



P6915

PLANT IMMIGRANTS

Descriptive notes, furnished mainly by Agricultural Explorers and Foreign Correspondents relative to the more important introduced plants which have arrived during the month at the Office of Foreign Seed and Plant Introduction of the Bureau of Plant Industry of the Department of Agriculture. These descriptions are revised and published later in the Inventory of Plants Imported.

No. 101.

September 1914.

Genera Represented in This Number.

Acrista	39188	Madhuca	39182-183
Aeria	39189	Malus	39145
Balanites	39196	Passiflora	39223-226
Bolusanthus	39300	Persea	39173
Calathea	39190	Prunus	39175
Chloris	39177	Rosa	39186
Claucena	39176	Saccharum	39165
Diospyros	39174	Salix	39191
Holcus	39264-282	Securidaca.	39298
Juniperus	39185	Sterculia	39221
Macadamia	39144	Triticum	39227

Plates:

- Ginkgo Avenue, Washington, D. C.
- Tamarind Avenue, Rio de Janeiro, Brazil.
- Chinese Osage Orange, *Cudrania tricuspidata*.
- Chinese Flowering Plum, *Prunus triloba*.
- Bean Vermicelli from China.
- Plant Material Showing Packing Methods.

Applications for material listed in these multigraphed sheets may be made at any time to this Office. As they are received they are filed, and when the material is ready for the use of experimenters it is sent to those on the list of applicants who can show that they are prepared to care for it, as well as to others selected because of their special fitness to experiment with the particular plants imported. Do not wait for the Autumn Catalogue.

One of the main objects of the Office of Foreign Seed and Plant Introduction is to secure material for plant experimenters, and it will undertake as far as possible to fill any specific requests for foreign seeds or plants from plant breeders and others interested.

Permission to publish on application only.

739014
112-116

Acrista monticola. (Phoenicaceae.) 39188. Seeds of a palm from Mayaguez, Porto Rico. Presented by Mr. W. E. Hess, Plant Propagator, Porto Rico Experiment Station. "Palma de Sierra. The mountain palm of Porto Rico covers many mountain slopes especially in the eastern part of the island between 2000 and 3000 feet above sea level. It apparently thrives in this very humid cool atmosphere and usually forms a clear stand. This palm greatly resembles *Areca bauerii* grown to a great extent as a decorative palm in greenhouses, and young plants of *Acrista* are equally attractive. The bud of the mountain palm furnishes a good cabbage, but it is not as sweet as those of the palm. Its black fruits are the size of a cherry and are relished by hogs." (Hess.)

Aeria attenuata. (Phoenicaceae.) 39189. Seeds of the llume palm from Mayaguez, Porto Rico. Presented by Mr. W. E. Hess. "The tallest of Porto Rico palms, reaching a height of 60 to 100 feet. Its foliage resembles that of the royal palm, but is shorter; the trunk never exceeds 6 to 8 inches in diameter. This palm is found only on limestone hills and usually feeds upon nothing but the humus collected in the cracks of these rocks. The large bunches of orange-red berries which are the size of a small cherry are very attractive and are fed to chickens and hogs." (Hess.)

Balanites maughamii. (Simaroubaceae.) 39196. Seeds from Swaziland, Africa. Presented by Mr. J. Burt-Davy, Agricultural Supply Association, Johannesburg, Transvaal. "The seed is considered a valuable oilseed in those parts of the country in which it grows, that is to say, at altitudes below 1500 feet in the sub-tropical belt, but with comparatively low rainfall, probably not more than 15 inches, this coming during the summer season. The tree is a handsome one though not very large, and should be useful in Florida." (Burt-Davy.) "This species of *Balanites* is a native of Portuguese East Africa and may be found growing in the Lebombo Mountains, the Madanda Forest and by the Umbeluzi and Rovuma Rivers. It is a tree which reaches a height of about 50 feet, with irregular shaped bole up to one and two thirds feet in diameter. According to the report of the Imperial Institute, the fruits of *Balanites maughamii* seem unlikely to be of economic value for export use owing to the difficulty of removing the external sugary pulp and extracting the kernel from the thick fibrous shell in which it is enclosed, but may however, be of considerable importance for local consumption. The oil obtained from these kernels is clear, yellow and liquid, possessing no marked smell or taste and having the

following constants: specific gravity, 0.916; saponification value 198.5; iodine value 100. The oil if produced on a commercial scale would probably realize the current price of refined cotton seed oil, but it is thought that the difficulties mentioned above would prevent its production on a large scale. Judging from the localities where this species is known to occur it might be expected to do well in tropical and sub-tropical countries with a well-marked dry season. It would not be advisable to plant it on a large scale, however, until a satisfactory method of extracting the kernel has been devised." (Kew Bulletin, 1914, no. 4, p. 136.)

