Mr. H. G. Mundy, Government agriculturist and botanist, Department of Agriculture, through Mr. C. V. Piper, of the Bureau of Plant Industry. Received November 9, 1914.

"Mashonaland rice. Native crop grown in Southern Rhodesia." (*Mundy.*)

39365 to 39368. HORDEUM spp. Poaceæ. **Barley.**

From Pusa, India. Presented by Mr. Bernard Coventry, agricultural adviser to the Government of India, Imperial Department of Agriculture. Received November 4, 1914.

39365 and 39366. HORDEUM spp. **Barley.**

Huskless 6-rowed varieties.

39365. HORDEUM VULGARE COELESTE L.

A new form with very short awns.

39366. HORDEUM VULGARE HIMALAYENSE Rittig.

Smoke-colored grain. Received as *H. gymnohexastichon*, but identified by Dr. H. V. Harlan as above.

39367 and 39368. HORDEUM VULGARE L. **Barley.**

39367. Common 6-rowed barley.

39368. Common 6-rowed barley, husked.

39369 to 39375. PERSEA AMERICANA Miller. Lauraceæ.
(*Persea gratissima* Gaertn. f.) **Avocado.**

From Altadena, Cal. Collected by Mr. Wilson Popenoe, of the Bureau of Plant Industry. Bud sticks received November 9, 1914. Quoted notes by Mr. Popenoe.

39369. "(No. 6. November 2, 1914.) *Taft* avocado. This variety is one of the most promising of the thick-skinned, spring-ripening avocados which has yet fruited in California. It originated with Mr. C. P. Taft, of Orange, whose name it bears. Its parentage is not definitely known, but it belongs, without doubt, to the type from Atlixco, Puebla, Mexico, which has been so widely disseminated in southern California by John Murietta, of Los Angeles. The *Taft* is broadly pyriform, averaging about 1 pound in weight, with a bright green, undulating surface and thick, tough skin, which separates readily from the flesh. The seed is rather small, comparatively speaking, and fits tightly in its cavity. The flesh is smooth, fine grained, without a trace of fiber, of rich, nutty flavor, and excellent quality. Its keeping qualities are remarkable, and it ships well. The tree is a very vigorous grower and buds easily. The foliage is reddish bronze when young, deep green later. In California the fruit commences to ripen in May and will hang on the tree in perfect condition through June and July. Owing to the difference in climatic conditions, the season may be somewhat earlier in Florida. While the variety has not been as prolific in fruiting as some of the others, this may have been due partly to the fact that the parent tree, which is the only one yet in full bearing, has been cut back severely for propagation. Mr. Taft has taken over 10,000 buds from it in a single season. For trial in southern Florida."

39370. "(No. 7. November 2, 1914.) *Dickinson* avocado. This is an avocado of the true Guatemalan type, the seed from which the parent tree was grown having been brought from Guatemala City to Los Angeles about 16 years ago. In size it is slightly smaller than the best varieties of the type, averaging not over 10 ounces in weight.

39369 to 39375—Con. (Quoted notes by Mr. Wilson Popenoe.)

It is, however, unusually prolific. The form varies from oval to broadly obovate. The surface is rough, almost tuberculate, dark green until fully ripe, when it changes to deep purple. The skin is thick, woody, granular in texture. The flesh is free from fiber, smooth, and of good flavor. The seed is slightly under average size, compared to the size of the fruit, and is perfectly tight in the cavity. The tree appears to be a vigorous grower and about as hardy as most of the Guatemalan varieties grown here. Although it has been grown under unfavorable conditions and is somewhat small in size, the parent tree has produced more than 800 fruits in a single season. It ripens from April to June. To be tried in southern Florida."

39371. "(No. 8. November 2, 1914.) *Meserve* avocado. A variety originated at Long Beach, Cal., on the ranch formerly owned by Mr. A. R. Meserve. The seed is believed to have come from Hawaii; in characteristics of fruit and foliage the variety is almost identical with some of the avocados of Guatemalan and southern Mexican origin which are grown in California, but in view of the fact that the Guatemalan avocados were long ago introduced into Hawaii this is not surprising. As a commercial variety the *Meserve* has the advantage that it is nearly round. Quality is its other strong point, the flavor being unusually rich and pleasant. The skin is deep green in color, thick and woody, as in all of this type. Good specimens will average nearly a pound in weight. The seed is medium sized, tight in the cavity. In growth the tree is vigorous, and while the parent was badly injured in the cold weather of January, 1913, this may not have been due to its tenderness so much as to its exposure and condition at the time. It is a good bearer, and on the whole seems to be a very promising variety. The season is April and May in southern California. For trial in southern Florida."

39372. "(No. 9. November 2, 1914.) *Solano* avocado. This is one of the largest varieties yet fruited in California. It originated on the property of Mr. Alfred Solano at Hollywood, Cal., and is of the southern Mexican or Guatemalan type. Probably its origin may be sought in one of the shipments of avocados brought to Los Angeles from Atlixco, Puebla, Mexico, by John Murietta. In shape the *Solano* is oval to oblong pyriform; the size is large, averaging from 16 to 28 ounces in weight. The skin is thick, tough, externally green in color, and almost smooth. The flesh is creamy yellow in color, smooth, and free from fiber. The parent tree has been grown in the center of a lawn where it received a good deal of water, consequently the fruits have not been quite as rich in flavor as they would probably have been under normal conditions. The seed is small in comparison with the size of the fruit, and it is tight in the cavity. For a variety of this size, the *Solano* is very productive. Its season is May and June. In growth it is vigorous and strong, but it does not produce good bud wood and is more difficult to propagate successfully than some others. For trial in southern Florida."

39373. "(No. 10. November 2, 1914.) *Blakeman* avocado. Originated on the Dickey place at Hollywood, Cal., from a seed imported from Atlixco, Puebla, Mexico, by John Murietta, of Los Angeles. It is an excellent variety of the thick-skinned Guatemalan type. In form it is broadly obovate, but broader at the basal end than is common with

39369 to 39375—Con. (Quoted notes by Mr. Wilson Popenoe.)

fruits of this shape, and without any suspicion of a 'neck.' It will average slightly less than a pound in weight. The surface is deep green in color, the skin thick and woody. The flesh is smooth, fine in texture, buttery, and of very rich, pleasant flavor, considered one of the best in quality of the Guatemalan varieties fruiting in California. The seed is about medium in size and tight in the cavity. The parent tree, at 8 years of age, is bearing between 200 and 300 fruits, which can be considered a good record in view of the fact that seedlings of this type do not usually come into bearing until the sixth or seventh year. The season of ripening is May and June. In growth it is strong and vigorous. For trial in southern Florida."

39374. "(No. 11. November 2, 1914.) *Ganter* avocado. One of the best known and largest local varieties of the thin-skinned, fall ripening Mexican type of avocado. It originated at Whittier, Cal. The form is oblong ovate, the weight being sometimes as much as 10 or 12 ounces, though the average would probably be somewhat less. The skin is scarcely thicker than that of an apple, and it adheres closely to the flesh. Externally the color is light green, with minute russet spots. The flesh is creamy yellow in color, of very rich and nutty flavor. The seed is rather small, but sometimes loose in its cavity. The fruit shows a tendency to decay around the apical end and does not always ripen evenly. This may possibly be avoided by picking at a certain stage before the decay has commenced to show. The tree is a very vigorous grower and much hardier than the average variety of the Guatemalan type. It is extremely prolific and comes into bearing at a very early age, trees two years from the bud sometimes carrying several fruits. It may be of value for cultivation in sections of Florida which are too cold for the *Trapp* and other varieties of that class."

39375. "(No. 12. November 2, 1914.) *Harman* avocado. This, like the *Ganter*, is a thin-skinned, fall-ripening avocado, its season being late September to early November. It is one of the most vigorous and hardy varieties yet grown in California and when planted in orchard form makes a handsome, shapely tree. The fruit is obliquely obovate in shape and weighs from 7 to 10 ounces, or even more in exceptional cases. The surface is smooth, glossy, light green in color, overspread with purplish maroon and with numerous light yellow dots. The skin is thin and adheres closely to the flesh. In texture the flesh is very buttery and smooth, in color yellow when fully ripe, and in flavor very rich and nutty. The seed is not above average size, but is loose in its cavity, which being rather large makes the proportion of flesh smaller than in some other varieties. When allowed to hang on the tree until late in the season the fruits frequently crack at the apical end, the fissure sometimes extending clear through into the seed cavity. Because of its hardiness it will be desirable to give this variety a trial in those sections of Florida which are too cold for the *Trapp* and other avocados of that class."

39376 to 39381.

From Salisbury, Southern Rhodesia. Presented by Mr. H. G. Mundy, Government agriculturist and botanist, Department of Agriculture, through Mr. C. V. Piper, of the Bureau of Plant Industry. Received November 9, 1914. Quoted notes by Mr. Mundy.

38376 to 39381—Continued. (Quoted notes by Mr. H. G. Mundy.)

39376. ELEUSINE CORACANA (L.) Gaertner. Poaceæ. **African millet.**

"*Rapoko.* Seeds of the native crop grown in Southern Rhodesia."

39377. HOLCUS SORGHUM VERTICILLIFLORUS (Steud.) Hitchcock. Poaceæ. **Sorghum.**

39378 to 39380. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**
(*Sorghum vulgare* Pers.)

"Seeds of the native crop grown in Southern Rhodesia."

39378. "*Durra.* Probably American in origin; known locally as *Sapling.*"

39379. "*Durra.* White."

39380. "*Sorghum.* Obtained by us from Australia, but a native of the west coast of Africa and known as *Mazagua.*"

39381. PENNISETUM GLAUCUM (L.) R. Brown. Poaceæ. **Pearl millet.**
(*Pennisetum typhoideum* Rich.)

"*Inyouti,* native crop grown in Southern Rhodesia."

39382 and 39383. PASSIFLORA spp. Passifloraceæ.

From Bogota, Colombia. Presented by Mr. Henry Coronado, Republic of Colombia Bureau of Information, Washington, D. C., through Mr. W. E. Safford, of the Bureau of Plant Industry. Received November 6, 1914. Quoted notes by Mr. Safford.

39382. PASSIFLORA LIGULARIS Juss. **Granadilla.**

"Fruit ovoid, very juicy, with fine flavor. Used in Colombia for making sherbets. Suitable for covering trellises and arbors."

39383. PASSIFLORA MALIFORMIS L. **Curubá.**

"Fruit depressed spheroid, hard shelled. Suitable for packing. Pulp of fine flavor; used for making sherbets. The variegated, beautiful red and white flowers with blue corona filaments are sweet scented. The involucre, composed of 3 ovate-acute bracts joined at the base, is larger than the flower itself. The shell of the fruit is sometimes so hard that it must be broken with a hammer. The inclosed pulp has a pleasant grapelike flavor."

39384 to 39391.

From San Juan Bautista, Tabasco, Mexico. Presented by Mr. Gabriel Itié, director, Agricultural Experiment Station. Received November 7, 1914. Quoted notes by Mr. Itié.

39384. ORYZA SATIVA L. Poaceæ. **Rice.**

"Creole rice from dry lands. Harvested in the Mango Pass, near San Juan Bautista, Tabasco, Mexico."

39385. RIVERA CORYMBOSA (L.) Hallier. Convolvulaceæ.

"*Eschaventun.* Convolvulaceous plant, abundant in the Department of Monte Cristo, Tabasco, and in the States of Campeche and Yucatan. The fragrant flower produces honey."

39386 and 39387. VIGNA SINENSIS (Torner) Savi. Fabaceæ. **Cowpea.**

39386. "White cowpea. Agricultural experiment station of Tabasco. This variety appeared in a lot of *Blackeye* cowpeas. It is not known if this is a sport or an accidental sowing. The flower is

39384 to 39391—Continued. (Quoted notes by Mr. Gabriel Itié.)

white and identical with the flower of the *Blackeye*, but the seed is entirely white, having at times a black border around the hilum. Edible."

39387. "Cowpea *panadero* (baker's cowpea), Gonzalez Cosio Colony, Department of Huimanguillo, Tabasco, Mexico. This variety, known under the name of 'baker's bean' (*panadero* bean) was probably introduced from Porto Rico by the colonists. The seed is edible, especially when young."

39388. ANNONA GLABRA L. Annonaceæ. **Anona.**

"*Corcho.* Grows in abundance on the margins of the lakes around San Juan Bautista, Tabasco, Mexico. The pulp of the fruit is of an orange color and very fragrant. Eaten at times by the inhabitants. Sometimes used as a stock upon which to graft other anonas."

39389. CEIBA ACUMINATA (S. Wats.) Rose. Bombacaceæ. **Pochote.**

"*Pochote.* Comes from the State of Oaxaca, Mexico. According to J. Guardiola (*Boletin de la Direcion de Agricultura, Parte I, January, 1912, p. 30*), this variety is recommended for its earliness and the small height it attains. It can be reproduced by seeds or cuttings, and in the following year, when it has reached a height of 70 to 80 cms., it commences to flower and fruit. This depends on the climate and the nature of the soil in which the plant is grown. It can be grown in rocky soil if necessary. Its growth is rapid. Its cultivation will be very productive after three years. Reproduction by cuttings is much used in the country in the forming of live hedges of very fine appearance in the flowering season. In the State of Oaxaca its production exceeds 160,000 kilos annually. It is produced in the districts of San Carlos, Yautepec, Tehuantepec, Juchitan, Tuxtepec, Juchila, and Pochutla, but it is not cultivated. It is cultivated on a small scale in the State of Michoacan, and in Ario de Rosales a price of 50 cents per kilo of clean fiber has been realized."

39390 and 39391. CAPSICUM ANNUUM L. Solanaceæ. **Red pepper.**

"Harvested in the experimental station of Tabasco from seed from Oaxaca. Very prolific and piquant."

39390. Red pepper. **39391.** Yellow-podded red pepper.

39392. THRINAX MICROCARPA Sargent. Phœnicaceæ. **Palm.**

From Pumpkin Key, Florida. Collected by Mr. David A. Bisset, of the Bureau of Plant Industry.

"Seeds of a palm growing in a dense hammock growth on Pumpkin Key, about 40 miles below Miami. It is a very attractive palm and might prove of value as an ornamental. The largest plant seen was about 15 feet high and had a trunk 4 inches in diameter. All of the leaves are silvery on the under side and they keep this glaucous character until they turn brown. It is probably a native of the keys, but it is somewhat rare, as on Pumpkin Key only 13 or 14 specimens were found." (*D. A. Bisset.*)

39393 and 39394. AMYGDALUS PERSICA L. Amygdalaceæ. (*Prunus persica* Stokes.) **Peach.**

From La Paz, Bolivia. Presented by Mr. George M. McBride, director, American Institute. Received November 10, 1914.

39395 to 39411. HORDEUM spp. Poaceæ. **Barley.**

From Sydney, New South Wales. Presented by Mr. G. Valder, undersecretary and director, Department of Agriculture. Received November 12, 1914. Quoted notes by Mr. Valder.

39395 and 39396.

"From the experiment farm, Cowra. Harvested December, 1913."

39395. HORDEUM VULGARE L.

"*Shorthead* barley, dark grain."

39396. HORDEUM VULGARE COERULESCENS Seringe.

"*Roseworthy Oregon* barley, grain dark colored."

39397 to 39401. HORDEUM VULGARE L.

