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. 105. **January 1915.**

Genera Represented in This Number.

Annona	39808-816	Ipomoea	39831-833
Citrus	39699	Malus	39829
	39712	Marsdenia	39685
Diospyros	39689	Pittosporum	39728
	39719	Prunus	39743-798
Erythea	39740		39820-826
Ficus	39828	Quercus	39723
Ipomoea	39729-735	Tamarix	39692
	39741-742	Zea	39803-807
	39799-802		

Plates:

Hedge of the Pitanga or Surinam cherry in Bahia, Brazil.
An old Chinese elm in the Lama Temple Yard, Pekin.
An old Mango tree at Alta da Santo Antonio, Itaparica, Brazil.
The White Barked Pine of China.

Applications for material listed in these multigraphed sheets may be made at any time to this Office. As they are received they are placed on file, 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 undertae 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.

Annona cherimola x squamosa. (Annonaceae). 39808-816. Cuttings of nine varieties of the atemoya, a new hybrid between the cherimoya and the sugarapple, from Lamao, Bataan, P. I. Presented by Mr. P. J. Wester, Horticulturist, Lamao Experiment Station. "In 1908, at the subtropical laboratory, Miami, Fla., the writer successfully hybridized the cherimoya and the sugarapple, the sugarapple and the custardapple, the cherimoya and the mamon, and the mamon and the sugarapple. Several hundred seedlings resulted from this work, part of which were planted out in 1910, the hybrids between the cherimoya and the sugarapple showing remarkable vigor and thriftiness. In 1911 hybrid seeds of the same combination from a cross made in 1910 were brought to the Philippines and the seeds sown in March of the same year. These hybrids exhibited the same remarkable vigor and some attained a height of 2.3 meters in one year and bloomed when they were 16 months old. No fruits resulted, however. This year, (1913) in the course of the reorganization work at Lamao, where the plants are growing, it became necessary to transplant the hybrids, and their fruiting is on that account unfortunately delayed for another year." (Wester, Philippine Agric. Review, July 1913.) The further history of these hybrids is told in the Review for February 1914, "The blossoming season of the cherimoya is somewhat in advance of that of the custardapple, but owing perhaps in part to the shock and retardation due to the transplanting, a few flowers appeared in June on one of the transplanted hybrids. One of these was pollinated with pollen from the custardapple (*A. reticulata* L.) with the result that it set, and a fruit developed and ripened October 8, 1913. The following is a description of the fruit: size small, weight 280 grams; length 7.7 centimeters, equatorial diameter 7.6 centimeters; cordiform in shape, with prominent carpels and distinct areoles; exterior yellowish green, almost glabrous; skin very thick and tough; flesh white, tender and melting, with a slight trace of fiber, juicy, subacid, rich and aromatic; flavor excellent, very similar to a good cherimoya with a dash of the delicate sweetness of the sugarapple; seeds 4 to 7, similar in shape to cherimoya seed but darker colored. The fruit is rather small but regular and well shaped, about the size of a sugarapple, which was to be expected considering that the father parent, the cherimoya, was also undersized. With the employment of large-fruited cherimoyas for the breeding work we may also anticipate a progeny with larger fruits. The atemoya plants, of which there are 23 that have not yet fruited, are very similar in appearance to the cherimoya, and the fruit is also practically identical with the prominent-carpelled cherimoyas. Superior to the sugarap-

ple, it is not claimed that the atemoya is an improvement upon the cherimoya, but it has been hoped that by crossing the cherimoya with the sugarapple the excellent flavor of the subtropical cherimoya, which does not succeed well in the low altitudes near the equator, might be imparted to the progeny, and that the other parent from the lowlands would impart to it adaptability to a tropical climate. It would seem that this anticipation has been realized in the above instance. The name 'atemoya,' which is here being proposed for this new race of fruits, is derived from a combination of one of the old original names of the sugar-apple, Ate pannicensis, quoted from Hernandez, in his work 'Nova Plantarum Animalium et Mineralium Mexicanorum Historia,' published in 1651, and cherimoya." (Wester.) Of the nine plants represented by cuttings, No. 39809 represents the plant which fruited in 1913, the remainder first bore fruit in 1914.