Bolusanthus speciosus. (Fabaceae.) 39300. Seed from Salisbury, Rhodesia. Presented by Mr. H. Godfrey Mundy, Government Agriculturist and Botanist. An exceptionally beautiful tree, one of the handsomest native South African trees. Said to do well in any region where oranges grow.

Calathea lutea. (Marantaceae.) 39190. Seed of the pampano from Mayaguez, Porto Rico. Presented by Mr. W. E. Hess. "This is one of our finest native foliage plants attaining a height of 10 to 12 feet; its dark green leaf blades are oblong and round at the apex, 4 to 5 feet long and 2 to 3 feet wide. The under side is covered with a blue powder. The graceful curved veins give a characteristic appearance. This plant likes rich soil and plenty of moisture and planted with bananas and other foliage plants near a pond it will rival in beauty any of its neighbors." (Hess.)

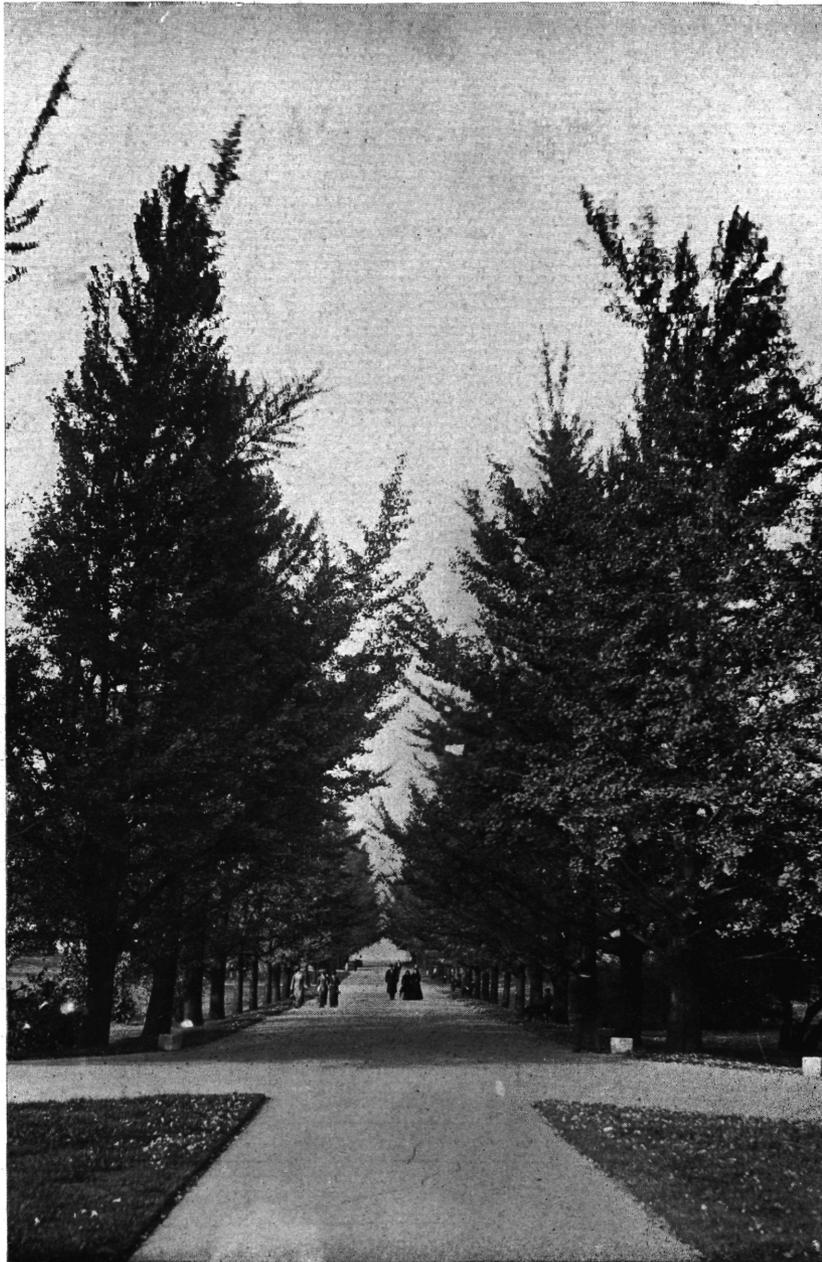
Chloris virgata. (Poaceae.) 39177. Seeds of Australian Rhodes grass from Burringbar, New South Wales. Presented by Mr. B. Harrison. Var. *decora*. This grass is a rapid grower and heavy yielder of nutritious fodder. It attains the height of 3 or 4 feet, is relished by stock, and will retain its verdure when other grasses are dried up, and if cut before seeding, makes palatable hay. According to analysis it is one of the richest grasses we possess either imported or indigenous. It is only quite recently that it has come into prominence, principally through the favorable reports from Queensland, where it is said to have succeeded wonderfully in clay-pan, wind-swept, and sun-scorched country where other grasses were difficult to establish. It is, however, a native of this State also, having been identified in 1904, and it will probably succeed even with a lighter rainfall, and under more adverse conditions than the imported varieties, (*C. gayana*, and *C. virgata*) which have a great reputation as drought resisters. The seed is very light, and is carried some distance by