39397. "Barley No. 18. Grain slightly dark."

39398. "Barley No. 22. Remarkably early."

39399. "Barley No. 24. Early variety, short straw, grain pale colored."

39400. "Barley No. 36."

39401. "Barley No. 49. A good barley, not well grown."

39402 to 39405.

"From the experiment farm, Bathurst."

39402. HORDEUM DISTICHON ERECTUM Schubl.

The Maltster.

39403. HORDEUM VULGARE L.

Cape.

39404. HORDEUM VULGARE VIOLACEUM Koern.

Black Hull-less.

39405. HORDEUM VULGARE COERULESCENS Seringe.

Sea of Azof.

39406 to 39411.

"From the Wagga Experiment Farm, Bomen."

39406. HORDEUM DISTICHON L.

Kinver.

39407. HORDEUM DISTICHON NUTANS Schubl.

Gisborne.

39408. HORDEUM DISTICHON ERECTUM Schubl.

Archer.

39409 and 39410. HORDEUM VULGARE L.

39409. *Skinless.* 39410. *Canadian Battledore No. 1.*

39411. HORDEUM DISTICHON ERECTUM Schubl.

Canadian Malting No. 2.

39412. FERONIELLA LUCIDA (Scheff.) Swingle. Rutaceæ.

From Buitenzorg, Java. Presented by the Department of Agriculture. Received November 14, 1914.

See S. P. I. Nos. 28123, 34472, and 38860 for previous introductions.

39413. CASTANEA CRENATA Sieb. and Zucc. Fagaceæ. **Chestnut.**

From Tokyo, Japan. Presented by Miss B. Catherine Pifer. Received November 13, 1914.

Imperial chestnut.

39414. FRANKLINIA ALATAMAHA Bartram. Theaceæ.

(*Gordonia pubescens* L'Herit.)

From Philadelphia, Pa. Presented by Mr. Ogleby Paul, Fairmount Park. Received October 7, 1914.

See S. P. I. Nos. 26930 and 26931 for previous introductions and description.

"This is probably one of the least known of our small trees, and yet it stands among the most beautiful of our native plants. In habit of growth and in the leaf the Gordonia, or, as it is sometimes called, Franklinia, is not unlike a magnolia, although in the flower it more nearly resembles a camellia. Furthermore, it is especially valuable on account of its late flowering period, plants being in bloom at the present time in the Arnold Arboretum. The Gordonia is of a rather upright habit, forming a well-shaped head. It is a member of the tea family, Theaceæ. Its finely crenate, lance-obovate leaves are of the color of the leaves of *Magnolia acuminata*, but whitish downy beneath. The fragrant flowers are borne on the ends of the branches on short, stout peduncles. They are pure satiny white, about 2½ inches in diameter and bowl shaped at their best, later becoming flatter as the flower ages. The stamens are bright golden yellow and are placed directly on the petals, where they form a tuft perhaps a half inch or more in diameter, making a beautiful combination of color against the pure white of the petals. The pod is globular, light green, and covered with a whitish down. This plant was first discovered in southern Georgia, whence it was introduced into Europe in 1744, and named by Dr. Garden in honor of his 'old master, Dr. James Gordon,' and by Ellis it was dedicated to a London nurseryman of the same name. This nurseryman appears to have been a contemporary of Philip Miller. It was called Franklinia in honor of Dr. Franklin. During the past hundred years it has not been found in a wild state, although much searched for. This fact makes it not only a rare and valuable tree, but one which should be more propagated and kept, lest it be lost entirely to future generations. In the vicinity of Philadelphia there are several trees growing in the open without protection, but north of that point its hardiness can not be wholly depended upon. In protected situations, however, I see no reason why we of the North can not enjoy its exquisite beauty, provided, of course, we give it protection. In the Arnold Arboretum the plants receive part shelter from the other plants, which are planted about them, and came through the winter of 1913–14 when so many other beautiful things perished. The Gordonia may be propagated from layers or from seeds, and will thrive in a peaty soil or in leaf mold and sand." (*Hubert M. Canning, in Horticulture, Oct. 24, 1914.*)

39415. SPATHODEA CAMPANULATA Beauv. Bignoniaceæ.

From Peradeniya, Ceylon. Presented by Mr. H. F. Macmillan, superintendent of the botanic gardens. Received November 14, 1914.

"This seems to be the only species of Spathodea generally known in the East. The tree flowers profusely at Peradeniya almost throughout the year, except in the dry season, but seldom or never bears fruit here. It produced, however, fruit and seeds in our former garden at Anuradhapura, now abandoned, where the climate is much drier than at Peradeniya, the rainfall being limited to three months of the year." (*Macmillan.*)

39416 and 39417. SOLANUM spp. Solanaceæ.

From Bremen, Germany. Presented by Prof. Dr. G. Bitter, Bremen Botanic Garden. Received November 13, 1914. Quoted notes by Dr. Bitter.

"Cultivated in the botanic garden, Bremen, 1914, from seeds."

39416. SOLANUM CAESIUM Griseb.

"Seeds received from Oran, northern Argentine."

39417. SOLANUM ACAULE Bitter.

"Seeds collected in 1913 in Oruro, Bolivia."

39418 to 39422.

From Santiago de las Vegas, Cuba. Presented by Mr. Juan T. Roig, botanist, Cuban Agricultural Station. Received November 14, 1914. Quoted notes by Mr. Roig.

39418. EUGENIA TUBERCULATA (H. B. K.) DC. Myrtaceæ.

"*Grajo.* A myrtaceus shrub producing hard wood."

39419. HARPULLIA CUPANIOIDES Roxburgh. Sapindaceæ.

"A fine tree cultivated at the station. Of rapid growth and probably producing good timber."

Distribution.—A tree bearing erect panicles of yellow flowers, followed by pendent clusters of orange-colored fruits, found in India and Ceylon and eastward to Sumatra, Java, and Borneo.

39420. PITHECOLOBIUM TORTUM Martius. Mimosaceæ.

"*Humo.* A tree producing valuable golden-colored timber. Much used for posts and fences."

39421. SOPHORA TOMENTOSA L. Fabaceæ.

"*Tambalisa.* A very ornamental shrub with yellow flowers. It forms wide masses and is suitable for planting around the house and gardens."

39422. TRICHILIA HAVANNENSIS Jacq. Meliaceæ.

"*Siguaraya.* A low tree much used for hedges and popularly employed, as a drug plant, against rheumatism and other diseases."

39423 to 39442.

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

39423. HOLCUS SORGHUM L. Poaceæ. **Kaoliang.**
(*Sorghum vulgare* Pers.)

"(No. 2118a. Linhsien, Honan, China. July 5, 1914.) A variety of *kaoliang* grown as a fodder for domestic animals. Is generally sown out very thickly either in small patches or as strips along fields. In appearance is much like Johnson grass. Chinese name *Chiao ts'ao kaoliang*, meaning 'emerald-grass kaoliang.'"

39424. CANNABIS SATIVA L. Moraceæ. **Hemp.**

"(No. 2119a. Luanfu, Shansi, China. July 13, 1914.) A variety of hemp, said to produce long, strong, and fine fiber. Grown on terraces on somewhat moist soil at altitudes between 3,000 and 4,000 feet."

39423 to 39442—Continued. (Quoted notes by Mr. F. N. Meyer.)

39425. RICINUS COMMUNIS L. Euphorbiaceæ. **Castor bean.**

"(No. 2120a. Southwest Shansi, China, August 4 to 14, 1914.) Var. *inermis*. A variety of castor bean having spineless burs. Occurs sporadically in fields among the ordinary sort. Of value to students of mutation and variation in plants, and possibly of commercial value also as producing less waste material than the common varieties."

39426. MEDICAGO SATIVA L. Fabaceæ. **Alfalfa.**

"(No. 2121a. Mountains between Hotien, near Linhsien, Honan, and Luanfu, Shansi, China. July 7 to 12, 1914.) A wild alfalfa, found everywhere between grasses, bowlders, rocks, and pebbles, on banks, cliffs, etc.; of low spreading growth, foliage small, flowers of blue color, large individually, but racemes small. Branches not erect except when having some support. Thrives best, apparently, at altitudes between 2,000 to 4,000 feet above sea level. Of value possibly as a pasture plant in the intermountain sections of the United States. This alfalfa may be one of the original forms in which this important forage plant occurs on the globe, and the erect-growing varieties now so extensively cultivated might have been derived from one of these prostrate forms."

39427. INCARVILLEA SINENSIS Lamarck. Bignoniaceæ.

"(No. 2122a. Near Wuwang on the Hwang River, Shansi, China. August 11, 1914.) Var. *floreflava*. A variety of this biennial, having large, pale-yellow flowers, instead of rosy ones. Of value as an ornamental for the hardy border. Of special interest to botanic gardens."

39428. AMYGDALUS sp. Amygdalaceæ. **Peach.**

"(No. 2123a. Sianfu, Shensi, China. August 21 to 26, 1914.) Stones of the real wild peach, growing in the mountains one day's journey south of Sianfu. The fruits are small, hard, and sourish, but there is considerable variation in them as regards size and taste. They are apparently all freestones, and while some have red flesh near the stone, others are white throughout. The Chinese eat these fruits out of hand, but they do not appeal to the white races, although they might be utilized when preserved, as they possess the real peach flavor. Local name *Ying t'ao*, meaning 'cherry peach.'"

39429 and 39430. PRUNUS ARMENIACA L. Amygdalaceæ. **Apricot.**

39429. "(No. 2124a. Peking, China, June 25, 1914.) A large apricot of soft yellow color and of mango shape, which is a very unusual form among apricots. Said to come from the vicinity of Paotingfu, Chihli Province."

39430. "(No. 2125a. Peking, China. June 27, 1914.) An apricot with fruits as large as small apples; of whitish yellow color with some blush on one side. Of fresh and sweet taste. Said to come from the vicinity of Paotingfu."

39431. XANTHOCERAS SORBIFOLIA Bunge. Sapindaceæ.

"(No. 2126a. Chaoyu, Shansi, China. July 22, 1914.) A shrub, occasionally growing into a small-sized tree, found in loess cliffs. The shiny pinnate foliage reminds one of an ash, but the drooping racemes of white flowers, with yellow stamens, produced in great masses in early summer, give the shrub quite a distinct appearance. The Chinese eat the kernels of the fruit and call the plant *Mu kua hua*, meaning

39423 to 39442—Continued. (Quoted notes by Mr. F. N. Meyer.)

'quince flower,' on account of the large fruits resembling those of the Japanese quince. This shrub, closely related to the horse chestnut, is decidedly ornamental and of special value as a garden shrub for those semiarid sections of the United States where the winters are not too severe."

For illustrations of this shrub as seen growing in China and of its fruit and foliage, see Plates I and II.

39432. PRINSEPIA UNIFLORA Batalin. Amygdalaceæ.

"(No. 2127. Near Fuchengchen, Shansi, China. July 21, 1914.) A spiny shrub, having many long branches, growing from 3 to 5 feet in height, and of spreading habits. Foliage lanceolate and serrated, resembling that of a Rhamnus. Flowering early in May with pale rosy flowers, produced in great masses. The fruits, which are of dark-red color and resemble small cherries in general looks, ripen in July. They are quite juicy, but sour; however, they vary a good deal as regards size, degree of juiciness, and acidity, some being edible out of hand, while others are very acrid. By selection, strains could be obtained, no doubt, which could be cultivated as garden fruits. The shrubs love a well-drained situation and thrive quite well even on rocky débris. Of value as an ornamental spring-flowering bush and as a prospective fruiting shrub, especially for the drier parts of the United States where the winters are not too severe. Local Chinese name *Tz'ŭ yü*, meaning 'spiny elm.'"

For illustrations of the Chinese Prinsepia in flower and in fruit, see Plates III and IV.

39433. RHAMNUS sp. Rhamnaceæ.

"(No. 2128a. Kulo, Shansi, China. July 24, 1914.) A tall, shrubby Rhamnus, often growing into a small tree. Of spreading habits, leaves slender, lanceolate and serrate, looking not unlike slender *davidiana* peach leaves. This shrub is apparently rare; it is found here and there in loess cliffs and on old grave mounds; it seems to be able to withstand a good deal of alkali. Of value as a park shrub and possibly as a hedge plant, especially for the drier sections of the United States. The purplish black berries possess a sickening sweet taste and are apparently not eaten by the Chinese."

39434. AMPELOPSIS ACONITIFOLIA DISSECTA (Carr.) Koehne. Vitaceæ.

"(No. 2129a. Pingyangfu, Shansi, China. August 2, 1914.) A variety of Ampelopsis, with finely cut foliage, of light-green hue, and bearing dull-yellow berries. Very ornamental when covering a wall or trained over some latticework. Of value as a porch, arbor, and pergola vine, especially in semiarid climes."

39435. VICIA sp. Fabaceæ. **Vetch.**

"(No. 2130a. Mountains near Hotien, near Linhsien, Honan, China. July 7, 1914.) A vetch of vigorous growth, foliage glabrous. Found in rocky crevices and apparently able to withstand drought quite well. Of value possibly for forage purposes."

39436 to 39439. PRUNUS spp. Amygdalaceæ.

39436. PRUNUS HUMILIS Bunge. **Plum.**

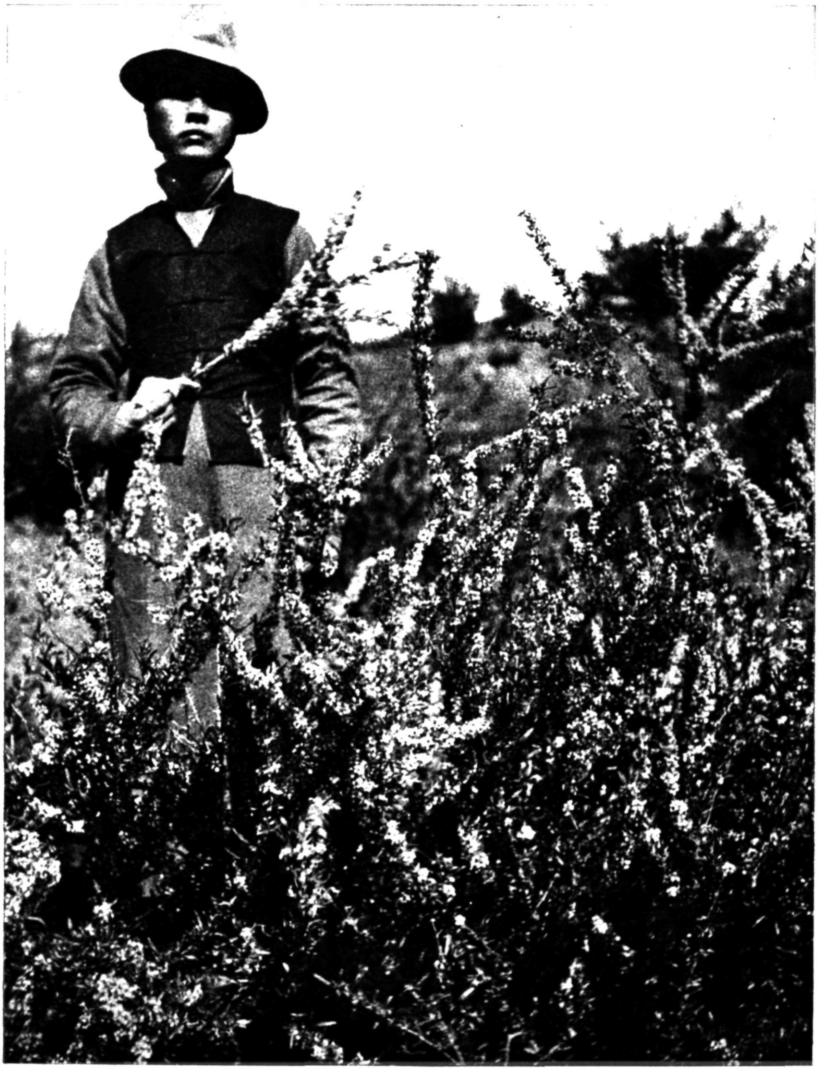
"(No. 2131a. Yuncheng, Shansi, China. August 11, 1914.) A variety of wild Chinese dwarf plum, with fruits as large as good-

XANTHOCERAS SORBIFOLIA. (SEE S. P. I. No. 39431.)