Citrus bergamia Risso. (Rutaceae.) 39699, 39712. Seeds of the bergamot orange from Naples and Catania, Italy. Presented by the American consuls. "A small tree: leaves oblong-oval, with long, winged petioles: flowers small, white, very fragrant: fruits pyriform, three-fourths inch in diameter, thin-skinned, pale yellow when ripe: pulp acid: seeds oblong, many. Extensively cultivated in Calabria for the essential oil which is expressed from the peel and used in making eau de Cologne and other perfumes." (Swingle, in Bailey, Standard Cyclopedia of Horticulture.)

Diospyros ebenaster Retz. (Ebenaceae.) 39698, 39719. Cuttings and seeds of the black sapote from Sante Fe, Isle of Pines, Cuba. Presented by Mr. H. S. Jones. "The sapote prieto or sapote negro (black sapote) of Mexico, an interesting fruit belonging to the persimmon family. The tree grows in compact shapely form, and is of very ornamental appearance with its oblong-oval, glossy leaves about 4 inches long. In appearance the fruits greatly resemble some varieties of the Kaki or Japan persimmon; in place of being bright orange, however, they are light green when ripe, and measure $2\frac{1}{2}$ to 3 and even 4 inches in diameter. In shape they are oblate or distinctly flattened and the pesistent, light green calyx is quite prominent. The interior of the fruit, when ripe, is anything but attractive in appearance, the flesh being dark brown or almost black in appearance, and of a greasy consistency. The flavor is sweet but rather lacking in character; for this reason the Mexicans frequently serve the fruit cut up, or mashed up, with orange juice; it is a first rate dish. The seeds

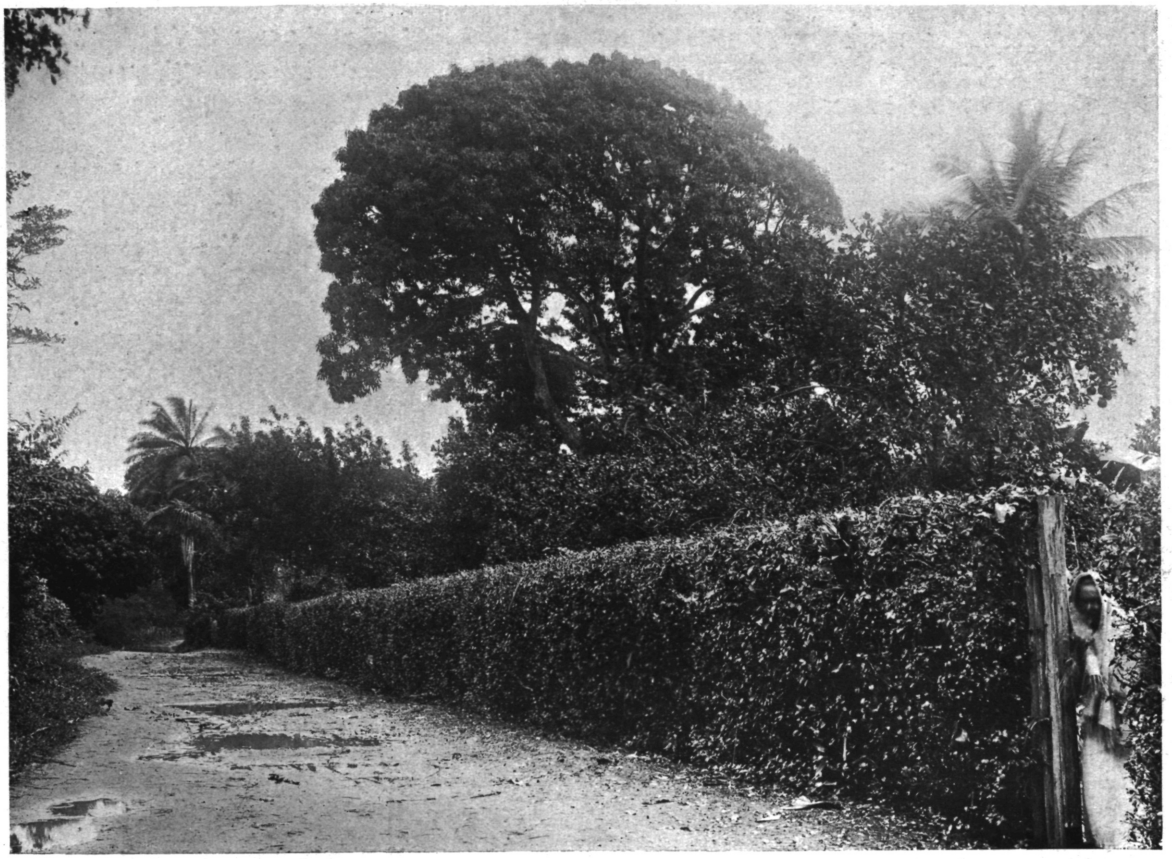
look like those of the persimmon and are not very numerous. According to Mr. Jones, the fruit ripens in the Isle of Pines from the last part of December to the middle of February. The tree is rare outside of certain parts of Mexico, but has done well at Mr. Jones' place. It seems worthy of much wider dissemination throughout the tropics. Types from the cooler parts of Mexico have withstood a little frost in Southern California, yet the trees cannot be considered very hardy." (Wilson Popenoe.)