the wind, and the grass spreads rapidly. (Harrison.)

Clauцена lansium. (Rutaceae.) 39176. Seeds of the wampi from Hong-kong, China. Presented by Mr. W. J. Tutcher, Superintendent, Botanical and Forestry Department. "A low spineless tree, with spreading branches; leaves spirally arranged, pinnate; leaflets 5-9, ovate-elliptical, 3-5 inches long, petiolate, light green, shiny above; flowers 4-5 parted, small, white, in large terminal panicles; ovary villous, 5-celled with one ovule in each cell; style short; stamens 10; fruit ovate-globose, about one inch long; skin glandular, pubescent; seeds green. The wampi is a native of southern China, where it is commonly grown for its fruits. It is cultivated to some extent in Hawaii and could probably be grown in the warmer parts of Florida and California. It can be grafted on grape-fruit and other species of Citrus, which makes it desirable to test it as a stock for common citrous fruits." (Swingle, in Bailey, Standard Cyclopedia of Horticulture.)

Diospyros macrophylla. (Ebenaceae.) 39174. Seeds from the Botanic Gardens, Buitenzorg, Java. Presented by the Director. A wild species of persimmon with small downy fruits for breeding purposes. *Technical description*: "A tree 60 feet high, with dark terete branches. Leaves alternate, oval or oval-oblong, acuminate at apex, rounded or sub-cordate at base, thinly coriaceous, nearly glabrescent below with clear slender arching lateral veins, glabrous above, 3-10 inches long, by one and one-half to four and three-fourths inches wide; petioles one-sixth to one-fourth inches long. Staminate flowers axillary, paniculate, one-fourth inch long, pubescent; panicles many-flowered, one to one and one-half inches long, ultimate pedicels mostly short. Calyx shortly 3-5-fid, globose-urceolate, three-sixteenth inch long, lobes deltoid; corolla silky outside, ovoid in bud, shortly 5-lobed, tube very crass and hard; stamens 12, unequal, in pairs, glabrous. Pistillate flowers in few-flowered cymes, short, calyx 4-5-fid, hairy on both sides, accrescent in fruit; fruit tomentose, sub-globose, one inch or more in diameter. Java, in mountainous places. Local name Kitjallung." (Hiern, Monograph of the Ebenaceae, p. 237, 1873.)

Holcus sorghum. (Poaceae.) 39264-282. Heads of sorghum from Buitenzorg, Java. Presented by Mr. T. E. van der Stok, Chief of the Station for Selection of Annual Crops, Botanic Garden. Nineteen varieties all described as "generally growing in the mountains on a very small scale."



GINKGO BILOBA.

AVENUE IN DEPARTMENT OF AGRICULTURE GROUNDS,

WASHINGTON, D. C.

This Ginkgo or Maidenhair tree (*Ginkgo biloba*) is a native of Japan and China, related to the Yew tree, bearing a single seeded fruit, the kernel of which is much prized by the Chinese for food. The tree grows to a height of 80 feet, living to be several centuries old. As a street tree it is especially attractive in Autumn when its leaves turn a beautiful golden color. It is the sole survivor of a great genus of trees which inhabited the earth during the time of the prehistoric monsters. A quantity of the seed of this tree has been collected and will be distributed to persons interested.



TAMARIND AVENUE.

An avenue of Tamarind trees (*Tamarindus indica*) in the Quinta da Boa Vista at Rio de Janeiro, Brazil. Few tropical trees are better adapted to street and avenue planting than the tamarind, with its delicate, light green foliage and graceful habit. Its fruit, a pod three or four inches in length, containing a brown, acid pulp, is widely used in tropical countries for the preparation of cooling drinks. While too tender for any but the warmest regions of the United States, it is thought that it might be utilized to advantage in south Florida where it grows well for the purpose here illustrated.