Clump of this shrub, as seen in loess cliffs; quite attractive with their shiny green, pinnate foliage. As may be surmised, this shrub is able to withstand a good deal of drought, and it is recommended as an ornamental shrub or small tree for gardens in semiarid regions. (Photographed by Frank N. Meyer, Chaoyu, Shansi, China, July 23, 1914; P12176FS.)

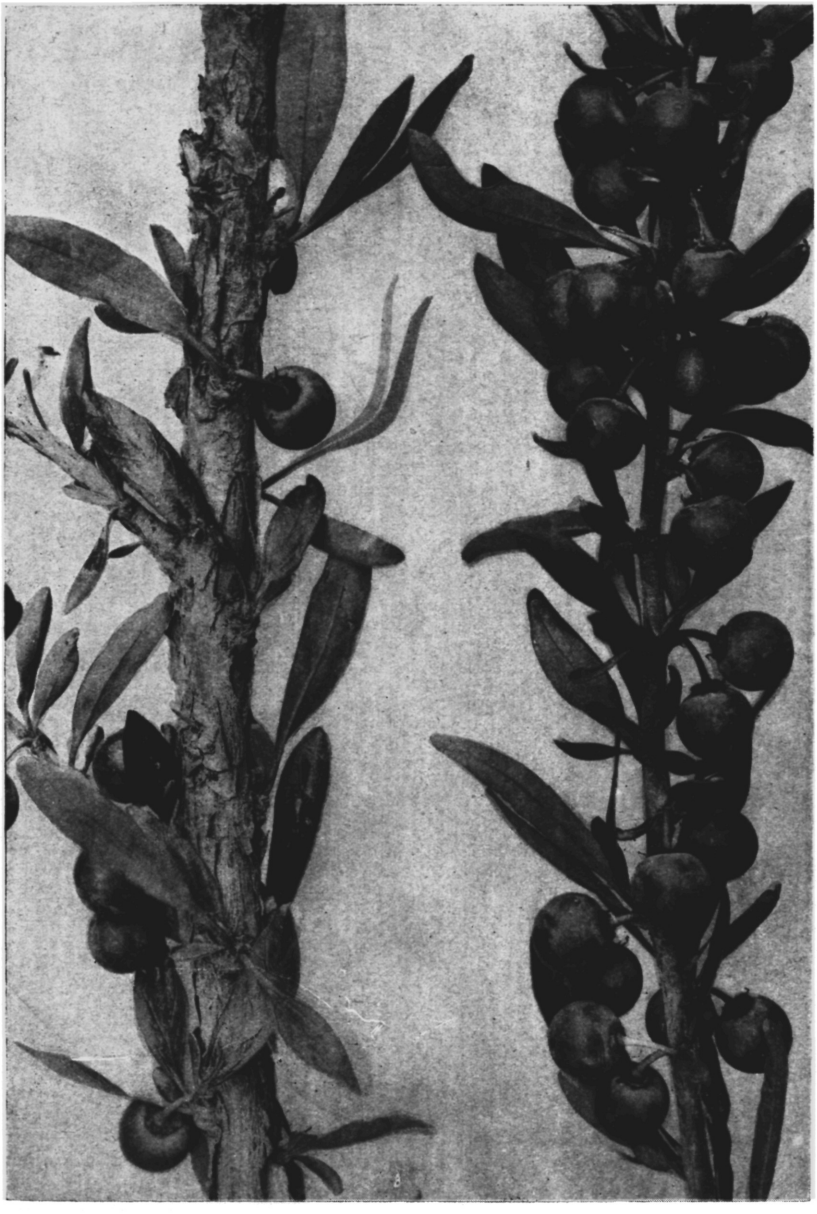
FRUITING BRANCH OF XANTHOCERAS SORBIFOLIA. (SEE S. P. I. No. 39431.)

This North Chinese plant belongs to the horse-chestnut family. It is found wild as a shrub in dry loess banks and cliffs in Shansi, Honan, Shensi, and Kansu, in which provinces the country people eat the kernels, calling the plant *Mu kua hua* (quince flower), presumably on account of the fruits somewhat resembling Japanese quinces in appearance. In temple courts around Peking one frequently finds this plant cultivated, and in such places it grows into a small tree, often with a dense head of foliage. Though seldom seen in American gardens, it deserves to be more widely planted, especially in dry, sunny situations, where its masses of white flowers with yellow and red blotches in the center appearing in May make the plant of great decorative value. (Photographed by Frank N. Meyer, at Chaoyu, Shansi, China, July 23, 1914; P12264FS.)



THE CHINESE PRINSEPIA (PRINSEPIA UNIFLORA) IN FLOWER. (SEE S. P. I. No. 39432.)

As a flowering shrub for dry regions the Prinsepia is well worthy of introduction. Its small white flowers are crowded densely around the branches. (Photographed by Frank N. Meyer, in the mountains near Tsintse, China, May 6, 1907; P5282FS.)



FRUITING BRANCHES OF A RECENTLY INTRODUCED CHINESE PRINSEPIA (PRINSEPIA UNIFLORA). (SEE S. P. I. No. 39432.)

This dry-land spiny shrub should be adapted to the extremes of drought and cold of the Great Plains area and the extreme Southwest. Its fruits are dark red in color and vary a good deal in size and in degree of acidity and amount of pulp. It is probably capable of considerable improvement by selection. (Photographed by Frank N. Meyer, Fuchengchen, Shansi, July 21, 1914; P13147FS.) Natural size.

39423 to 39442—Continued. (Quoted notes by Mr. F. N. Meyer.)

sized cherries, but of sour flavor. Said to grow here and there in the mountains near Yuncheng. Chinese name *Jou li tzŭ*, meaning 'fleshy plum.'"

39437 and 39438. PRUNUS SIMONII Carr. **Plum.**

39437. "(No. 2132a. Hotien, near Linhsien, Honan, China. July 7, 1914.) A large variety of green plum, having a small stone; flesh somewhat hard and sour. To be used for obtaining new types."

39438. "(No. 2133a. Paotienchen, Shansi, China. July 17, 1914.) A very large variety of green plum, with some violet blush on one side. Flesh somewhat hard, a good shipper, apparently. To be used for obtaining new types."

39439. PRUNUS ARMENIACA L. **Apricot.**

"(No. 2134a. Near Lienma, Shansi, China. July 20, 1914.) Wild apricots, growing in great profusion here and there on the mountain sides at altitudes between 3,000 and 5,000 feet above sea level. Trees of medium size, fruits generally small and sourish, but often most beautifully colored. The natives collect these fruits for their kernels, which are pickled in brine after the skin has been removed and are eaten as appetizers before meals. They are also used in high-class confectionery, like almonds, which, strange to say, the Chinese do not have. Chinese name *Shan hsing*, meaning 'mountain apricot.' For trial in some northern sections like Colorado, Utah, Wyoming, etc."

39440 to 39442. HOLCUS SORGHUM L. Poaceæ. **Kaoliang.**
(*Sorghum vulgare* Pers.)

39440. "(No. 2135a. Near Tachingkuan, on the Hwang River, Shansi, China. August 15, 1914.) A variety of kaoliang, with pale amber-colored seeds and having heavy spikes. Grown on reclaimed mud flats along the Yellow River, where the fields are often inundated for several weeks at a time. The plants grow extraordinarily tall, specimens of 15 feet in height not being rare."

39441. "(No. 2136a. Near Tungchowfu, Shensi, China. August 16, 1914.) A variety of kaoliang with reddish brown seeds; of slender, medium-tall growth and having orange-red stems. Grown mostly in small patches and strips around fields, principally for the bright-red skin of its stems, which is much used in fancy mat weaving."

39442. "(No. 2137a. Mingyangtcheng, Shansi, China. August 12, 1914.) A variety of kaoliang of medium-tall growth, having drooping panicles and shining, dark reddish brown seeds. Grown mostly in small patches and strips around fields. Is much used for broom manufacture."

39443. CALAMUS sp. Phœnicaceæ. **Palm.**

From Manila, Philippine Islands. Presented by the director, Bureau of Agriculture. Received November 18, 1914.

39444. ORYZA SATIVA L. Poaceæ. **Rice.**

From Bangkok, Siam. Presented by Mr. Carl C. Hansen, American vice and deputy consul general. Received November 19, 1914.

"Siamese paddy known as *Kaw Sawan*, which occurs in Thong, Amphur Muang Sawankaloke." (*Hansen.*)

39445 and 39446. ORYZA SATIVA L. Poaceæ. **Rice.**

From Valencia, Spain. Presented by Mr. Claude I. Dawson, American consul. Received November 17, 1914.

39445. "*Amonquili* rice, from the Alberique district, Province of Valencia, Spain. The commercial classes of rice in the Valencia regions, especially along the north and south banks of the Jucar River, or center of the rice district, are at present *Benlloch* or *Belloch* [S. P. I. No. 38685] and *Amonquili*. During 1913 the two were cultivated in the proportion of 80 per cent for the first and 20 per cent for the second, and in the season just beginning the *Benlloch* will certainly be overwhelmingly preferred in view of repeated excellent results obtained by experiment stations and in actual cultivation." (Extract from letter of *Mr. Claude I. Dawson, American consul, dated Apr. 25, 1914.*)

39446. "*Bomba* rice, from the Calasparra district, Province of Murcia, Spain. The *Bomba* variety, which formerly was more extensively cultivated in this region than all other classes, but in recent years gave such poor results and proved so susceptible to the undefinable disease known as the *falla* (the literal translation of which is 'deficient'), which so greatly depleted the crops of 1911 and 1912 that it is now hardly cultivated at all. The *Bomba* class was cultivated with more or less success, but although a select variety and excellent in its food value, cultivators never secured the best results claimed for it. It is of Japanese origin, but was imported here from China. In Lombardy (Italy) the grain is said to reach much larger size than in the vega of Valencia, due probably to more care in the selection of seed." (Extract from letter of *Mr. Claude I. Dawson, American consul, dated Apr. 25, 1914.*)

39447 to 39453.

From Calulo, Angola, Africa. Presented by Mr. W. P. Dodson. Received November 16, 1914. Quoted notes by Mr. Dodson.

39447 to 39451. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**
(*Sorghum vulgare* Pers.)

"This sorghum is ground up by the natives and used for porridge. Native name *Mballa*."

39452. VIGNA SINENSIS (Torner) Savi. Fabaceæ. **Cowpea.**

"A very useful little black-eyed pea, called *Makunde*.

39453. ELEUSINE CORACANA (L.) Gaertner. Poaceæ. **African millet.**

"The native name is *Luco*. It is ground up by the natives and used for porridge."

39454 to 39456. ANNONA spp. Annonaceæ.

From Amani, German East Africa. Presented by the director, Imperial Agricultural Institute. Received November 11, 1914.

39454. ANNONA CHERIMOLA Miller. **Cherimoya.**

See S. P. I. Nos. 27483, 39352, and 39359 for previous introductions and description.

39455. ANNONA MURICATA L. **Soursop.**

39456. ANNONA SENEGALENSIS Persoon.

See S. P. I. Nos. 30835 and 38525 for previous introductions and description.

39457. FICUS sp. Moraceæ. **Fig.**

From Kiayingchow, China. Presented by Rev. George Campbell. Received November 28, 1914.

This seed was sent in by Mr. Campbell as *Shan p'i p'a*, or "mountain loquat."

39458 and 39459.

From Florida. Collected by Mr. David A. Bisset, of the Bureau of Plant Industry, on Mr. Charles Deering's place, Buena Vista, Fla. Received November 27, 1914. Quoted notes by Mr. Bisset.

39458. DURANTA REPENS L. Verbenaceæ.

"A beautiful ornamental evergreen shrub of spreading habit and pendent branches, growing to a height of 8 feet and bearing racemes of small light-blue flowers followed by bright-yellow fruits. The glossy green foliage and the bright-yellow berries form a striking contrast and serve to make the shrub a most attractive one. Flowers and berries are seen on the plant at the same time."

39459. LAWSONIA INERMIS L. Lythraceæ. **Henna.**

"An ornamental evergreen shrub with small glaucous leaves and panicles of small cream-colored flowers which possess a most agreeable fragrance. The flowers are followed by small green capsules which change from green through dark red to brown. Capsules are somewhat persistent, this being the only objectionable feature of the plant. Shrub adapted for ornamental purposes and possibly of value in perfumery."

39460 to 39462. HORDEUM spp. Poaceæ. **Barley.**

From Pusa, India. Presented by Mr. Bernard Coventry, agricultural adviser to the Government of India, Imperial Department of Agriculture. Received November 24, 1914. Quoted notes by Mr. Coventry.

39460. HORDEUM DISTICHON IANTHINUM Koern.

"Black huskless, 2-rowed. Grown in the Punjab."

39461. HORDEUM VULGARE COELESTE L.

"Amber-colored, huskless 6-rowed barley. Grown in the Punjab."

39462. HORDEUM VULGARE L.

"The common 6-rowed bearded barley, locally obtained. Grown in the Punjab."

39463. GYNOPOGON ILICIFOLIUS (Muell.) K. Schumann. Apocynaceæ.
(*Alyxia ilicifolia* Muell.)

From Wellington Point, near Brisbane, Queensland, Australia. Presented by Mr. James Pink. Received November 25, 1914.

"A white-flowered shrub growing about 6 feet high, producing a profusion of berries of a bright orange-scarlet. It should make a valuable ornamental plant for decorative purposes." (*Pink.*)

39464. PRUNUS ARMENIACA L. Amygdalaceæ. **Apricot.**

From Gizeh, Egypt. Secured by Prof. S. C. Mason, of the Bureau of Plant Industry, through Mr. Thomas W. Brown, Ministry of Agriculture, Gizeh. Received November 28, 1914.

39465 to 39484.

From China. Presented by Miss Paula Ritter, Chicago, Ill. Received November 30, 1914. Quoted notes by Miss Ritter.

39465. BRASSICA RAPA L. Brassicaceæ. **Turnip.**

"*Man ching.* A good sweet turnip."

39466. RAPHANUS SATIVUS L. Brassicaceæ. **Radish.**

"*Pai lo po.* Long white turnip, planted in spring, grows exceedingly large."

39467 and 39468. BRASSICA PEKINENSIS (Lour.) Skeels. Brassicaceæ. **Pe-tsai cabbage.**

"A large winter cabbage of the Chinese kind. Planted in summer, transplanted in early fall or late summer, and left out until frost."