Erythea edulis (Wendl.) S. Watson. (Phoenicaceae.) 39740. Seeds of the Guadeloupe Island palm from Santa Barbara, Calif. Presented by Mr. W. H. Morse, through Mr. O. F. Cook, of this Bureau. "This palm has been found in the wild state only on Guadeloupe Island, off the coast of Lower California, but it has been planted widely in the coast region of California and undoubtedly is one of the finest, and at the same time one of the hardiest of the whole series of ornamental palms. In California it appears to be more hardy than Washingtonia, and since Washingtonia is being grown at Charleston and other Atlantic Coast points, the Guadeloupe Island palm may also be able to survive. At least it should be given a fair trial. It may not be as well suited to Florida, on account of the hot humid summer. Trachycarpus also does not thrive there in summer. I would suggest that seedlings be grown for experimental planting in the Carolinas and other Atlantic Coast states." (Cook.)

Ficus sp. (Moraceae.) 39828. Cuttings of a fig from Rome. Presented by Dr. Gustav Eisen. "Harrar. A fig from Abyssinia, most interesting and different from *Ficus carica*. Possibly a variety of *Ficus pseudocarica*. Fruit medium, outside violet brown, pulp reddish brown-vermilion, brilliant. Sweeter and better flavored than any other variety when full ripe. Growth of branches somewhat pendent, leaves like *Broussonetia papyrifera*. Abundant bearer and hardy. Suited, I think, to Texas, Arizona and southern California. May also do well in some parts of the south as it can stand considerable summer rains." (Eisen.)

Ipomea batatas (L.) Poir. (Convolvulaceae.) 39729-735, 39741-742, 39799-802, 39831-833. Tubers of sweet potatos from Cuba. Presented by Mr. Juan T. Roig, Botanist, Agricultural Experiment Station, Santiago de las Vegas. Sixteen varieties for the experiments of the Office of Horticultural and Pomological Investigations.

Malus sp. (Malaceae.) 39829. Cuttings of an apple from Rome. Presented by Dr. Gustav Eisen. "Limoncella or



HEDGE OF THE PITANGA OR SURINAM CHERRY IN BAHIA, BRAZIL.