Juniperus procera. (Pinaceae.) 39185. Seeds of the East African Cedar from Asmara, Africa. Presented by the Director, Government Bureau of Colonization. "A tree ranging in Eritrea from 20 to 25 meters in height, and one meter in diameter, with open oval form; bark split into long narrow strips; branches cylindrical. Leaves scale-like, small, in four series, semioval or lengthened-linear in the same plant. Flowers dioecious. Fruit globose-ovoid or depressed globose, 5-7 mm. in diameter, blackish-blue and pruinose at maturity. In the Altipiano and its foothills from 2200 to 3000 meters height." (Adriano Fiori, *Boschi e Piante Legnose dell'Eritrea*.)

Macadamia ternifolia. (Proteaceae.) 39144. Seeds from Sydney, Australia. Purchased from Anderson & Co. "A moderate-sized tree, about 40 feet high, with dense dark-green foliage, native of northeastern Australia. It bears very hard nuts of the size of marbles, on spikes 5 to 8 inches long; the nuts are edible and of an agreeable flavor, being much relished in Australia, and sometimes retailed in Sydney at from eight pence to one shilling per pound. The extremely hard shell is the only drawback to these. The tree is propagated by seed; thrives and bears fruit at Peradeniya, where it has been introduced in 1868. Suited to medium elevations." (Macmillan, *Handbook of Tropical Gardening*.) See Plant Immigrant Bulletin No. 78 for illustration and previous introduction.

Madhuca indica. (Sapotaceae.) 39182. Seeds of this species and *M. longifolia* from the Royal Botanic Gardens, Sibpur, Calcutta, India. Presented by the Superintendent. "It may be said that there are two great products of these trees, (formerly known as *Bassia latifolia*, *B. longifolia*, and *B. malabarica*) seeds. A gum or gutta (the milky sap hardened) flows from incisions or abrasions on the stem. In some parts of the country ringing of the stem is practised just on the setting of the fruits. When this is done the gum may be obtained in abundance. The bark is employed as a dye. The flowers, the oil, the spirit distilled from the flowers, and the bark are all used medicinally. Lastly the timber has some merit, but the trees, as a rule, are too valuable to allow their being killed for this purpose. The mahua shows its leaves from February to April. The cream-colored flowers appear in great clusters (of 30 to 50) near the ends of the branches, from March to April, and are soon followed by the young leaves. Preparatory to the harvest of flowers the people clear the ground below the trees by burning the weeds and smoothing the soil. About March the flowers begin to come to maturity, and every morning just after sunrise the succulent corolla-

tubes fall in showers to the ground. This continues till the end of April, each tree yielding from 2 to 4 maunds (two and one-half to five bushels) of flowers, but usually the fall from a single tree is complete in about 7 to 10 days. A drying-floor is prepared in a position central to a selected batch of trees. The ground is smoothed and beaten; on this the flowers as collected day by day are spread out to dry in the sun. In a few days they shrink in size, change in color to a reddish brown, and their peculiar sweet smell becomes more concentrated and the resemblance to that of mice more intense. But the mahua that is intended for sale is not dried to the same extent as that set apart for home consumption, and naturally so since the loss in weight is considerable. But mahua is eaten extensively while fresh - in the dried form it is cooked and eaten along with rice and other grains or food materials. Before being eaten the dry corolla tubes are beaten with a stick to expel the stamens; the quantity required is then boiled for six hours or so and left to simmer until the water has been entirely evaporated and the mahua produced in a soft juicy condition. Tamarind or sal (*Shorea robusta*) seeds and gram (chick-pea) are frequently eaten along with mahua. By the better classes it is fried with ghi (butter) or with mahua oil. It is extremely sweet, but the power to eat and digest this form of food is an acquired one, so that few Europeans are able to consume more than one flower without having disagreeable after effects. Sometimes the mahua is dried completely, reduced to a powder, and mixed with other articles of food. In that condition it is often baked into cakes. Sugar may also be prepared from the flowers or they may be distilled and a wholesome spirit prepared, the chief objection to which is its peculiar penetrating smell of mice. Nicholls estimated that in the Central Provinces 1,400,000 persons use mahua as a regular article of food, each person consuming one maund (one and one-fourth bushel) per annum, an amount that would set free about one and one-half maunds of grain or about thirty per cent of the food necessities of the people in question. This at the lowest estimate comes to one quarter of a million pounds sterling which the trees present annually to these provinces." (Watt, Commercial Products of India, which see, for discussion of the spirit manufacture, and the use and manufacture of oil and butter from the seeds.)