39469 to 39473. CUCUMIS SATIVUS L. Cucurbitaceæ. **Cucumber.**

39469. "*Ch'ang tsai kua.* A long thick cucumber."

39470. "*Yüan su kua.* Round cucumber."

39471. "*Pai ch'ang su kua.* A large, thick, white gourd, similar to the cucumber; good. Plant like cucumber."

39472. "*Huang kua.* A long, slight cucumber. Can be planted as in America; might be called seedless; very good."

39473. "*Ch'ang su kua.* A kind of cucumber."

39474. ALLIUM SCHOENOPRASUM L. Liliaceæ. **Chives.**

"*Chiu ts'ai.* A kind of onion grass."

39475. LACTUCA SATIVA L. Cichoriaceæ. **Lettuce.**

39476. LUFFA CYLINDRICA (L.) Roemer. Cucurbitaceæ. **Loofah.**

"*Ssŭ kua.* Long cucumberlike."

39477. ZIZIPHUS JUJUBA Miller. Rhamnaceæ. **Jujube.**
(*Ziziphus sativa* Gaertn.)

39478. ALLIUM CEPA L. Liliaceæ. **Onion.**

"Long onion. Should be hilled."

39479. SESAMUM ORIENTALE L. Pedaliaceæ. **Sesame.**
(*Sesamum indicum* L.)

39465 to 39484—Continued. (Quoted notes by Miss Paula Ritter.)

39480. BETA VULGARIS L. Chenopodiaceæ. **Beet.**

"*Chun ta.* The heavy leaves are used as greens, something like spinach."

39481. DAUCUS CAROTA L. Apiaceæ. **Carrot.**

"Planted like ours and almost if not quite like some of our kinds."

39482. BRASSICA NAPUS L. Brassicaceæ. **Rape.**

39483. SOLANUM MELONGENA L. Solanaceæ. **Eggplant.**

"*Chi'eh tzŭ.*"

39484. CORIANDRUM SATIVUM L. Apiaceæ. **Coriander.**

"*Yen ts'ai.* A green like parsley."

39485. MANGIFERA INDICA L. Anacardiaceæ. Mango.

From Ceylon. Presented by Mr. C. K. Moser, American consul, Harbin, Manchuria. Received December 2, 1914.

"A few months before I left Ceylon a Singhalese friend sent me a few mangos which he called *coconut* mangos, which he said were from Jaffna and very rare. They were about as large as a coconut and similar in shape, the skin and flesh a deep, rich yellow, except upon the cheeks, where burned a blush as glorious as any that ever dyed a peach. They were the most delicious fruits my wife and I ever tasted in all our lives. We never saw either in India or Ceylon any others like them, and when I wrote to Jaffna I was informed they did not grow there, but that they were evidently a rare variety which seldom fruited in Ceylon and then only in certain localities. Unfortunately, I was too busy to investigate them, and I have forgotten the Singhalese name which Dr. Brown, of Jaffna, gave for them, but I saved the seeds, and under separate cover I am sending them to you in the hope that you may be able to plant them in Florida and grow trees from them. If you should do this and succeed with them, I wish to stipulate only one thing; that one tree belongs to me, and that I shall have its fruits some time. It is certainly not commonly known in the Middle East, and it certainly is a fruit for a king. It has neither fibrous flesh nor petroleum flavor; the fruits from which these seeds came were perfect." (*Moser.*)

39486 and 39487.

From Penang, Straits Settlements. Presented by the director, Penang Botanical Gardens. Received December 3, 1914.

39486. AMORPHOPHALLUS HAEMATOSPADIX Hook. f. Araceæ.

An araceous herb with short turbinate tubers, 2½ inches in diameter, 3-parted leaves 20 inches across, and oblanceolate leaflets. Peduncle brown, striated, terete. Sheaths appressed at the base, red-brown. Spathe 5 inches long; limb primrose yellow; tube striate with pink, dark purple within. Spadix sessile, 7 inches long, tip blood red. (Adapted from *Hooker, Flora of British India, vol. 6, p. 517.*)

39486 and 39487—Continued.

39487. ARISAEMA FIMBRIATUM Masters. Araceæ.

"*Arisaema fimbriatum* belongs to Engler's section *Trisecta*, having two stalked, leaves each deeply divided into three ovate-acute glabrous segments. The petioles are long, pale purplish rose colored, sprinkled with small purplish spots. The spathes are oblong acute or acuminate, convolute at the base, brownish purple, striped longitudinally with narrow whitish bands. The spadix is cylindrical, slender, terminating in a long whiplike extremity, much longer than the spathe. The flowers have the arrangement and structure common to the genus, the females being crowded at the base of the spadix, the males immediately above them, and these passing gradually into fleshy incurved processes, which in their turn pass gradually into long slender, purplish threads, covering the whole of the free end of the spadix." (*Masters. In Gardeners' Chronicle, 1884, vol. 2, p. 680.*)

39488. CARICA CANDAMARCENSIS Hook. f. Papayaceæ. **Papaya.**

From California. Presented by Mr. William A. Spinks, Monrovia, Cal. Received November 27, 1914.

"Seeds of a small-fruited papaya, from Spinks's ranch, near Duarte, Cal. The fruit itself of this variety seems to be worthless. It turns quite yellow on ripening." (*Spinks.*)

39489. BETULA JAPONICA Siebold. Betulaceæ. **Birch.**

From Hsiao Wutaishan, Chihli Province, China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture.

Seeds collected from herbarium material carried under Meyer No. 1163.

"A tree ordinarily from 40 to 60, occasionally over 100 feet high, with a silvery white trunk; branches pendulous at the ends; young wood not downy, but furnished with glandular warts. Leaves broadly ovate, sometimes rather diamond shaped; 1 to 2½ inches long, three-fourths to 1½ inches wide; broadly wedge shaped or truncate at the base, slenderly tapered at the apex, doubly toothed; not downy, but dotted with glands on both surfaces; stalk one-half to three-fourths inch long. Fruiting catkins three-fourths to 1¼ inches long, one-third inch wide, cylindrical; scales smooth except on the margin; middle lobes the smallest. Native of Europe (including Britain), especially of high latitudes; also of parts of north Asia. This birch, with *B. pubescens*, forms the *B. alba* of Linnæus, but most authorities now concur in separating them. The species is easily distinguished from *B. pubescens* by the warts on the young branchlets and by the absence of down on all the younger vegetative parts. In the latter respect it differs from all the other cultivated birches except *B. populifolia*." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 263,* under *B. verrucosa,*)

39490 and 39491.

From Funchal, Madeira. Presented by Mr. C. H. Gable, through Mr. C. V. Piper, of the Bureau of Plant Industry. Received December 3, 1914.

39490. ANDROPOGON HIRTUS L. Poaceæ.

Distribution.—A perennial tufted grass about 3 feet high, found in the countries bordering on the Mediterranean and southward through Africa to the Cape of Good Hope.

39490 and 39491—Continued.

39491. HOLCUS HALEPENSIS L. Poaceæ. **Johnson grass.**
(*Sorghum halepensis* Pers.)

"Herbarium specimens show that the Madeira form differs usually in having dark purple panicles, and I think there might be other characters associated with this." (*Piper.*)

39492 and 39493.

From Bogota, Colombia. Presented by Capt. H. R. Lemly, United States Army, retired. Received December 3, 1914.

"To be tried in Florida and California."

39492. ANNONA CHERIMOLA Miller. Annonaceæ. **Cherimoya.**

39493. CARYOPHYLLUS JAMBOS (L.) Stokes. Myrtaceæ. **Rose-apple.**
(*Eugenia jambos* L.)

39494 to 39531. HORDEUM spp. Poaceæ. **Barley.**

From China. Presented by Mr. Thomas Sammons, American consul general, Shanghai, who secured it from the Special Envoy for Foreign Affairs. Received December 1, 1914.

39494 to 39496. HORDEUM VULGARE L.

39494. From Lanchi, Chekiang Province.

39495. From Sienku, Chekiang Province.

39496. From Fenghsien, Kiangsu Province.

39497. HORDEUM VULGARE COELESTE L.

From Lungchuan, Chekiang Province.

39498 to 39501. HORDEUM VULGARE L.

39498. From Jukao, Kiangsu Province.

39499. From Puchinghsien, Kiangsu Province.

39500. Early barley from Wuyi, Chekiang Province.

39501. From Shaohingfu, Chekiang Province.

39502. HORDEUM VULGARE COELESTE L.

From Changshan, Chekiang, Province. Used for food and for making a strong wine.

39503. HORDEUM VULGARE L.

From Siangshan, Chekiang, Province.

39504. HORDEUM VULGARE HIMALAYENSE Rittig.

From Yangchung, Chekiang Province.

39505. HORDEUM VULGARE COELESTE L.

White round barley from Yungkang, Chekiang Province.

39506 and 39507. HORDEUM VULGARE L.

39506. From Siangshan, Chekiang Province.

39507. From Paoshan, Kiangsu Province.

39508. HORDEUM VULGARE COELESTE L.

From Yunhwo, Chekiang Province.

39494 to 39531—Continued.

39509 to 39522. HORDEUM VULGARE L.

39509. From Juian, Chekiang Province.

39510. From Siangshan, Chekiang Province.

39511. From Sungkiangfu, Kiangsu Province.

39512. From Paoying, Kiangsu Province.

39513. From Sinchanghsien, Chekiang Province.

39514. From Sienku, Chekiang Province.

39515. From Wuyi, Chekiang Province.

39516. From Suianhsien, Chekiang Province.

39517. From Pingyanghsien, Chekiang Province.

39518. From Tientai, Chekiang Province.

39519. Superior grade from Shanghai, Kiangsu Province.

39520. From Kinhwafu, Chekiang Province.

39521. From Kunshan, Kiangsu Province.

39522. From Tinghai, Chekiang Province.

39523. HORDEUM VULGARE COELESTE L.

From Pingyanghsien, Chekiang Province.

39524 to 39531. HORDEUM VULGARE L.

39524. From Kiangpu, Kiangsu Province.

39525. From Chuhsien, Chekiang Province.

39526. From Iwu, Chekiang Province.

39527. From Yuhwanting, Chekiang Province.

39528. Red barley from Sinchanghsien, Chekiang Province.

39529. From Pinghu, Chekiang Province.

39530. From Pinghu, Chekiang Province.

39531. From Tinghai, Chekiang Province.

39532 to 39536. ALEURITES FORDII Hemsley. Euphorbiaceæ. **Tung tree.**

From Experiment, Ga. Secured from the Agricultural Experiment Station. Received December 4, 1914.

39532. Fruit did not fall until nipped by light frost.

39533. Seed from 1-acre plat, row 5, tree 1. Large fruit, but a sparse bearer.

39534. One-acre plat, row 5, tree 7. Small prolific crop from one tree.

39535. Nut plat, row 2, tree 8. Fruit very large, but a sparse bearer; 14 pounds when harvested. Fruit matured and fell to the ground October 15 to 20, several days before frost.

39536. Mixed.

39537. LAVANGA SCANDENS (Roxb.) Buch.-Ham. Rutaceæ.

From Pusa, India. Presented by Mr. Bernard Coventry, agricultural adviser to the Government of India. Received December 9, 1914.

"A tall, lax-growing, but scarcely scandent shrub, with straggling branches, which are glabrous (as in every part of the plant), terete, bearing a rather

long subulate decurved spine in the axil of the leaf. Leaves alternate, remote, 3-foliolate. Petiole 2 to 3 inches long. Leaflets 5 to 6 inches long, lanceolate, acuminate, entire, penninerved, pellucido-punctate. Flowers axillary, fasciculate, in a dense short raceme, much resembling those of the orange and not less fragrant. Calyx monophyllous, forming a short cylinder, 4-lobed at the mouth. Petals white, fleshy, oblong, four times as long as the calyx, at length patent and even reflexed. Stamens eight, united into a white fleshy tube for nearly their whole length, the apices free, and bearing each a linear or oblong-acuminate yellow anther. Pistil as long as the stamens. Ovary seated on a fleshy torus. Style columnar. Stigma large, globose." (*Botanical Magazine, pl. 4522, 1850.*)

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

39538 to 39541. PYRUS spp. Malaceæ. Pear.

From Jamaica Plain, Mass. Presented by Prof. C. S. Sargent, Arnold Arboretum. Cuttings received December 7, 1914. Quoted notes by Prof. Sargent.

39538. PYRUS BRETSCHNEIDERI Rehder.

"(No. 2.) 452–4. Raised from seed sent to the Arnold Arboretum from Peking, China, by Dr. Bretschneider. A pear with yellow, globose, juicy fruits, of fair quality, which we call *Pyrus bretschneideri.* Of great value as a decorative plant and, judging from the quality of the fruit, it has economic possibilities. I believe it is from this species that the best Chinese pears are derived."

39539 and 39540. PYRUS PHAEOCARPA Rehder.

"Raised from seed sent to the Arboretum from Peking, China, by Dr. Bretschneider. This species has very small brown fruit. Of great value as decorative plants."

39539. (No. 3.) 452–7. Fruit globose in form.

39540. (No. 4.) 452–9. Fruit pyriform.

39541. PYRUS OVOIDEA Rehder.

"(No. 5.) 4033. This is remarkable among pears in having ovoid, not obovoid, fruit. The fruit is of fairly good quality, and the tree has ornamental value on account of its large and abundant flowers and its good foliage which, unlike that of any other pear tree, turns to brilliant scarlet in the autumn. Judging by the shape of some of the Chinese fruits of which you have recently sent us photographs, this may be the origin of some of the cultivated Chinese pears. It is possible that one of the parents of the Kieffer pear may be this species. We know *P. ovoidea* only as a cultivated tree. It has long been cultivated in the Arboretum as *P. simonii,* under which name we had it from Kew, where in turn it had come from the museum in Paris. *P. simonii,* however, is a synonym of *P. ussuriensis.*"

39542 and 39543.

From Littleriver, Fla. Presented by Mr. C. T. Simpson. Received December 2, 1914. Quoted notes by Mr. Simpson.

39542. ADENANTHERA PAVONINA L. Mimosaceæ. Circassian bean.

"A large tree from tropical Asia with dark-green bipinnate leaves and spiral pods of lenticular, brilliant red beans. These are used for food

39542 and 39543—Con. (Quoted notes by Mr. C. T. Simpson.)

by the natives of India and are strung into beautiful necklaces. The flowers are brownish, in long spikes. The tree is a rapid grower and is quite ornamental."

39543. KOPSIA ARBOREA Blume. Apocynaceæ.

"A large shrub or small tree belonging to the Apocynaceæ, with spatulate, thick, shining, dark-green leaves in whorls and small white flowers in clusters. These are followed by deep red, almond-shaped, nutlike fruits which are quite ornamental. It is a very handsome tree or large shrub, but it is very tender."

39544. AMYGDALUS sp. Amygdalacæ. **Wild peach.**

From near Chaoyu, near Luanfu, Shansi, China. Collected by Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received November 17, 1914.

"Dried fruits and stones of the real wild peach, collected at an elevation of 4,000 feet above the sea." (*Meyer.*)

39545. ORYZA SATIVA L. Poaceæ. **Rice.**

From Constantinople, Turkey. Presented by Mr. G. Bie Ravndal, American consul general. Received December 7, 1914.