Although the Surinam cherry (*Eugenia uniflora*) has become a well known shrub in Florida its frequent use as a hedge in Brazil may suggest a similar use for it in Florida. It is an evergreen and its crimson fruits ripen throughout the winter and when perfectly ripe are very palatable. It is not spiny and in this respect is inferior to Carissa. Photo No. 15283 by Dorsett, Bahia, Brazil, Nov. 25, 1913.

An Old Chinese Elm in the Lama Temple Yard, Pekin.

The Chinese Elm (*Ulmus pumila*) has proven to be perfectly hardy in the North West and is attracting considerable attention because of its rapid growth and attractive appearance. It cannot compare with the American elm as an avenue tree but has a picturesqueness about it which will make it a useful tree for dooryards and parks. Photo No. 5103, by F. N. Meyer, Pekin, China, Dec. 25, 1905.

Limoncello apple. Middle and southern Italy, especially Naples, down to and including Sicily. The only apple adapted to a warm and dry climate, at the same time possessing qualities which compare favorably with those of good northern apples. The best variety of apple grown in Italy for the general market. Medium or below medium, apex truncate, constricted below the apex, wider at base. Oblong, much longer than wide. Stalk short, slender, core long, narrow, solid, with very few seeds, flesh solid, white, sweet and subacid, crisp and juicy. Color of skin lemon yellow, shaded to a very slight pinkish flush. Flavor strong, agreeable, resembling that of certain red Cabernet grapes. Very fine shipper. Ripe from end of November to February. This variety is not to be preferred to our better American apples in the northern states, its value consisting in its adaptability to warm countries where the northern apples do not thrive. Should do well in California, Arizona, and Texas, in localities with deep and rich soil. It is superior to any California apples grown on the central and southern plains and compares well with those grown in the mountains, except as to size. Retails at 35, 40 to 50 centesimi a kilo, or from one-half to one cent American each, more or less according to size." (Eisen.)

Marsdenia tenacissima (Roxb.) Wight & Arnott. (Asclepiadaceae.) 39685. Seed rom the Royal Botanic Garden, Sibpur, near Calcutta, India. Presented by Mr. C. C. Calder. "A climbing plant distributed throughout the lower Himalayas, ascending to 5000 feet from Kumaon to Assam and Burma. The plant is fond of dry barren localities, twining on the bushes and small trees. The bark of the stem yields a large quantity of beautiful fine silky fiber which is extracted by cutting the stems into sections and then scraping them clean with the finger nails or with a stick. The mountaineers of Rajmahal make their bowstrings from this fiber because of its strength and durability. In Dr. Roxburgh's test of twine made from this fiber he found that in the dry and wet states it bore a strain of 248 and 343 pounds, when hemp in the same state bore 158 and 190 pounds. More recent tests however, place it below hemp in strength, but above it in elasticity . The fiber is much used in making fishing nets and is not liable to injury by submersion in water. One of the chief characteristics of this fiber is its elasticity and it is considered to be the secon best fiber in India. This spe - cies, though producing a good fiber is not in general cultivation, for, being a climber, difficulties exist with which the Indian cultivator has not attempted to deal. A milky juice exudes from the cuts on the stems which thickens into an elastic substance which acts in the same way

as India rubber in removing black lead marks." (Watt, Dictionary of Economic Products of India, and Dodge, Useful Fiber Plants of the World.)

Pittosporum macrophyllum Laut. & K. Sch. (Pittosporaceae.) 39728. Seeds from Nice, France. Presented by Dr. A. Robertson-Proschowsky. "The plant has existed in my garden for more than 20 years. It is the most beautiful of the dozen or so Pittosporum species which I cultivate. The leaves occasionally attain nearly the size of those of *Magnolia grandiflora* and the flowers are perhaps not surpassed in fragrance by any other flower. Indeed the fragrence is most exquisite. Would such highly fragrant flowers not be of value for the extraction of perfume?" (Proschowsky.)