Mabus sp. (Malaceae.) 39145. Scions of apples from Sophia, Bulgaria. Presented by Mr. Alaricus Delmard. "These apples have been found immune from *Schizoneura lanigera* (the wooly aphid.) Dr. Lambreff informs me that he has experimented with these in orchards infested with that pest and while the other varieties all suffered, these have remained immune." (Delmard.)



The Chinese Osage Orange. *Cudrania triloba*.

"The peculiar looking trunk of a Chinese Osage-orange called 'Tcho che shu.' The leaves are occasionally used for feeding silkworms. Locally the small red fruits were considered unwholesome." This species has proven hardy in the Southern States and a hybrid between it and the ordinary Osage orange (*Toxylon pomiferum*) was produced in France some years ago. It is a good hedge plant and hogs are fond of the fruits. Photo. No. A 58, by F. N. Meyer, village of Ya tze ko, south of Sianfu, Shensi, China, Jan. 20, 1914.



Chinese Flowering Plum. *Prunus triloba*.

"A branch of a very large flowering variety of Chinese flowering plum, found growing in the grounds of the German Legation at Peking. This is much cultivated in the gardens of North China and exists in a great many varieties varying in the colors of the flowers from pale pink to a dark violet-rose. Very great variation is found in size, degrees of doubleness, profusion of bloom, time of opening, and the lasting qualities of the flowers. The Chinese in the north always graft or bud this plum on *Amygdalus davidiana*." Photo. No. 988, by F. N. Meyer, Peking, China, April 19, 1914. According to W. J. Bean (Trees and Shrubs Hardy in the British Isles) the double form of this species was introduced by Fortune into England and has become very popular there.

Passiflora maliformis. (Passifloraceae.) 39223-226. Seeds of four varieties of the kuruba from Bogota, Colombia. Presented by Mr. F. L. Rockwood, Clerk of the Legation. "In my opinion the yellow kuruba will be a valuable addition to table fruit in the United States, for it grows in a fresh cool climate, and it is the main market fruit of that class here. The red kuruba is not common and the families that have it think it is the best, but it is not a prolific bearer and not so hardy. A climbing vine, it covers walls, outhouses and small buildings with evergreen, continually bearing fruit. The flowers are very handsome." (Rockwood).

Persea americana. (Lauraceae.) 39173. Seeds of an avocado from Lumija, Chiapas, Mexico. Presented by Mrs. H. H. Markley. "These are slightly pear-shaped, 5-6 inches long, and 10 inches in circumference at the largest point. The skin is very thin, the tree a prolific bearer, growing 40 or more feet high, symmetrical in shape, like a well formed oak. Our temperature ranges from 70 to 100° F." (Markley.)

Prunus avium. (Amygdalaceae.) 39175. Seeds of a cherry from Rome, Italy. Presented by Dr. Gustav Eisen. "Marasca Grossa di Firenze, probably a seedling from Marasca di Piemonte. Very large, dark brownish black, flesh very firm, very slightly adhering to the stone, which however separates rapidly. Subacid, sweet and slightly astringent. Fine shipper. Suitable both for table and preserves. This cherry is larger than any I have seen in California, and in my opinion of exceptional qualities." (Eisen.)

Rosa abyssinica. (Rosaceae.) 39186. Seeds of a rose from Asmara, Eritrea, Africa. Presented by the Director, Bureau of Colonization. *Technical description*. "An erect or often clambering shrub, glabrous, with spines more or less curved. Leaves of 5-7 membranous, oval or elliptical, acutely serrate, leaflets, with the petiole usually glandular. Flowers corymbose, rarely solitary, with pubescent peduncles, receptacles and calyxes; sepals lanceolate-acuminate, three, with one to three setiform lacinations or without; petals white; style free, projecting. Habit that of *R. sempervirens*." (Adriano Fiori, Boschi e Piante Legnose dell'Eritrea.)

Saccharum officinarum. (Poaceae.) 39165. Cuttings of a fodder cane from Brisbane, Queensland. Presented by Mr. Leslie Gordon Corrie. "Quacsofoca. The standard fodder cane grown here for stock food purposes and known as the Indian cane. Amongst other seedlings tested for this pur-

pose we have secured one that from all points is an improvement upon the old standard. I am sending some cuttings which you will be able later on to distribute to some of your southern states. We have found it here of superior value from the standpoints of food value, softness, hardness against low temperatures, and weight per acre. It is a prodigious yielder." (Corrie.)