"Information obtained from a rice dealer, whose principal house is in Moudania in the Vilayet of Broussa, shows that about 100 to 150 tons of rice is yearly grown in the district of Pazarkioi-Guemlek and about 150 to 200 tons in the Broussa district, but, owing to the increased amount sown, a crop of 400 tons is expected this year. All of the rice is consumed locally. It is described as being of better quality than that grown in Philippopolis, just across the Turkish frontier in Bulgaria, which is, I am told, very good rice. One kileh (20 okes = 56.40 pounds) of seed rice is usually sown on 3 deunums (2,569.44 square yards), producing 100 to 120 kileh (5,640 to 6,768 pounds) of good unshelled rice. Twenty okes (56.40 pounds) of unshelled rice yields 14 okes (39.48 pounds) of shelled rice. Sowing is usually done in the latter part of April and harvesting in August or the beginning of September. Rice grows in black, loose soil and is well watered by frequent rains as well as, lately, by irrigation canals which keep the soil damp. The cost of this rice, wholesale, is 3¼ to 3½ piasters ($0.143 to $0.154) per oke (2.82 pounds); unshelled rice can be bought for 55 to 60 paras ($0.0605 to $0.166) per oke (2.82 pounds). The past year it was sold for 3½ piasters ($0.154) per oke (2.82 pounds)." (*Ravndal.*)

39546. SACCHARUM OFFICINARUM L. Poaceæ. **Sugar cane.**

From Santiago de las Vegas, Cuba. Presented by Mr. J. T. Crawley, director, Agricultural Experiment Station. Received December 8, 1914.

Crystallina. "Noel Deerr in his 'Cane Sugar,' page 26, says that the *Crystallina* is a Batavian cane and is the lighter of the two purple Batavian canes. It is known in Hawaii as *Rose Bamboo*, in the British West Indies as *White Transparent*, in Cuba as *Cristallina*, and in Louisiana as *Home Purple*. It is of no distinct color, sometimes being a pale or ash color, and at other times a wine-colored cane. Its color depends upon its age and environments, the younger the cane the more color it contains, and the young parts of the same cane are more colored than the older parts. It is a comparatively thin cane, with long joints, and has a longitudinal channel running from the eye

to the next joint above. It is prone to fall down from the effects of high wind, is comparatively soft, and furnishes, when mature, a juice of high sucrose and purity. It is a comparatively hardy cane and will give remunerative crops on soils and under conditions where many other canes would fail. While not immune to the attacks of insects and diseases, it is among the canes which most successfully resist them." (*Crawley.*)

39547 and 39548. PYRUS BETULAEFOLIA Bunge. Malaceæ. **Pear.**

From Jamaica Plain, Mass. Presented by Mr. Jackson Dawson, superintendent, Arnold Arboretum. Received December 8, 1914.

"*Pyrus betulaefolia* was obtained from Dr. Bretschneider from the mountains near Peking, China, and was sown at the Arboretum in 1882, so that our plants are about 31 years of age. (*Dawson.*)

"A slender, quick-growing, graceful tree, 20 to 30 feet high; young shoots covered thickly with a gray felt which persists the whole of the year. Leaves ovate or roundish ovate, 2 to 3 inches long, 1¼ to 1½ inches wide; long pointed, tapered or rounded at the base, regularly and sometimes rather coarsely toothed; downy on both surfaces at first, remaining so on the veins beneath throughout the season; dark green, smooth and lustrous above; stalk 1 to 1¼ inches long, gray felted like the shoot. Flowers 8 to 10 together in a corymb, white, each about three-fourths inch across, on a downy stalk three-fourths to 1 inch long; calyx downy, its short, triangular teeth falling away from the small roundish fruit, which is about the size of a large pea, grayish brown with white dots. Native of North China; introduced to Kew in 1882 through seeds sent by the late Dr. Bretschneider. The chief characteristics of the tree are its quick graceful growth and small fruits not crowned by calyx teeth. Its fruit would appear to be of no value, but the tree is used by the Chinese as a stock on which they graft fruiting pears." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 279.*)

39549. GARCINIA CORNEA L. Clusiaceæ.

From Bronx Park, New York City. Presented by the New York Botanical Garden. Received December 11, 1914.

See S. P. I. Nos. 11721 and 23882 for previous introductions and descriptions.

39550. CASTANEA sp. Fagaceæ. **Chestnut.**

From Nanking, China. Presented by Rev. Joseph Bailie, University of Nanking. Received December 10, 1914.

"Collected inside the city of Nanking, fall of 1914." (*Bailie.*)

39551. DIMOCARPUS LONGAN Louriero. Sapindaceæ. **Longan.**
(*Nephelium longana* Cambess.)

From Oneco, Fla. Presented by Reasoner Brothers. Received December 11, 1914.

39552 and 39553.

From Sibpur, Calcutta, India. Presented by Maj. A. T. Gage, superintendent, Royal Botanic Gardens. Received December 12, 1914.

39552. LAVANGA SCANDENS (Roxb.) Buch.-Ham. Rutaceæ.

See S. P. I. 39537 for previous introduction and description.

39553. MANGIFERA SYLVATICA Roxb. Anacardiaceæ.

Distribution.—A large tree found on the tropical slopes of the Himalayas and in the Khasi Hills, in India.

39554 and 39555.

From Goleta, Cal. Presented by Mr. Joseph Sexton. Cuttings received December 12, 1914. Quoted notes by Mr. Peter Bisset.

39554. DIOSPYROS KAKI L. f. Diospyraceæ. **Persimmon.**

"The parent tree bears staminate flowers in great profusion, as well as pistillate ones; therefore it is valuable as a pollinator for orchards of *kaki* varieties that do not bear staminate flowers. Fruits small to medium in size."

39555. FEIJOA SELLOWIANA Berg. Myrtaceæ. **Feijoa.**

"Cuttings from a variety bearing fruits about 2½ inches in length by 1½ inches in diameter and of excellent quality."

39556 to 39559.

From California. Received at the Plant Introduction Field Station, Chico, Cal. Quoted notes by Mr. Peter Bisset.

39556. DIOSPYROS KAKI L. f. Diospyraceæ. **Persimmon.**

"Scions collected on the place of Mr. K. Stevens, Santa Barbara, Cal., from a tree bearing staminate flowers in abundance, as well as pistillate ones. Will be of value as a pollinator for nonstaminate varieties. Fruits small, but produced in profusion."

39557. CRATAEGUS LAVALLEI F. Herincq. Malaceæ. **Hawthorn.**

"Scions received from Mr. Frank J. Hart, Los Angeles, Cal. A small shrubby tree growing to 20 feet in height, bearing bright orange-colored fruits."

39558. CERATONIA SILIQUA L. Cæsalpiniaceæ. **Carob.**

"Seeds received from Mr. C. W. Beers, horticultural commissioner, Santa Barbara, Cal. Gathered from trees growing in that vicinity. Will be used to grow stocks on which to bud the improved varieties of carobs."

39559. TAMARIX sp. Tamaricaceæ. **Tamarisk.**

"Cuttings of an undetermined variety received from Mr. M. H. Crawford, Del Mar, Cal. The parent tree was about 12 feet in height, the branches long and slender, leaves long and grayish green, giving a plume-like effect."

39560 and 39561. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**

(*Sorghum vulgare* Pers.)

From Bie, Angola, Africa. Presented by Mr. W. H. Sanders, American Board of Missions. Received December 10, 1914.

39560. Brown. **39561.** White.

39562. ALEURITES MONTANA (Lour.) Wilson. Euphorbiaceæ. **Mu-yu tree.**

From Takhing, South China. Presented by Rev. J. K. Robb, American Reformed Presbyterian Church. Received December 10, 1914.

See S. P. I. No. 36897 for previous introduction and description.

39554 and 39555.

From Goleta, Cal. Presented by Mr. Joseph Sexton. Cuttings received December 12, 1914. Quoted notes by Mr. Peter Bisset.

39554. DIOSPYROS KAKI L. f. Diospyraceæ. **Persimmon.**

"The parent tree bears staminate flowers in great profusion, as well as pistillate ones; therefore it is valuable as a pollinator for orchards of *kaki* varieties that do not bear staminate flowers. Fruits small to medium in size."

39555. FEIJOA SELLOWIANA Berg. Myrtaceæ. **Feijoa.**

"Cuttings from a variety bearing fruits about 2½ inches in length by 1½ inches in diameter and of excellent quality."

39556 to 39559.

From California. Received at the Plant Introduction Field Station, Chico, Cal. Quoted notes by Mr. Peter Bisset.

39556. DIOSPYROS KAKI L. f. Diospyraceæ. **Persimmon.**

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"Cuttings of an undetermined variety received from Mr. M. H. Crawford, Del Mar, Cal. The parent tree was about 12 feet in height, the branches long and slender, leaves long and grayish green, giving a plume-like effect."

39560 and 39561. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**

(*Sorghum vulgare* Pers.)

From Bie, Angola, Africa. Presented by Mr. W. H. Sanders, American Board of Missions. Received December 10, 1914.

39560. Brown. **39561.** White.

39562. ALEURITES MONTANA (Lour.) Wilson. Euphorbiaceæ. **Mu-yu tree.**

From Takhing, South China. Presented by Rev. J. K. Robb, American Reformed Presbyterian Church. Received December 10, 1914.

See S. P. I. No. 36897 for previous introduction and description.

39563. SPONDIAS LUTEA L. Anacardiaceæ.

From Bogota, Colombia. Procured through Mr. F. L. Rockwood, clerk of the American Legation. Received December 10, 1914.

"A fruit which is in the market about 3 months of the year. It is reddish yellow, grows on a small tree, like cherries on a small scale. It has never been cultivated, but has a very large seed and a pleasant, slightly acid taste, and the market name is *ciruelas*, which is Spanish for 'plums.' They are about three-fourths of an inch long and oblong in shape, a very handsome fruit. The season lasts only from June to September. This class of fruit is abundant in the valleys of the Andes in a warm climate where the temperature is from 70° to 80°, and it seems to do best below the coffee belt in valleys where it is shaded and well watered. The fruit is very popular in this market, especially among the children, and seems very healthful to use. The price is higher in proportion to other tropical fruits in the Bogota market, owing to the fact that none is cultivated and dependence is placed upon the wild crop only. This fruit is said to counteract the eating of too much meat." (*Rockwood.*)

39564. COUEPIA POLYANDRA (H. B. K.) Rose. Rosaceæ.

From San Jose, Costa Rica. Presented by Mr. Carlos Wercklé. Received December 10, 1914.

39565. COBAEA sp. Polemoniaceæ.

From Guatemala City, Guatemala. Presented by Dr. R. Tejada A. Received December 2, 1914.

"Received from the Helvetia estate, situated in the jurisdiction of San Felipe, Retalhuleu, 2,500 feet." (*Tejada.*)

39566. CUCUMIS MELO L. Cucurbitaceæ. **Muskmelon.**

Seed received through Mr. G. P. Rixford, grown at the Plant Introduction Field Station, Chico, Cal.

South African melon seed, purchased in the San Francisco market. (P. L. H. No. 6117.)

39567. ANNONA DIVERSIFOLIA Safford. Annonaceæ. **Ilama.**

From San Salvador, Central America. Presented by Mr. Ralph D. Cornell, Claremont, Cal., through Mr. Wilson Popenoe, of the Bureau of Plant Industry. Received December 15, 1914.

"Called *Anona blanca* by the natives."

According to Mr. W. E. Safford (*Contr. from the U. S. National Herbarium, vol. 18, pt. 1, p. 19–20*), this interesting and valuable anona is called *ilama* at Colima, Tlatlaya, and Acapulco in southern Mexico. Mr. Safford describes the fruit as large, fleshy, and aromatic, with the juicy pulp frequently pink or rose tinted. It is shaped like a pineapple cheese and is usually covered with large stout protuberances, though sometimes they are lacking in fruits of the same tree. Undoubtedly this is one of the best of the anonas, though rare and little known. It should be given a careful trial in southern Florida and southern California.

39568. CLAUCENA LANSIUM (Lour.) Skeels. Rutaceæ. **Wampi.**
(*Clausena wampi* Oliv.)

From Honolulu, Hawaii. Presented by Mr. J. E. Higgins, Hawaii Experimental Station. Received December 15, 1914.

"This tree is rather rare in Hawaii, but is an interesting species, and I consider it worthy of limited cultivation." (*Higgins.*)

"A small tree, 18 to 20 feet, with luxuriant foliage, native of South China; nearly glabrous pinnate leaves; small dense panicles of whitish sweet-scented flowers, produced in April; fruit ripens in June and July; an edible berry, borne in clusters like the grape, individual fruit nearly globose, the size of a large marble, rough, tough, orangelike rind, pale straw yellow in color and covered with glands full of green balsamic oil; seeds 1 to 3 nearly filling the fruit cavity; a small quantity of almost colorless juicy pulp between the seeds and the rind, with an agreeable, aromatic acid taste. Propagated by seeds and layers. Often used as a dessert fruit, but mostly for preserves. The leaves are used in flavoring." (*Report of the Hawaii Agricultural Experiment Station, 1914, p. 33.*)

39569. AMPELOPSIS MEGALOPHYLLA Diels and Gilg. Vitaceæ.

From Jamaica Plain, Mass. Presented by the Arnold Arboretum. Cuttings received December 17, 1914.

See S. P. I. No. 34537 for previous introduction and description.

39570. CASTANEA sp. Fagaceæ. **Chestnut.**

From Nanking, China. Presented by Rev. Joseph Bailie, University of Nanking. Received December 17, 1914.

39571. MYRISTICA MALABARICA Lamarck. Myristicaceæ. **Kánagi.**

From Bombay, India. Presented by Mr. V. I. Parekh. Received December 14, 1914.

"Jangli candle seeds, which can be obtained from Indian jungles, but are generally neglected. The oil extracted is used for burning purposes only. It contains a resinous substance, very sticky, and expected to turn out to be of some use in preparing alizarine colors or mordant, being oily. Can be had in large quantity if collected at the proper time, at a very small cost." (*Parekh.*)

"A large tree of the western coast from the Konkan southwards in evergreen forests. The seed yields a yellowish oil when bruised or boiled. It is used medicinally and for illumination. The fruit appears to have been used for adulterating the nutmegs and mace of *M. fragrans.* The wood is moderately hard and used in building." (*Watt, Commercial Products of India.*)

39572. CRATAEGUS ARNOLDIANA Sargent. Malaceæ. **Hawthorn.**

From Jamaica Plain, Mass. Presented by the Arnold Arboretum. Received December 17, 1914.

To be grown as stocks. For previous introduction, see S. P. I. No. 34782.

39573. GARCINIA MULTIFLORA Champion. Clusiaceæ.

From Kiayingchow, China. Presented by Rev. George Campbell. Received December 17, 1914.

"*Shan pi pa.* Dr. Chang sent me these fruits and added a note to the effect that people said the fruit is entirely wholesome. It has a pleasant subacid taste, something like an orange, but there is little meat. From a bush with deeply lobed leaves." (*Campbell.*)

39574 and 39575. BERBERIS spp. Berberidaceæ. **Barberry.**

From Elstree, Herts, England. Presented by Hon. Vicary Gibbs, Aldenham House Gardens. Plants received December 21, 1914.