Prunus pseudo-cerasus Lindl. (Amygdalaceae.) 39743-798, 39820-826. Cuttings of sixty-three varieties of Japanese flowering cherries from Tokyo, Japan. Presented by the Arnold Arboretum through its collector, Mr. E. H. Wilson. The Arnold Arboretum sent Mr. E. H. Wilson to Japan last year for the purpose, among other things, of arranging for an authentic named collection of the Japanese Cherry Blossom trees. Mr. Wilson secured botanical specimens of a large private collection of these trees and the budwood was taken by him personally from the same trees and the budwood from each variety was given its own correct Japanese name by the owner of the collection who is known to be an authority on cherry blossom trees. This collection will be propagated and sent out under a cooperative agreement with the Arboretum and under these authentic Japanese names made permanent by Mr. Wilson's herbarium specimens.

Quercus insignis Mart. & Gall. (Fagaceae.) 39723. Acorns of a white oak from Zacuapam, Vera Cruz, Mexico. Purchased from Dr. C. A. Purpus. "They were sent to me by a friend Sr. Guillermo Ziche from Huatusco and were collected in the Sierras west of town at about 1500-1600 feet altitude. I am sure you will be able to grow them in the southern part of Florida where the palms (*Roystonea regia*) grow. They need a moist climate, sub-tropical forests do well." (Purpus.) "The tree is rapid in growth, and quite different in habit from most oaks. It reaches an ultimate height of 60 to 80 feet or more, is quite erect, and sends out large branches at the height of 30 or 40 feet above the ground. It is found in considerable abundance about midway down the flanks of Mount Orizaba, being most common about Chiapas, according to Dr. C. A. Purpus, who has recently been collecting in that region. It is a white oak, maturing its fruit the first season; and being a white oak, its

fruit has sufficient edible quality to be available at least as stock food. 'The only other oaks that approximate it in size', according to Dr. William Trelease of the University of Illinois, who directed the attention of the American Genetic Association to the species, 'are a close relative, *Q. strombocarpa*, of the same region, and a Guatemalan black oak, *Q. skinneri*, the latter apparently an equally large tree, and with acorns two inches in diameter but presumably bitter or astringent like our own black acorns.' The nuts of the *Q. insignis* are usually about two inches in diameter but may reach two and a half inches. Their weight is from 50 to 65 grams each. In view of its range, the tree is naturally to be supposed unsuited to a temperate climate, but Dr. Purpus writes, 'I think it a very useful tree which could be raised in Florida, Cuba, Porto Rico, etc.' If it is found to be well adapted, it is possible that native species of oaks could in some cases be grafted over with the more productive new one, thus yielding a large crop of acorns with very little trouble or care. Hybridizing experiments should also be tried with some of the best North American oaks, with a view to seeing whether the size of their acorns cannot be increased." (Journal of Heredity, vol. 5, no. 9, p. 406.)

Tamarix pentandra Pallas. (Tamaricaceae.) 39692. Seeds of a tamarisk from the Tiflis Botanic Garden, Tiflis, The Caucasus. Presented by the Director. "A deciduous shrub or small tree, ultimately from 12 to 15 feet high, or upwards, 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 fifty 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 plume-like panicle of blossom as much as 3 feet long. Sepals, petals, and stamens, all five 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, as stated above, is very distinct in its downy twigs and leaves." (W. J. Bean, Trees and Shrubs Hardy in the British Isles.) As a wind break plant the Tamarisk is proving to be very valuable on the Great Plains and it is recommended for this purpose.

Zea mays L. (Poaceae.) 39803-807. Seed of maize from Oroya, Peru. Collected and presented by Dr. J. N. Rose, U. S. National Museum. "Corn obtained from Chola women, July 1914, altitude 12200 feet." (Rose.) Five varieties including light yellow, mixed blue and white, brownish and red.