Salix sp. (Salicaceae.) 39191. Cuttings of a willow from Semipalatinsk, Siberia. Presented by Prof. N. E. Hansen, South Dakota Experiment Station. "Cuttings from small trees I found growing along a creek about eighty miles southwest of Semipalatinsk. This is a very dry region with eight inches of annual rainfall, and the temperature ranging from 50 degrees below zero F. in winter to 106 degrees above in summer. The remarkable characteristic about this willow is that the young shoots can be tied into knots without breaking, so that it should be a good basket willow and good for tying bundles of nursery stock." (Hansen.)

Securidaca longepedunculata. (Asclepiadaceae.) 39298. Seeds from Salisbury, Rhodesia. Presented by Mr. H. Godfrey Mundy, Government Agrostologist and Botanist. "A much-branched shrub eight to ten feet high with violet flowers in terminal racemes, found in Abyssinia, the Mozambique district and in Upper and lower Guinea. The bark of this plant affords the Buaze fiber of Zambesiland." (Oliver, Flora of Tropical Africa.) Of this fiber as early as 1857 it was reported: "The Buaze fiber appears to resemble flax, and as prepared by you (Messrs. Pye Bros. of London) will be equal to flax worth 50 or 60 pounds per ton, but we could hardly speak positively to the value unless we had one or two hundredweight to try on our machinery. However, we think the result is promising, and we hope further inquiry will be made as to the probable supply of the material." Dr. Livingstone states "that the only use it has been put to is in making threads on which the natives string their beads. Elsewhere the split tendons of animals are employed for this purpose. This seems to be of equal strength, for a firm thread of it feels like catgut in the hand, and would rather cut the fingers than break." (Dodge, Fiber Plants.)

Sterculia carthagenensis. (Sterculiaceae.) 39221. Seeds of the anacahuita from Guantanamo, Cuba. Presented by Mr. Juan T. Roig, Botanist, Cuban Experiment Station. "The most popular tree at Guantanamo. From the flowers a decoction is made against cough. The seeds are toasted and eaten like peanuts." (Roig.)

Triticum sp. (Poaceae.) 39227. Seeds of wheat from Bombay, India. Presented by Mr. Henry D. Baker, American Consul, who secured it from Mr. Frank Harrison, Bombay. "This wheat grows wild in Kathiawar, a very dry tract on the west coast of India, north of Bombay. It is said all wheats in existence can be traced back to this stock and that it spreads from India westward via Chaldia (Mesopotamia) and Egypt, thousands of years ago. Natives who eat this wheat, declare it is more palatable and has a better food value than any of the modern varieties grown in India. It has great drought resisting properties and should do well in the arid tracts of the southern states of America. Natives collect this wheat in the jungle, and separate it from the straw by treading, i.e., cattle are made to walk over it in a circle until the grain is separated from the straw. They then pass the grain through hand querns (mills) in order to get rid of the chaff or husk, which is very thick." (Harrison.)

NOTES FROM CORRESPONDENTS ABROAD.

Straits Settlements. Singapore. Mr. I. H. Burkill, Director of the Botanic Garden, writes October 6 in reply to our request for information concerning his new method of shipping mangosteen seeds: "I may tell you that I have young plants growing now from mangosteen seed which were sent by parcel post to New York and returned through the Dead Letter Office. So I see no reason why we should not get live seed to you." The method according to the Gardeners' Chronicle, consisted first in washing the seeds with a weak carbolic acid solution, and then packing them in moist charcoal previously sterilized with carbolic acid. Seeds of mangosteen treated thus germinated well after a journey extending over 3 months.

China, Lanchowfu. Mr. Frank N. Meyer writes Dec. 10, 1914. "At last I have arrived here in the provincial capital of Kansu and I feel like an old-time sailing ship that has come into port, loaded full with all sorts of things. But the ship has weathered some storms and it is with the loss of the main sail that it is berthed here now. For, and this is a bad thing indeed, my interpreter and the coolie have deserted me cowardly in Siku, for fear of being killed by Tibetans!

My Dutch assistant, however, has stuck faithfully to me, which is a fine thing, for without him I would not have known what to do, as he is much better able to deal with these rough Kansu people than I am myself and understands the dialects so much better than I do.

It gives me pleasure to be able to tell you that I have gotten quite a quantity of seeds of both *Amygdalus potanini* and *A. tangutica*. I have also found new localities for both. *A. potanina* occurs near the village of Tchu tsaitze, one day's journey by packmules, south of Siku, while *A. tangutica* occurs on the right bank of the Siku River, on several places, both South and West of the town of Siku; also here and there between Siku and Minchow; also here and there along the Tao River between Minchow and Kiu cheng (New Taochow) and also around the town of Akanshan, 40 li to the South of Lanchowfu, on the main road to Titao. On this last place there are so many bushes, that whole mountain slides contain nothing else and local people make charcoal from the stumps and the seeds are eaten when boiled and a clear oil is extracted from the kernels.