39574. BERBERIS AGGREGATA Schneider.

"This is one of Wilson's recent introductions from China, and was shown (at a Royal Horticultural Society show) as a richly berried, open-spreading bush about 18 inches high. The leaves, dull green above and gray green below, are in axillary rosettes of about nine. They vary from ovate and entire to oblanceolate, with a few teeth or spiny hairs on the upper half, and are generally about one-half by one-fourth inch. The berries are small, nearly globular, and borne in dense close-seated clusters, in one of which we counted as many as 21 berries, though there are, more generally, only half that number. They are a very charming creamy green color, suffused with coral, and reminding one of those of *B. wilsonae.*" (*Gardeners' Chronicle, September 27, 1913.*)

39575. BERBERIS SUBCAULIALATA Schneider.

"A deciduous shrubby western Chinese barberry with strongly angulate branches, oblanceolate leaves, one-half to 1 inch long, acute, rarely 3-pointed at the apex, whitish beneath; flowers in very short 6 to 8 flowered racemes or rarely fascicled, nodding. Fruit globose, red." (*Rehder. In Bailey, Standard Cyclopedia of Horticulture.*)

See S. P. I. No. 37497 for previous introduction.

39576. QUERCUS CYCLOBALANOIDES Trelease. Fagaceæ. **Oak.**

From Vera Cruz, Mexico. Presented by Dr. C. A. Purpus. Received December 21, 1914.

"Fine, large tree, which has, as I am told, a most excellent wood. The oak will grow well in your colonies, Porto Rico, or the Philippines." (*Purpus.*)

39577. CRATAEGUS PINNATIFIDA Bunge. Malaceæ. **Hawthorn.**

From Jamaica Plain, Mass. Presented by the Arnold Arboretum. Received December 21, 1914.

39578. ALSOPHILA sp. **Tree fern.**

From Baguio, Philippine Islands. Presented by Mr. P. J. Wester, horticulturist, Lamao, Bataan. Received December 19, 1914.

"This is a tree fern, attaining a height of about 20 feet, with slender stem and very graceful, growing between 3,000 and 4,000 feet altitude. The stems are now being utilized by the Bureau of Education at their trade school in

Baguio in making flower stands, picture frames, and various small, useful, and ornamental articles for the office or the home, which are really ornamental, picturesque, and distinctly different from anything in that line that I have ever seen. The plants are very abundant, and if the stems would ship successfully and the plants later could be sold at a price that would be remunerative to the importer, you would gain an ornamental that in its line would be second to none." (*Wester.*)

39579 to 39581. CITRUS spp. Rutaceæ.

From Lamao, Bataan, Philippine Islands. Presented by Mr. P. J. Wester, horticulturist, Lamao Experiment Station. Received December 19, 1914. Quoted notes by Mr. Webster.

39579. CITRUS GRANDIS (L.) Osbeck. **Panuban.**
(*Citrus decumana* Murr.)

"*Panuban.* An oblate fruit the size of a large orange, smooth, of the same color as the pummelo, thin skinned, juicy, and well flavored. I have not seen the trees, but believe it to be a hybrid between the pummelo and the orange or mandarin."

"A spiny tree, 3 to 4 meters tall, of robust growth; young growth pubescent; leaves 12 to 17 centimeters long, 4.7 to 8 centimeters wide, oblong ovate, crenate, coriaceous; base rounded; petiole 15 to 23 millimeters long, wing margins narrow, at most 18 millimeters broad, and cuneiform; flowers not seen; fruit 5.7 centimeters long, 7 centimeters in transverse diameter; oblate with shallow apical cavity; surface smooth, lemon yellow; skin very thin; pulp contained in 11 to 12 locules, yellowish, fairly juicy, subacid, acidity and sweetness well blended, aromatic and well flavored; seed large, polyembryonic. The *panuban* is said to bloom about New Year, and the fruit ripens in September to November; the trees are reported to be very prolific. The *panuban* has been reported only from Lias, Bontoc, where half a dozen trees are said to grow. Possibly it may be an accidental hybrid between the pummelo and the orange or mandarin; if it is simply a mutation it is one of the most striking of the species. However this may be, the pummelo character is strongly dominant in both the foliage and the fruit. Very well flavored, the fruit is too dry to be acceptable to a discriminating public, but it is not improbable that under cultivation the juiciness would increase. In such a case the *panuban* might become a fruit of commercial importance." (Adapted from *Philippine Agricultural Review, vol. 8, first quarter, 1915, p. 12.*)

39580. CITRUS MEDICA ODORATA Wester. **Tihi-tihi.**

"*Tihi-tihi,* the leaves of which analyze 0.6 per cent of essential oil. The plant is a shrub, fruiting three years from seed; the fruit is of no value.

"A small, thorny shrub, seldom exceeding 2.5 meters in height, with sharp, stout spines; young growth bright green; leaves 7.5 to 11 cm. long, 4.3 to 6.5 cm. broad, elliptical, rather thick and leathery, serrate, of distinct fragrance; base rounded; apex notched; petioles very short, 4 to 6 mm. long, not winged; flowers one to four, in axillary compressed cymes, sessile, rarely exceeding 38 mm. in diameter; calyx large, prominently cupped; petals four to five, fleshy, white, with a tinge of purple

39579 to 39581—Continued. (Quoted notes by Mr. P. J. Wester.) on the outside; stamens 36 to 42, unequal, shorter than stigma; filaments united in groups of four to six; pollen abundant; gynœcium frequently aborted; ovary elevated on a bright green disk, large, 4 mm. long, 13 to 14 loculed; style tapering from ovary, scarcely more slender, rather short; stigma large, knoblike, and cleft; fruit 60 to 65 millimeters long, 7 to 10 cm. in transverse diameter, weighing 300 to 475 grams, oblate, with a shallow basal cavity, and sometimes a mammillate apex, more or less ridged longitudinally, fairly smooth, clear lemon yellow; lenticels scattered, depressed; oil cells large, equal or a trifle raised; skin rather thick; pulp grayish, rather dry, sharply acid, of lemon flavor; juice cells long and slender; seeds many, sometimes 125 in a single fruit, short, broad, and flattened. The *tihi-tihi* is a rare plant found in cultivation in Cebu and Bohol; one plant has been seen in Misamis, Mindanao. The plant is very precocious, fruiting as early as the third year from seed, everbearing. The fruit is used by the Filipinos in washing their hair. It is not eaten, and is of no commercial importance. The *tihi-tihi* differs from the citron in its green, tender, highly aromatic growth, the leaves having been found to contain 0.6 per cent essential oil, as analyzed by the Bureau of Science. The fruit is strikingly different from the citron." (*Citrus Fruits in the Philippines, Agricultural Review, first quarter, 1915.*)

39581. CITRUS MEDICA NANA Wester.

"Seeds of a lemon that fruits the second year from seed and is exceedingly prolific. The fruit is dry and seedy, but the variety might be useful in hybridization work for the production of very dwarf and precocious varieties."

39582. ALEURITES FORDII Hemsley. Euphorbiaceæ. **Tung tree.**

Grown at the Plant Introduction Field Station, Rockville, Md., under station No. 6587.

Plants grown from seed received from Mr. S. H. Gaitskill, McIntosh, Fla., from trees growing on his place, which were sent to him by the Office of Foreign Seed and Plant Introduction.

39583. CASIMIROA EDULIS La Llave. Rutaceæ. **White sapote.**

Grown at the Plant Introduction Field Station, Miami, Fla.

Plants grown from seed of selected fruits taken from a tree growing at the station, Miami, Fla.

39584. LAUROCERASUS ILICIFOLIA (Nutt.) Roemer. Amygdalaceæ. (*Prunus ilicifolia* Walp.)

Plants grown at the Plant Introduction Field Station, Chico, Cal.

"An evergreen tree, attaining a height of 30 feet and forming a dense crown. Leaves hollylike, thick and shiny. Tree bears small, white flowers in slender racemes less than 2 inches long; red or black fruits, one-half inch in diameter, of a pleasant subacid flavor, but somewhat astringent. Trees suitable for hedges." (*Peter Bisset.*)

38585 and 39586.

From Jamaica Plain, Mass. Presented by the Arnold Arboretum. Received December 24, 1914.

To be grown as stocks.

39585. CRATAEGUS LAUTA Sargent. Malaceæ. **Hawthorn.**

"A spiny arborescent shrub, allied to *C. ellwangeriana*, with ovoid fruit, bright orange-red, three-quarters of an inch long. Much planted in Boston parks, but of unknown origin." (*Rehder. In Bailey, Standard Cyclopedia of Horticulture.*)

39586. KALOPANAX RICINIFOLIUS (S. and Z.) Miquel. Araliaceæ.
(*Acanthopanax ricinifolium* Seem.)

See S. P. I. Nos. 20312 and 34783 for previous introductions and description.

39587 and 39588. HOLCUS spp. Poaceæ.

From Algiers, Algeria. Presented by Dr. L. Trabut. Received December 21, 1914. Quoted notes by Dr. Trabut.

39587. HOLCUS HALEPENSIS × SORGHUM.

"Var. *annuum*. Called *Mezera* by the natives. 1914."

39588. HOLCUS HALEPENSIS × SORGHUM.

"Described as a variety cultivated in the same region which hybridizes with *H. halepensis* and gives the *Mezera*, but under cultivation apparently a hybrid between Johnson grass and sorghum."

39589. PHASEOLUS MUNGO L. Fabaceæ. **Urd.**

From Manila, P. I. Presented by Mr. William S. Lyon. Received December 19, 1914.

"Seeds of a native Phaseolus. I lay no claim to its virtues as a seed producer; indeed I have it growing side by side with a number of other species, and I find it relatively inferior as such, but as a cover crop I have wholly discarded all of the scores of leguminous plants I have tested in favor of this. I have made distribution of the seeds to a number of abaca planters and they are most enthusiastic over its utility in young hemp plantations. Like myself, they all have come to discredit cowpeas and all velvet beans, *Lyon* included, for the reason that in good soils the growth of the cover crop is so exuberant that except at great outlay for labor any plants under 1 meter tall are smothered out of existence. On the other hand, in old plantations which are fairly well shaded the cowpeas and velvet beans make a spindling and inefficient growth to accomplish the main purpose of choking out a number of objectionable weeds and grasses which, notwithstanding the shade, flourish to the detriment of the abaca. I have more than an acre now in my rose garden and for two seasons have grown this bean to the exclusion of all others. It makes a low, dense, spreading mat about a foot thick and not much disposed to climb; the result is I am able to plant two crops a year among my dwarf rose bushes without choking them, with a marked saving in cultivation and irrigation, as well as a marked improvement in the quantity and quality of the flowers obtained." (*Lyon.*)

39590 and 39591. HORDEUM VULGARE L. Poaceæ. **Barley.**

From Maison Carree, Algeria. Presented by Mr. I. Ducellier, Algerian Agricultural School. Received December 10, 1914.

"Square barley."

39590. From the valley of the Cheliff.

39591. Grown on the high plateau of the valley of Constantine.

39592. HORDEUM VULGARE L. Poaceæ. **Barley.**

From Barquisimeto, Venezuela. Through Mr. Thomas W. Voetter, American consul, La Guaira. Received December 22, 1914.

"This seed was grown near Barquisimeto, in the Puerto Cabello consular district. I have been able to learn of no other vicinity in Venezuela besides this where barley is grown." (*Voetter.*)

39593. ROSA ODORATA GIGANTEA (Collett) Rehder and Wilson. Rosaceæ. **Rose.**

From Hollywood, Cal. Presented by Mr. E. D. Sturtevant. Received December 24, 1914.

See S. P. I. Nos. 27301 and 28030 for previous introductions and description.

"The giant rose of the Himalayas (*Rosa gigantea*) probably has larger flowers than any other wild rose in existence. In their native forests the flowers often reach a diameter of 6 inches; cultivated they should exceed this. The rose is furthermore a vigorous grower. It was introduced to the United States in 1902 by the Office of Foreign Seed and Plant Introduction of the United States Department of Agriculture, and on a number of occasions since then, and it at once attracted the interest of hybridizers, who try to retain its size and vigor while increasing its hardiness by crossing with a more cold-resistant specimen. Dr. F. Franceschi, of Santa Barbara, Cal., has made several hybrids which showed vigor and hardiness as well as great beauty, the flowers being creamy white with yellow centers. At the Botanic Gardens in Lisbon, Portugal, it has been crossed with the well-known rose Reine Marie Henriette, and large, rich, orange-yellow flowers produced. In warmer regions, such as California, the Southern States, and the Riviera of the Mediterranean, it is cultivated for its own sake, and its flowers, sometimes not borne very profusely, are often pure gold in color. Sir Joseph Hooker mentions a red form in Sikkim, India, but the best known type is white. Its fruit, as large as a small apple, is edible and sometimes sold in the Indian markets. The bush often makes a growth of 40 feet or more, dropping its blossoms (which at a short distance look like clematis) from the tops of tall trees in upper Burma and western China. It flourishes best in shade." (*American Breeders' Magazine, vol. 4, p. 108–109, 1913.*)

39594 to 39609.

From Shiraz, Persia. Presented by Col. J. N. Merrill. Received December 21, 1914. Quoted notes by Col. Merrill.

39594. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**
(*Sorghum vulgare* Pers.)

"No. 1. Sorghum corn from Goshne Kon."

39595. HORDEUM DISTICHON L. Poaceæ. **Barley.**

"No. 2. Barley from Fariab."

39594 to 39609—Continued. (Quoted notes by Col. J. N. Merrill.)

39596. HOLCUS SORGHUM L. Poaceæ. **Sorghum.**
(*Sorghum vulgare* Pers.)

"No. 3. Sorghum of Shiraz."

39597. HORDEUM DISTICHON L. Poaceæ. **Barley.**

"No. 4. Barley from Mardasht. This is dry cultivated, i. e., gets very little water."

39598 and 39599. TRITICUM AESTIVUM L. Poaceæ. **Wheat.**
(*Triticum vulgare* Vill.)

39598. "No. 5. Wheat from Fariab."

39599. "No. 6. Wheat of Mardasht. Dry cultivated, getting very little water."

39600. PANICUM MILIACEUM L. Poaceæ. **Millet.**

"No. 7. Millet from Koshkehidak."

39601 and 39602. TRITICUM AESTIVUM L. Poaceæ. **Wheat.**
(*Triticum vulgare* Vill.)

39601. "No. 8. Wheat from Siyakh."

39602. "No. 9. Wheat from Bavanat."

39603. ORYZA SATIVA L. Poaceæ. **Rice.**

"No. 10. Rice from Deh Noo."

39604 to 39606. TRITICUM AESTIVUM L. Poaceæ. **Wheat.**
(*Triticum vulgare* Vill.)

39604. "No. 11. Wheat from Ramjerd."

39605. "No. 12. Wheat from Garm Sir; Garm Sir means the warm country and refers to the part of Fars Province where the nomad tribes go to spend the winter; it is not far from the Persian Gulf."

39606. "No. 13. Wheat from Sarhad."

39607 to 39609. ORYZA SATIVA L. Poaceæ. **Rice.**

39607. "No. 14. Rice from Shames Abad."

39608. "No. 15. Rice from Ali Abad."

39609. "No. 16. Rice from Gel Khan."

39610 to 39617. IPOMOEA BATATAS (L.) Poir. Convolvulaceæ. **Sweet potato.**

From Cuba. Presented by Mr. Juan T. Roig, botanist, Agricultural Experiment Station, Santiago de las Vegas, Cuba. Received December 31, 1914. Quoted notes by Mr. Roig.