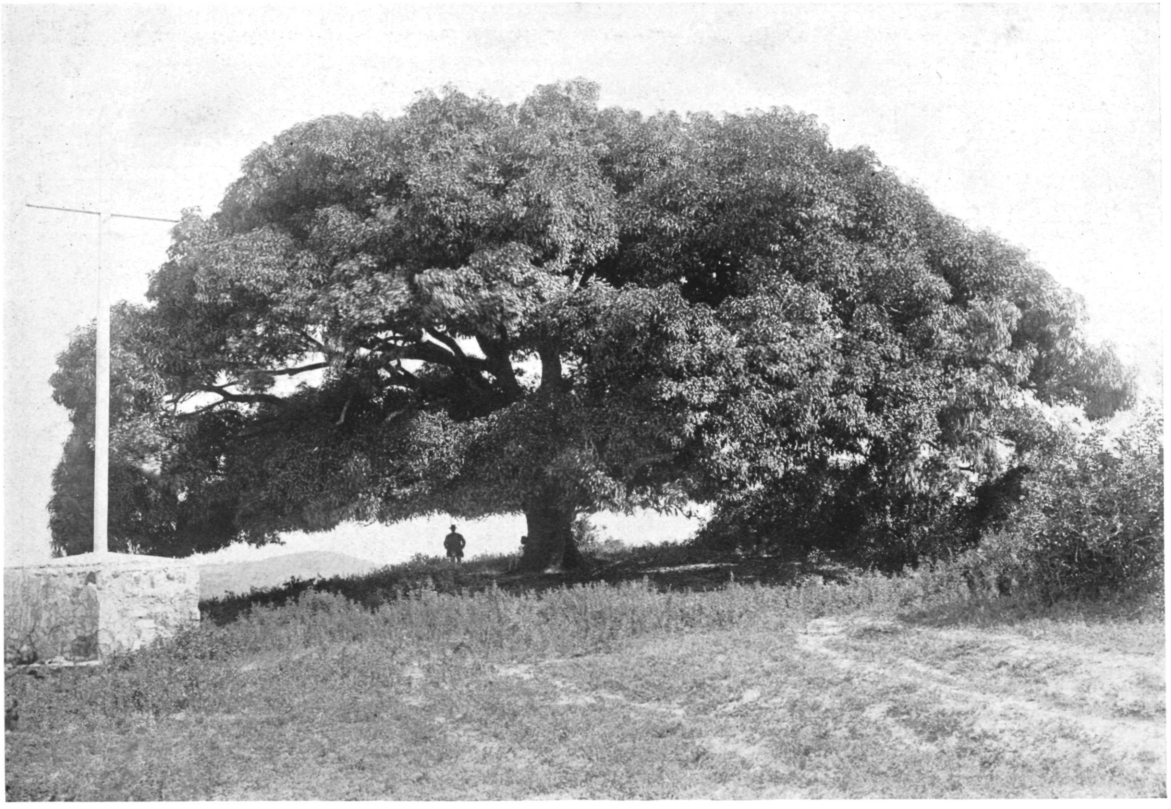
NOTES FROM CORRESPONDENTS ABROAD.

China. Kiayingchow. Rev. George Campbell writes April 13, 1915. "You refer, of course, to the water buffalo. As I write, people are using these animals in ploughing their rice fields. The are exactly fitted for plouhing and harrowing in the deep mud, and wallow through the fields dragging the ploughs after them as no other animal could. They are never used here as pack animals, and we have no carts or vehicles of any kind. While I was at home, in 1913, there was some talk of making a cart road from here to a market town 17 or 18 miles north, and an enterprising native came to my daughter to borrow a mail order catalogue and see what carts to be drawn by buffaloes would cost. Nothing came of it, however, and I hear no more about the road. They are used in some places to a limited extent to supply milk. I suppose there may be 20 or more so used in this city.

"The loquats are just coming into the market now. They are our earliest fruit. They vary greatly in size and the seeds are usually very large. The trees thrive and come into bearing early. The branches tend to split at junction with the trunk and borers attack the trees, caterpillars also.