Of direct economic value, however, these two species are not. *A. potanini* is the N. W. China form of *A. davidiana* but the stones are more elongated and differently grooved; the shells are even harder, the kernels smaller and much more elongated and the meat is absolutely inedible, while the skin seems to be more downy even than in *A. davidiana*. The leaves are broader, especially in older trees. The plant assumes a tree-like form when left alone and the local farmers told me they were quite ornamental when in bloom, though this does not last long, this flowering period. I didn't find this Pontanin's peach in very cold or exposed places and from these observations I conclude that it does not stand the chance which its brother, the *davidiana*, does. However it seems to be able to stand more dry heat than the last, for I have found it in some narrow "pockets" in foothill sections on direct South exposure where it certainly must be roasting hot in midsummer; therefore, I suggest it strongly as a stock for almonds especially.

A. tangutica is a variable species of bush almond and though its kernels are bitter and though it throws up a lot of stems and though it is spiny, still I believe it has a decided value as a factor in breeding experiments, for it seems to be very hardy and drought resistant. One finds it mainly on sheltered rocky and loess slopes at elevations from 4000 ft. above sea level up to about 10000 ft. In these higher regions, however, it does not get as cold as one would surmise, for the mountains all around keep off the intense cold.

As a stock for almonds and for other stonefruits I scarcely would recommend this tangut almond since it suckers badly and since these suckers are very hard to remove indeed.

I was lucky enough to find a correspondent near one of these main localities for these almonds. I showed the



"Bean-vermicelli, made from the humble mung-bean, (*Phaseolus radiatus*) hung up to dry in the wind." This is made by soaking the beans for a day or so until quite soft, grinding them between stones while water is dripped over them till a thin milky paste obtained. This paste is washed and sifted in water till all coarse particles are removed. A small portion of the paste is then sifted through a dipper sieve into constantly stirred boiling water, and then transferred quickly into cold water, after which it is hung as shown here on lines to dry. This is much employed in soups in China in the same way as we do noodles. Photo. No. A 2, by F. N. Meyer, Chengchow, Honan, China. Feb. 25, 1914.



One of Mr. Frank N. Meyer's plant shipments ready to be sewn up in cloth and dispatched to Washington from Chengchow, Honan, China. Collectors often do not realize that many species of plants which are not bearing seeds when they are found can be transported to America in the form of cuttings provided they are carefully wrapped up in slightly moist sphagnum moss and covered with waterproof oil paper. Specially prepared directions for sending cuttings will be sent to foreign correspondents on application. Photo. No. A 12, by F. N. Meyer, Feb. 25, 1914.

bushes right on the missionary property, namely, on the grounds of a former Tibetan temple called Lu ba tze and though he was not aware of these things being good for anything but firewood, he now has become much interested in them and for all I know he might have despatched already some seeds for you, for I made the arrangement with him on Nov. 27, 1914, and gave him your address and instructions to send through the American Consul at Shanghai. I may say that the altitude of New Taichow is, by my aneroid 9,400 feet; the climate is semi-arid, the rains falling in the summer, with clear, cold winters in which comparatively little snow falls. The growing seasons are short and local Chinese and Tibetans say that the summers are becoming cooler these last years.

"He will also try to obtain for us seed of the real Moutan peony, which occurs in very inaccessible mountain valleys in Tibet proper, where white men are not allowed to proceed to under ordinary circumstances. He has native helpers, however, who can do such a job.

"In regions West and South West of Siku, heretofore unexplored by white men, I found groves of hazelnut trees growing from 80 ft. to 100 ft. in height (*Corylus tibetica?*) The season for the nuts was passed long ago and the few nuts I collected are probably bad, since the rodents carry away all the good ones. I collected scions, however, which I hope will arrive alive.

"In these same regions we went through groves of magnificent spruces, growing 150 ft. to 200 ft. in height and with trunks 12 to 15 ft. in circumference. I also found a few trees of very peculiar make, standing midway between a chestnut and a hazelnut. Then I noticed a Ribes growing 25 feet in height, *Hippophae rhamnoides* as a tree, 40 ft. tall; splendid red-barked birches (*Betula bhojpattra?*) up to 100 ft. in height and stranger yet, clumps of a very hardy small bamboo, *Arundinaria nitida*, growing well in the shade of firs, spruces, red and white birches and covered with snow at elevations from 8,000 to over 10,000 feet above sea level. On one mountain top even tall firs, tree-like Rhododendrons and this bamboo formed an almost impenetrable jungle and this place was just about 10,000 ft. in altitude by my aneroid. I really never had expected to find a bamboo there and in such a company.