"These varieties have been planted from vines in average soil, unfertilized and not irrigated except at the time of planting. The yield notes accompanying each variety have been obtained from the following calculation based on the result of the crop this year. The varieties have been planted three times successively at the station and the tubers tested as many times. The vines were planted at the distance of 33 cm. between plants and 1 meter between rows, which makes three plants per square meter, that is, 402,000 plants in a caballería, a Cuban land measure equivalent to 33⅓ acres. I have assigned 400,000 plants in round numbers to each caballería. Sweet potatoes are com-

monly planted in Cuba at the distance of 30 cm. between plants and one Cuban vara (848 mm.) between rows. The prices here at present are 30 cents to the arroba (25 pounds) as sold to the dealer by the guajiros (peasants). The dealer sells the sweet potatoes at 2 cents per pound. The numbers of the varieties refer to my collection. The time for each to mature is six months."

39610. "No. 189. *Sapotillo*, yellow inside. From El Caney, Oriente; 20,869 arrobas per caballería."

39611. "No. 107. *San Juan*, white. From Zarzal, Oriente; 36,051 arrobas per caballería."

39612. "No. 126. *Martinica morado*. From Bayamo, Oriente; 83,478 arrobas per caballería."

39613. "No. 20. *Brujo morado*, yellow inside. From Cienfuegos, Santa Clara; 7,192 arrobas per caballería; June."

39614. "No. 28. *Disciplinado colorado*, white. From Camaguey; 33,285 arrobas per caballería."

39615. "No. 148. *Jiguani*, white inside. From Jiguani, Oriente; 33,964 arrobas per caballería."

39616. "No. 33. *Centauro amarillo*, pale yellow. From Camaguey; 23,130 arrobas per caballería. To this variety a prize was awarded in the Camaguey Agricultural Exhibition."

39617. "No. 229. *Amarillo*, pale yellow. From Camaguey; 32,800 arrobas per caballería."

39618. CASTANEA sp. Fagaceæ. **Chestnut.**

From Songdo, Chosen (Korea). Presented by Rev. C. H. Deal, Anglo-Korean School. Received December 28, 1914.

39619. CLEMATIS sp. Ranunculaceæ. **Clematis.**

From Jamaica Plain, Mass. Presented by the Arnold Arboretum. Received December 10, 1914.

Arnold Arboretum No. 7391.

39620. PUNICA GRANATUM L. Punicaceæ. **Pomegranate.**

From Mobile, Ala. Presented by Mr. Marsena A. Parker. Received December 2, 1914.

"The largest of the fruits weigh 1¼ to 1½ pounds and are about the size of an average grapefruit; skin is yellow with occasionally a brownish spot; seeds are pink; and the flavor is good, rather sweet, and when fully ripe, just as they burst open, extremely sweet."

39621. PRUNUS SERRULATA Lindl. Amygdalaceæ. **Flowering cherry.**

From Yokohama, Japan. Purchased from the Yokohama Nursery Co., Ltd. Received December 29, 1914.

For previous introduction, see S. P. I. No. 32860.

"Seeds of the wild cherry of Japan upon which the Japanese graft their flowering cherries. The Yokohama Nursery Co. is authority for the statement that this wild cherry can be reproduced very easily from cuttings and that the scions of many varieties are grafted on it and not budded, as is the custom in

this country with the flowering cherries. It has been suggested that this new stock may possibly be easier to cultivate than the mazzard or mahaleb seedlings which are now in use and the propagating work done in the winter on the bench instead of in the field. The difficulty in getting a stock that is large enough to bud in regions where the leaf-blight seriously attacks the mazzard or mahaleb seedlings has suggested a trial of this Japanese wild cherry, which is quite immune to the leaf-blight and which possibly may be a way out of this difficulty Recent tests in this country have shown that this wild form strikes root readily in sand." (*Peter Bisset.*)

39622 to 39625.

From Bogota, Colombia. Presented by Señor Jorge Ancizar. Received December 30, 1914. Quoted notes by Señor Ancizar.

39622. ANNONA CHERIMOLA Miller. Annonaceæ. **Cherimoya.**

39623. PERSEA AMERICANA Miller. Lauraceæ. **Avocado.**
(*Persea gratissima* Gaertn.)

39624. SOLANUM TUBEROSUM L. Solanaceæ. **Potato.**

"Small potatoes that come much earlier than any other potatoes and are very much appreciated here. They are yellow inside."

Tubers.

39625. CEREUS sp. Cactaceæ. **Pitahaya.**

"*Pitahaya*, a kind of creeping cactus that bears a beautiful large white flower and gives a very nice fruit; to be eaten with a little sugar and wine sometimes."

Cuttings.

39626. THUNBERGIA GIBSONI S. Moore. Acanthaceæ.

From Lawang, Java. Presented by Mr. M. Buysman, Botanic Gardens. Received December 26, 1914.

"From eastern tropical Africa; it is a fine climbing plant with fiery orange-red flowers." (*Buysman.*)

"The flowers are clear orange color, about 1¼ inches in diameter. They rise solitary from the leaf axils of the prostrate growths on erect 3-inch purplish pedicels, and burst through one side of the balloonlike paired and united crimson-stained bracts. The leaves are opposite, about an inch long, triangular, firm textured, and glossy above. Introduced from British East Africa." (*Gardeners' Chronicle, May 17, 1913.*)

39627 to 39630.

From Petrograd, Russia. Presented by the director, Imperial Botanic Garden. Received December 28, 1914.

39627 to 39629. TAMARIX spp. Tamaricaceæ. **Tamarisk.**

39627. TAMARIX KARELINI HIRTA Litv.

From Turkestan.

39628. TAMARIX PENTANDRA Pallas.

Var. *brachystachys*. On clayey deserts, Farab, Bokhara, Turkestan, October 23, 1914. Collected by Mr. H. B. Androsov.

39627 to 39630—Continued.

The species is described as "A deciduous shrub or small tree, ultimately from 12 to 15 feet high, or upward, with long, slender plumose branches. Leaves very small, pointed, the largest one-eighth inch long, arranged at intervals along the flowering shoots; the smallest one-fifth as large and crowded 50 or more to the inch. Flowers arranged densely in slender, sometimes branching racemes, 1 to 5 inches long, each tiny blossom one-eighth inch across, rosy pink; they cover the whole terminal part of the current year's shoot, which is thus transformed during August into a huge plumelike panicle of blossom as much as 3 feet long. Sepals, petals, and stamens all 5 in number. Native of southeastern Europe and Asia Minor, especially on the banks of tidal rivers. This beautiful tamarisk is quite hardy and one of the most pleasing of late-flowering shrubs. It should be planted in groups large enough for its soft, rosy plumes to produce an effect in the distance. To obtain it at its best, it is necessary to cut it back every winter almost to the old wood. It then sends up the long slender branches which flower for six weeks or so in August and September. It is propagated with the greatest ease by making cuttings, 6 to 9 inches long, in early winter of the stoutest part of the season's growth, and putting them in the ground out of doors, like willows. It has been called a variety of *T. hispida*, but that species is very distinct in its downy twigs and leaves." (*W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 2, p. 575–577.*)

39629. TAMARIX FLORIDA ALBIFLORA Bunge.

Edge of sandy deserts, Farab, Bokhara, Turkestan, October 14, 1914. Collected by Mr. H. B. Androsov.

39630. MYRICARIA GERMANICA (L.) Desv. Tamaricaceæ.

A shrub from 6 to 8 feet high, with very narrow flat leaves, and spikes of pink flowers, indigenous through most parts of Europe and the Caucasus and extending into the Himalayas. This species belongs to a genus separated from Tamarix and containing those plants of the order Tamaricaceæ which have 10 stamens and feathery seeds inserted in the middle of the valves of the capsule. The stems of this species are slender, striate, glaucous green when young and the leaves are linear lanceolate. Racemes 1 to 18 inches long, spiked, lateral or terminal, and the bracts have broad membranous margins. The branches of this species are employed in the Himalayas as a fodder for sheep and goats and the wood, which is hard and of a whitish color, is used for fuel. (Adapted from *Hooker, Flora of British India, Watt, Dictionary of the Economic Products of India,* and *Lindley, Treasury of Botany.*)

39631 to 39634.

From Nanking, China. Presented by Rev. Joseph Bailie, University of Nanking. Received December 31, 1914. Quoted notes by Mr. Bailie.

39631. ZANTHOXYLUM BUNGEI Planchon. Rutaceæ.

"*Hua chiao.* Leaves of shrub and seeds used in flavoring."

39632. SOLANUM DULCAMARA L. Solanaceæ.

"A perennial vine of the nightshade family, with beautiful red berries that make the hedges look ornamental."

39631 to 39634—Continued. (Quoted notes by Rev. Joseph Bailie.)

39633. CLEMATIS sp. Ranunculaceæ. **Clematis.**

"Purple mountain clematis."

39634. LONICERA sp. Caprifoliaceæ. **Honeysuckle.**

"Red-berried shrub having flowers like those of woodbine or honeysuckle. Shrub just now (November 21) is beautiful with red berries."

39635. ALEURITES FORDII Hemsley. Euphorbiaceæ. **Tung tree.**

From Riverside, Cal. Presented by Mr. Fred M. Reed. Received at the Plant Introduction Field Station, Chico, Cal., December 30, 1914.

"Being on a main-traveled road and a strange-looking tree, they attract a great deal of attention, and people carry them off as curiosities and occasionally eat them." (*Reed.*)

39636 to 39660.

From Darjiling, India. Presented by Mr. G. H. Cave, Lloyd Botanic Garden. Received December 15, 1914.

39636. ALBIZZIA LEBBECK (L.) Benth. Mimosaceæ. **Lebbek.**

See S. P. I. Nos. 9038 and 18509 for previous introductions and description.

"This tree, which is used in Reunion as a shade crop for coffee, bears the names there of *noir blanc, noir rouge;* its wood is white, with red, brown, or reddish black heart, solid, well veined, and gives good knees for boat building; it is employed in turnery, cabinetmaking, and for wheelwright work. Exposed to the weather it does not last more than 10 or 15 years. The trunk yields a gum analogous to gum arabic. In Senegal the astringent bark and seeds are employed for diarrhea, dysentery, and hemorrhoids. The oil extracted from the seeds is used for leprosy. The flowers are emollient and applied in cataplasms for boils, etc." (*De Lanessan, Les Plantes Utiles des Colonies Françaises.*)

39637. ANTHOCEPHALUS CADAMBA (Roxb.) Miquel. Rubiaceæ.

"A large deciduous tree, wild in northern and eastern Bengal, Pegu, and the western coast; cultivated in northern India. During the first two or three years it grows very fast, about 10 feet a year, the girth increasing at the rate of 1 inch a month. After 10 or 12 years the growth becomes very slow. The bark is used medicinally as a febrifuge and tonic. The fruit is eaten, and the foliage is sometimes used as fodder for cattle. The wood is white, with a yellowish tinge, soft and evenly grained, and much used for building purposes. This species is cultivated for ornamental purposes and for the grateful shade its large, coarse foliage affords." (*Watt, Dictionary of the Economic Products of India.*)

39638. BOEHMERIA RUGULOSA Weddell. Urticaceæ.

"A small tree with grayish-brown branches met with in Garhwal, Kumaon, Nepal, Sikkim, and Bhutan. The wood is of a reddish color, moderately hard, evenly grained, durable, and seasons well. It weighs about 41 pounds per cubic foot and is very easily worked. It is used in the manufacture of bowls, milk pails, churns, cups, and tobacco boxes." (*Watt, Dictionary of the Economic Products of India.*)

39636 to 39660—Continued.

39639. BUCKLANDIA POPULNEA R. Brown. Hamamelidaceæ.

"A large evergreen tree attaining a height of 80 feet, met with in the eastern Himalayas, Khasi Hills, and the Hills of Martaban, from 3,000 to 8,000 feet above the level of the sea. The wood is a grayish brown, rough, moderately hard, close-grained, and durable. It is extensively used in Darjiling for planking and for door and window frames." (*Watt, Dictionary of the Economic Products of India.*)

39640. CASSIA LAEVIGATA Willd. Cæsalpiniaceæ.

See S. P. I. No. 3324 for previous introduction.

"A glabrous shrub native of the American Tropics, with 3 to 4 pairs of ovate-oblong or ovate-lanceolate acuminate leaflets, and yellow flowers in terminal or axiliary racemes. Pod leathery, 2 to 3 inches long, nearly cylindrical." (*Bailey, Standard Cyclopedia of Horticulture.*)

39641. DICHROA FEBRIFUGA Loureiro. Hydrangeaceæ.

"A somewhat virgate, rare greenhouse shrub, 5 to 9 feet tall, with lanceolate or obovate-lanceolate leaves 8 inches long and glabrous except on the nerves. In habit this species resembles a hydrangea, with violet-blue flowers in pyramidal panicles a foot across and handsome blue berries. The genus Dichroa consists of a single species and is found in the Himalayas, Malaya, and China, occurring in the temperate Himalayas at altitudes between 5,000 and 8,000 feet. Some authorities state that the Chinese form has larger flowers than this Indian one." (*Bailey, Standard Cyclopedia of Horticulture.*)

39642. EDGEWORTHIA GARDNERI (Wall.) Meissn. Thymelaeaceæ.

See S. P. I. Nos. 9162 and 23754 for previous introductions and description.

"A large bush found in the Himalayas at between 4,000 and 9,000 feet elevation. The strong, tough fiber obtained from the long, straight, sparsely branched twigs of this bush must, sooner or later, become one of the most valuable of Indian fibers. The finest qualities of Nepal paper are made from this plant, which produces a paper whiter than that obtained from *Daphne cannabina.*" (*Watt, Dictionary of the Economic Products of India.*)

39643. FICUS HOOKERI Miquel. Moraceæ.

"A tree with all its parts glabrous; leaves thinly coriaceous, long petiolate, broadly elliptic or subovate elliptic, with short, broad, blunt apical cuspis, edges entire, base rounded or slightly narrowed, 3-nerved; lateral nerves six to eight pairs, not very prominent; under surface pale; length 5 to 11 inches; stipules linear lanceolate, flaccid, 1.5 to 3.5 inches long, caducous; receptacles axillary, in pairs, sessile, obovate, depressed, when ripe from 0.5 to 1 inch across; the large basal bracts united to form an entire cartilaginous cup which envelops the lower third of the ripe receptacle; male flowers numerous, scattered, with no proper perianth, stamen single on long filament which is embraced by the lanceolate scales of the receptacle; gall and fertile female flowers alike, except as regards the contents of the ovary, the perianth of four to five linear-lanceolate pieces, achenes of a very dark brownish color, style rather short, thick. Habitat, Sikkim Himalayas and Khasi Hills, from 2,000 to 6,000 feet. Not common. At once distinguished by the singular cup formed by the united basal bract." (*Annals of the Royal Botanic Garden, Calcutta, vol. 1, p. 36.*)

39636 to 39660—Continued.

39644. HYPERICUM PATULUM Thunberg. Hypericaceæ. **St.-John's-wort.**

See S. P. I. Nos. 1710 and 39118 for previous introductions and description.