"Tobacco is a couple of feet high and the fields are invariably edged with taro. Beans are growing well and are extensively planted. Wistaria and Pride of India are in bloom, and grapes are leafing out a little. Peaches and almonds are as large as hickory nuts. Mulberries are loaded to the ground with fruit. One plant of rhubarb is doing very well.

"I stumbled on something the other day while at an out-station which may interest you. A tailor who has been abroad (Rangoon) called on me and asked if anything could be done for his 10 year old son who has epilepsy. I enquired about his heredity. He told me that he bought the



An Old Mango Tree at Alto Da Santo Antonio, Itaparica, Brazil.

Although a native of Asia the Mango (*Mangifera indica*) was introduced into South America so early that giant trees of it are often found there. Few fruit trees reach a larger size and bear fruit longer than the mango. The illustration is of a seedling tree but very old grafted trees occur in India and certain of the Philippine varieties of delicious quality come true to seed. Photo No. 14556 by Dorsett, Dec. 24, 1913, Bahia.

The White Barked Pine of China.

A trio of white barked pines (*Pinus bungeana*), growing in a field about twelve miles west of Pekin, China. There is little that is particularly attractive about this pine when it is young but in its old age it is said to rank among the most striking of landscape trees because after fifty years old the outer bark flakes off and the trunk becomes almost as white as that of the birch. Photo No. 5015 by F. N. Meyer, taken Dec. 29, 1915, near Pekin.

child while on a trip to Sz-chwan Province. He was one of five boys all sold by the parents to furnish funds for opium and gambling, but he was the last one sold - perhaps because unsound. But what interested me was the errand that took him a thousand miles or more from home.

"He was peddling *Chang-hiong kien*, a sort of cloth made from cocoons spun by the wild silk worm, the manufacture of which is the most ancient industry of this region. *Chang-hiong* is the ancient name of this city, which has been famed for many centuries as the place where alone this fabric is made. It is a sort of *khaki* color and very strong and little affected by exposure to moisture. It is regarded as the best thing for shrouds and supposed to last until bodies wrapped in it mold to dust. Of late years, and especially since the establishment of the republic, it has become less popular and hard to sell.

"The eggs are obtained from the Province of Honan (the cradle of the Hokkas, as you will see in my 'Origin and Migrations of the Hokkas') and the worms feed on a variety of trees. The worms are larger, healthier, and spin larger cocoons than the domestic variety.

"Since the cloth declined in value quite a trade has sprung up in the cocoons, which are bought by agents of Japanese firms and shipped to that country, usually in June and July.

"It occurs to me that this material may be adapted to some specialized use by its peculiar qualities. It comes in pieces 8 or 9 yards long and about 15 inches wide, selling at present for about $7 Mex. The cocoons are boiled and sold partly by weight and partly by number. They might be worth something in U. S. A.

"The business has of late years been carried on mainly by one family or clan. The cocoons are furnished and weavers are paid for making the cloth. Peddlers went in every direction with the cloth and penetrated to distant provinces.

"This city was the center of the human hair industry so prosperous six or eight years ago, and this family went into it largely, collecting hair in a radius of a thousand miles. That business was overdone, though fortunes were made for a while, and this trade in cloth was neglected, and I had supposed was about defunct.

"I will look into this further, if you think it worth while. I understand some hundreds of pieces are still made every year, or can be if the cocoons are not otherwise disposed of."

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.
S. C. Stuntz, Botanical Assistant, in charge of Explorer's Notes, Foreign Correspondence and Publications.
R. A. Young, Botanical Assistant, in charge of Dasheen Investigations.
G. P. Van Eseltine, Assistant, in charge of Label Catalogue, and Office Herbarium.

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 Rockville Md., (Yarrow) 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, Serviço do Algodao no Brazil, Rio de Janeiro, 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.