"This *Arundinaria nitida* is really not a handsome bamboo, for it is rather leafless and dies off at the tops, the canes grow from a few feet in height up to 40 feet in very favorable localities, with much shelter, they remain very thin, however, more or less in the nature of a reed. The natives, however, use them extensively in the weaving of large mats; in basketry of various forms; as house building material and in the making of strong cables, along

which ferry boats glide on some of the swift flowing mountain streams.

"Well, these are a few things I am mentioning now; later on, when sending off all collected material I'll mention more things.

"I am in a hole, however, as regards a competent Chinese interpreter! I do not know yet what I shall do. Perhaps I'll try to get a young missionary to get along with me. This desertion of my interpreter at such an inopportune place and time has upset all of my plans for the present. And life is so fearfully primitive yet here in Kansu, it is one of the most backward provinces of all China. Food in general is very coarse, houses are badly built, conditions at large are primitive to the extreme and a white man wonders why people are willing to exist only, while it would be so easy to live and to live well indeed.

"Here in this city there is a station of the China Inland Mission with several workers; also a Roman Catholic Mission, with one Father, I think; also an English Post master with whom I am acquainted with from Sianfu already, then last but not least, Mr. Farrer, an alpine amateur and his assistant, Wm. Purdom are here."

Darjeeling, India, Mr. L. J. Mackintosh writes Sept. 28, 1914. We have a great number of plants of economic value in these hills and not a few of great medicinal value, some well known in Europe such as Cherritea and Quinine, others again quite unknown. The hill tribes are more successful in combating tropical diseases than some of the qualified doctors. I shall give you one simple example. You know the red *Rhododendron arboreum rufescens*, the hill people use for diarrhea and dysentery. The flowers are gathered and dried in the sun, then stored away for the year. They infuse about ten or twelve petals (dry) in water and take (drink) the first thing in the morning, it being considered the best time. The time however matters but little. I have seen really bad cases, hopelessly neglected or muddled by others cured by this treatment. I could write a whole treatise on the economic value of plants in our district and new to our western readers. Do you think any of these plants could find a field of utility in America? If so I would be most happy to collect seeds of these plants.

*SCIENTIFIC STAFF OF THE OFFICE OF FOREIGN SEED AND
PLANT INTRODUCTION OF THE BUREAU OF PLANT INDUSTRY.*

Washington Staff.

David Fairchild, Agricultural Explorer in charge.
P. H. Dorsett, Plant Introducer in charge of Plant Introduction
Field Stations.
Peter Bisset, Plant Introducer in charge of Foreign Plant
Distribution.
Frank N. Meyer and Wilson Popenoe, Agricultural Explorers.
George W. Oliver, Plant Breeder and Propagator.
H. C. Skeels, Botanical Assistant, in charge of Seed Collections
and Office Herbarium.
S. C. Stuntz, Botanical Assistant, in charge of Explorer's Notes,
Foreign Correspondence, and Publications.
R. A. Young, Botanical Assistant, in charge of Dasheen Investi-
gations.

Staff of Field Stations.

R. L. Beagles, Assistant Farm Superintendent in charge of Chico,
Calif., Plant Introduction Field Station.
H. Klopfer, Plant Propagator.
J. M. Rankin, Assistant Farm Superintendent in charge of Rock-
ville (Yarrow) Md., Plant Introduction Field Station.
Edward Goucher, Propagator.
Edward Simmonds, Gardener and Field Station Superintendent in
charge of Miami, Fla., Plant Introduction Field Station.
E. R. Johnston, Assistant in charge of Brooksville, Fla., Plant
Introduction Field Station.

Collaborators.

Mr. Aaron Aaronsohn, Haifa, Palestine.
Mr. Thomas W. Brown, Cairo, Egypt.
Dr. Gustav Eisen, California Academy of Sciences, San Francisco,
Calif.
Mr. E. C. Green, Coroata, Maranhao, Brazil.
Mr. A. C. Hartless, Saharanpur, India.
Mr. Barbour Lathrop, Chicago, Ill.
Mr. William S. Lyon, Manila, Philippine Islands.
Miss Eliza R. Scidmore, Yokohama, Japan.
Mr. Charles Simpson, Little River, Fla.
Dr. L. Trabut, Director, Service Botanique, Algiers, Algeria.
Mr. E. H. Wilson, Arnold Arboretum, Jamaica Plain, Mass.