A dwarf shrub in England, but said to grow as high as 6 feet high in Japan and the Himalayas. Leaves 1 to 2½ inches long, ovate, deep green above, glaucous beneath. Flowers 2 inches across, borne in a cyme at the end of the shoot; petals bright golden yellow, overlapping, roundish; sepals broadly ovate, one-third inch long. Stamens in 5 bundles. Introduced to Kew from Japan by Oldham in 1862; a native also of China and the Himalayas. It is not absolutely hardy in England (at Kew) and almost always has its stems cut back to ground level during the winter. These spring up again the following season from 1 to 2 feet high and flower from July to October. After a few years the shoots are apt to become more and more weakly and it becomes necessary to renew the stock from cuttings. The only species with which it can be confounded are *H. hookerianum*, from which it differs in the branchlets being 2-edged, especially just beneath the flowers; *H. lysimachioides*, which has narrow, linear-lanceolate sepals; and *H. uralum*, with flowers half the size. (Adapted from *W. J. Bean, Trees and Shrubs Hardy in the British Isles, vol. 1, p. 639.*)

39645. LAUROCERASUS ACUMINATA (Wall.) Roemer. Amygdalaceæ. (*Prunus acuminata* Hook. f.)

See S. P. I. No. 39121 for previous introduction.

39646. LEUCOSCEPTRUM CANUM J. E. Smith. Menthaceæ.

"A tree 30 feet tall with short trunk, found in the temperate Himalayas from Kumaon to Bhutan at altitudes between 2,000 and 8,000 feet. Also in the Khasi Hills between 4,000 and 5,000 feet. The branches are very stout, nearly terete, densely or laxly tomentose or woolly, rarely glabrate. The elliptic-lanceolate, acuminate leaves are 6 to 12 inches long, glabrous above, silvery white, with buff or brown tomentum beneath, mostly variable in thickness, rarely green and glabrate. The corolla is of a whitish or pinkish color." (*Hooker, Flora of British India.*)

39647. LINDENBERGIA HOOKERI C. B. Clarke. Scrophulariaceæ.

39648. LOBELIA ROSEA Wallich. Campanulaceæ.

"A species occurring in the subtropical Himalayas from Kumaon to Bhutan and the Khasi Hills at altitudes of 4,000 feet. It is also abundant in the Terai of North Bengal and Assam. The stem is 4 to 12 feet high, suberect with short horizontal branches with drooping tips. The leaves are rather long, about 6 inches, narrow at both ends and about 1 inch wide in the middle. The corolla is three-fourths inch wide and of a rose or white color. The fruit is subglobose in form and one-third inch in diameter. The seeds are ellipsoid in shape, compressed, and not margined." (*Hooker, Flora of British India.*)

39649. MEMECYLON EDULE Roxb. Melastomaceæ. **Ironwood.**

"An exceedingly common shrub met with in the east and south of India and in Ceylon, Tenasserim, and the Andaman Islands. The leaves

39636 to 39660—Continued.

are employed in South India for dyeing a 'delicate yellow lake.' In conjunction with myrobolans and sappan wood they produce a deep red tinge much used for dyeing grass mats and cloth. The leaves are thought by the natives to be cooling and astringent, but though occasionally given internally they are chiefly employed as a lotion in conjunctivitis. The plant flowers in the beginning of hot weather and produces astringent, pulpy berries which when ripe are eaten by the natives. The wood is hard, close grained, durable, and valuable for many purposes, but very difficult to work. The shrub is very handsome when covered with its dense bloom of blue flowers, and well worth cultivating as an ornamental plant." (*Watt, Dictionary of the Economic Products of India.*)

39650. MORUS LAEVIGATA Wallich. Moraceæ. **Mulberry.**

"A medium-sized tree, wild and cultivated in the tropical and subtropical Himalayas from the Indus to Assam up to 4,000 feet. The flowers appear in the cold weather and the long cylindrical yellowish white or pale-purple fruit ripens from March to May and is eaten by some, though insipidly sweet and of little value. The wood is yellow, with darker streaks of various colors, and is used for boat oars and furniture." (*Watt, Dictionary of the Economic Products of India.*)

39651. OSBECKIA STELLATA Don. Melastomaceæ.

See S. P. I. No. 39126 for previous introduction and description.

39652. PANDANUS FURCATUS Roxb. Pandanaceæ.

"A palmlike tree of northern and eastern Bengal, western India, and Burma. The leaves are used in Burma for making mats, and according to some authorities the leaves of this species are sewn together to make sails for boats. The outer wood is moderately hard, containing satiny, vascular bundles; inner wood soft and spongy; used in Burma for making floats for fishing nets." (*Watt, Dictionary of the Economic Products of India.*)

39653. PHLOGACANTHUS THYRSIFLORUS (Roxb.) Nees. Acanthaceæ.

"A large evergreen shrub found in the sub-Himalayan tract from Kumaon to Assam, the Khasi Hills, and Burma. It is very handsome, with long spikes of flame-colored flowers. The wood is white, moderately hard, and close grained. Often cultivated." (*Watt, Dictionary of the Economic Products of India.*)

39654. PHOENIX OUSELEYANA Griffith. Phœnicaceæ. **Palm.**

See S. P. I. No. 21753 for previous introduction.

39655. RANDIA ULIGINOSA (Retz.) Poir. Rubiaceæ.

"A small deciduous tree of eastern, central, and southern India, but not commonly found in the more northern parts of the Peninsula. The fruit is used in dyeing as a color intensifier and also in medicine as a remedy for diarrhea and dysentery. The fruit when boiled or roasted is eaten by the natives as a vegetable, either alone or in curries. The leaves are boiled and eaten as greens and also serve as fodder for cattle. The wood is whitish gray, closely grained, and hard, but not used for any special purpose. The unripe fruits are used as a fish poison." (*Watt, Dictionary of the Economic Products of India.*)

39636 to 39660—Continued.

39656. RUBIA CORDIFOLIA L. Rubiaceæ. **Indian madder.**

An herbaceous creeper with perennial roots which is met with in the hilly districts of India from the northwest Himalayas eastward and southward to Ceylon. The *Manjit root* or *East Indian madder* is obtained for the most part from this species and is much employed by the natives of India for dyeing coarse cotton fabric or the threads from which it is woven various shades of scarlet, coffee brown, or mauve. The East Indian madder of commerce consists of a short stalk, from which numerous cylindrical roots about the size of a quill diverge. These are covered with a thin brownish pulp, which peels off in flakes, disclosing a red-brown bark marked by longitudinal furrows. Many different methods are used for dyeing with this madder, a short account of which may be found in Watt, Dictionary of the Economic Products of India.

39657. RUBUS CALYCINUS Wallich. Rosaceæ.

"A species native to the eastern and central temperate Himalayas and found in Sikkim as high as 9,000 feet above the sea and in Bhutan as high as 8,500 feet. This slender prickled species has a creeping stem which sometimes reaches 3 feet. The leaves are 1 to 3 inches in diameter and sometimes hairy beneath. The solitary or twin flowers are 1 inch in diameter and borne on erect 1 to 2 leaved shoots. This is very near a Philippine Island species, which has smaller flowers." (*Hooker, Flora of British India.*)

39658. RUBUS ROSAEFOLIUS Smith. Rosaceæ.

"A small shrub found in the temperate Himalayas from Kumaon to Sikkim at altitudes between 5,000 and 7,000 feet. It occurs also in the Khasi Hills and on the Hills of Ava and Martaban, and is distributed to Java. It is naturalized and cultivated in the Tropics and warm temperate regions, and in cultivation often has double flowers. The fruit is large, red, edible, and is frequently sold in Darjiling markets." (*Watt. Dictionary of the Economic Products of India.*)

39659. SENECIO SCANDENS Hamilton. Asteraceæ.

See S. P. I. No. 39080 for previous introduction.

39660. SOLANUM VERBASCIFOLIUM L. Solanaceæ.

"A shrub or small tree frequently met with throughout India in the tropical and subtropical regions and distributed to southeastern Asia, Malay, North Australia, and the tropical Americas. Used medicinally by the natives, but its properties are unimportant. In southern India it is cultivated for its fruit, which is eaten in curries. The wood is light yellow in color and of soft texture." (*Watt, Dictionary of the Economic Products of India.*)

39661. COMMELINA SIKKIMENSIS C. B. Clarke. Commelinaceæ.

From Sibpur, near Calcutta, India. Presented by the superintendent, Royal Botanic Garden. Received December 30, 1914.

A species occurring in the Himalayas from Sikkim to Assam at altitudes ranging from 2,000 to 4,000 feet.

39662 to 39664.

From Darjiling, India. Presented by Mr. G. H. Cave, Lloyd Botanic Garden. Received December 15, 1914.

39662. TOONA CILIATA Roemer. Meliaceæ. **Toon tree.**
(*Cedrela toona* Roxb.)

See S. P. I. Nos. 22076, 31250, and 32826 for previous introductions and description.

"A very handsome tree on account of its long, feathery, graceful leaves, which when young are of a crimson tint. It grows to a height of 40 to 50 feet and yields fine timber, which is of commercial importance." (*Macmillan, Handbook of Tropical Gardening and Planting.*)

"The timber is durable, not eaten by white ants, and not liable to warp. It is therefore much in demand for furniture and carvings, especially in Seharunpur, and in Bengal and Assam is constantly used for tea boxes, hence its having become scarce. . . . The bark is used, along with a powder of the nuts (seeds) of *Caesalpinia bonducella*, as a tonic and antiperiodic in native medicine. The flowers afford a red and yellow dye. The seeds, young shoots, and leaves are given as a fodder to cattle." (*Watt, Commercial Products of India.*)

39663. TRACHYCARPUS MARTIANA (Wall.) Wendl. Phœnicaceæ. **Palm.**

See S. P. I. No. 38739 for previous introduction and description.

39664. TETRASTIGMA BRACTEOLATUM (Wall.) Planchon. Vitaceæ.
(*Vitis bracteolata* Wall.)

"A species with smooth stems and numerous minute flowers, found in Bhutan and Assam. The stems and the trifoliate leaves are glabrous and the branches are very slender, with leaves 3 to 5 inches long. The fruit is 2 to 3 seeded, of the size of a pea, round in form and black in color. The flowers of this species are by far the smallest of the genus." (*Hooker, Flora of British India.*)

39665 to 39674.

From Sibpur, near Calcutta, India. Presented by the superintendent, Royal Botanic Garden. Received December 30, 1914.

39665. CURCULIGO RECURVATA Dryander. Amaryllidaceæ.

"A stemless tuberous-rooted herb 2½ or more feet high, native of tropical Asia and Australia. The leaves are formed from the roots, and are also the drooping yellow flowers which appear almost on the ground. It is used by florists for vases, jardinieres, and all other general decorative work. To be at its best it should be planted in a bed where it will attain a height of 5 feet. When planted in this manner it is a very desirable summer ornamental. The graceful arching leaves are so constructed that they move from side to side with the slightest movement of the air. This species is propagated by division and the pieces if placed in sand in a warm greenhouse will root readily before potting." (*Bailey, Standard Cyclopedia of Horticulture.*)

39666. FICUS HOOKERI Miquel. Moraceæ.

See S. P. I. Nos. 39114 and 39643 for previous introductions and descriptions.

39667 and 39668. ILEX spp. Aquifoliaceæ. **Holly.**

39667. ILEX FRAGILIS Hook. f.

A small tree with very brittle, quite glabrous branches which is found in the Sikkim and Bhutan Himalayas at altitudes of 7,000

39665 to 39674—Continued.

to 10,000 feet and in the Khasi Mountains at Sururem as high as 5,000 feet. The leaves are of a bright deep-green color and more membranous than any of the other Indian species. They are very strongly reticulate, with many raised nerves beneath the petiole, one-half to two-thirds inch long. The flowers are one-eighth inch in diameter and fascicled. The fruit, which is borne on short, stout pedicels, is one-sixth inch in diameter, fleshy, red, globose; stigma rather large and tumid; stones thickly coriaceous. (Adapted from *Hooker, Flora of British India.*)

39668. ILEX INTRICATA Hook. f.

A low, rigid, straggling shrub, forming matted masses with interlaced woody branches, found in the Sikkim and East Nepal Himalayas as high as 11,000 feet above the sea. The branchlets are stout, angled, and rigid; the ridges warted. The leaves are spreading, thickly coriaceous, of a bright green color, and narrowed into very short petioles. The flowers are one-tenth inch in diameter, and the sessile fruit is globose in form and red in color. (Adapted from *Hooker, Flora of British India.*)

39669. IMPATIENS LONGIPES Hook. f. and Thoms. Impatientaceæ.

A very distinct plant 4 to 5 feet in height found in the temperate Sikkim Himalayas from 8,000 to 10,000 feet above the level of the sea. This species has scattered uniform leaves and long, axillary, subhorizontal peduncles 2 to 5 inches long. Leaves 3 to 5 inches, membranous, rather falcate; petiole one-fourth to one-half inch. Flowers loosely racemed, pale yellow, unspotted; buds rounded at the apex, sepals sometimes four, ovate lanceolate; lateral winged lobe rounded, terminal 1 inch, broadly subulate. Hooker states that he has not seen any other habitat for this species but Sikkim. In the form of flower it is most allied to *Impatiens laxifolia* and its allies. (Adapted from *Hooker, Flora of British India.*)

39670. PIPTANTHUS NEPALENSIS (Hook.) Sweet. Fabaceæ.

See S. P. I. Nos. 39043 and 39128 for previous introductions and description.

39671. SAMBUCUS JAVANICA Reinw. Caprifoliaceæ.

"This is a very widely distributed species ranging from the Malayan Archipelago to central Japan and western China and has also been found in eastern Africa. It is characterized by the slender-pedicelled flowers, the presence of conspicuous abortive flowers, and the very wide and loose inflorescence with the longer rays subthyrsoid. It has red fruits and shows a tendency to have the upper leaflets more or less adnate to the rhachis and sometimes decurrent." (*Sargent, Plantae Wilsonianae, part 2, p. 307.*)

39672 and 39673. SOLANUM spp. Solanaceæ.

39672. SOLANUM sp.

39673. SOLANUM TORVUM Swartz.

See S. P. I. Nos. 3915, 24651, and 30895 for previous introductions.

39674. STEPHANIA ROTUNDA Lour. Menispermaceæ.

See S. P. I. No. 39084 for previous introduction.

39675. STIZOLOBIUM sp. Fabaceæ.

From Darjiling, India. Presented by Mr. G. H. Cave, Lloyd Botanic Garden. Received December 31, 1914.

39676 to 39681.

From Jamaica Plain, Mass. Presented by the Arnold Arboretum. Received December 10, 1914. Seeds of Chinese plants sent to the Arboretum by Mr. Maurice L. de Vilmorin.

39676. CRATAEGUS sp. Malaceæ. **Hawthorn.**

No. 7380.

39677. MEIBOMIA sp. Fabaceæ.

No. 7389.

39678 and 39679. RHUS sp. Anacardiaceæ.

39678. No. 7379. **39679.** No. 7385.

39680. THUJA sp. Pinaceæ. **Arbor vitæ.**

No. 7378.

39681. LEPTODERMIS OBLONGA Bunge. Rubiaceæ.

No. 7392.

A shrub or bush, about 3 feet in height, with white, pink, or purplish flowers. It is native of central and western China, where it ascends to 3,000 meters (10,000 feet), growing in rocky places. (Adapted from *C. S. Sargent, Plantae Wilsonianae, vol. 3, part 2, p. 403, 404, 1916.*)

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