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PLANT IMMIGRANTS

No. 125. SEPTEMBER, 1916.

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Foreign Seed and Plant Introduction.

EXPLANATORY NOTE.

This multigraphed circular is made up of descriptive notes furnished mainly by Agricultural Explorers and Foreign Correspondents relative to the more important introduced plants which have recently arrived at the Office of Foreign Seed and Plant Introduction of the Bureau of Plant Industry of the Department of Agriculture, together with accounts of the behavior in America of previous introductions. Descriptions appearing here are revised and published later in the INVENTORY OF PLANTS IMPORTED.

Applications for material listed in these pages 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 annual catalogue entitled NEW PLANT INTRODUCTONS in which are described the plants ready for sending out.

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.

David Fairchild,

Agricultural Explorer in Charge.

March 2, 1917.

Anyone desiring to publish any portion of this circular should obtain permission by applying to this Office.

Amygdalus persica L. (Amygdalaceae.) 43289-43291. **Peach** seeds from Canton, China, introduced for the study of the office of Horticultural and Pomological Investigations, Presented by Mr. P. R. Josselyn, American Vice Consul in Charge. Chinese peach trees are grown for the most part in the northern provinces, where the climate is cold. Those grown in Kwangtung Province are inferior in size, color and flavor to those grown further north. There are three species of peaches cultivated in this province, viz., the sweet, the sour and the bitter." (F. D. Cheshire.) *Ying Tsui T'ao* (eagle's beak). Very sweet with a point resembling the beak of the eagle and having a hairy coat. It is grown mostly at Sum Chuen, in the Pun Yu district; Poon Tang, in the Nam Hoi district; and also in the Fa Yuen, Samshui and Tung Kun districts." (Josselyn.) *Ha Mut T'ao* (honey-tasting peach). Very sweet, slightly round in shape; came originally from Manchuria. This peach is grown for the most part at Fati and Tong Kat and some other points in the Pun Yu district." (Josselyn.) *Shuen T'ao* (sour peach). Grown at various places in Canton, mostly in the hilly districts. Some are imported to Canton from Shui Kwan and Shui Tung district." (Josselyn.)

Annona cherimola x squamosa. (Annonaceae.) 43263. Seeds of **Atemoya** from Manila, P. I. Presented by Mr. Adn. Hernandez, Director of Agriculture. "Plants very similar in appearance to the cherimoya. The fruit is small, about 10 ounces in weight, yellowish green, with very thick tough skin and white tender flesh, juicy sub-acid. It has 4 to 7 seeds, darker colored than those of the cherimoya." (Wester, Philippine Agric. Review, p. 71, Feb. 1914.)

Araucaria brasiliana A. Richard. (Pinaceae.) 43383. Seeds from Monte Serrat, near Itatiaya, Brazil, collected by Dr. J. N. Rose and Mr. P. G. Russell, National Museum. "A tall evergreen tree native in southern Brazil, sometimes 100 feet high, with large and nearly globular cones. The wood is used in construction work, for turning, ships' masts, cabinet work and for matches. The thick resinous bark yields, by a fermenting process, an agreeable medicinal drink, and the ashes contain much potash; the resin exuded by the bark furnishes by-products useful in the industries and in medicine. The edible seeds produce white and delicate starch." (Adapted from Bailey, Standard Cyclopedia of Horticulture, p. 346, and from Correa, Flora do Brazil, p. 61.)

Canarium indicum Stickman. (Balsameaceae.) 43375. Seeds from Buitenzorg, Java. Presented by Dr. J. C. Koningsberger, Director, Botanic Gardens. "A large handsome Malayan tree, characterised by a remarkable buttressed trunk and laterally compressed aerial basal roots; the latter develop enormous erect flanges of uniform thickness, so that solid circular pieces may occasionally be cut out from them to form ready-made cart wheels. The tree is much cultivated for shade or ornament in Java. It bears in great abundance large pendant clusters of dark-purple fruits, which are of the size of small plums; these are produced all the year around, but chiefly in June. The kernel of the fruit is edible, being similar in flavor to sweet almonds; it yields by expression an oil used for burning in lamps and for cooking purposes. A desirable tree for planting in avenues, etc. It thrives in hot and moist districts up to about 1500 feet elevation, and prefers deep, well-drained soil. Propagated by seed, which may be sown in nursery beds and kept moist and shaded until germinated." (H. F. MacMillan, Handbook of Tropical Gradening and Planting p. 146.)

Canavali gladiatum (Jacq.) DC. (Fabaceae.) 43380. Seed from Dindigul, South India. Presented by Rev. Willis P. Elwood, American Madura Mission. "The beans are a very good variety and are perennial. A kind of trellis or arbor should be provided for the beans to run on as they are rampant growers. The pods, when young and tender are cooked and no *Golden wax* bean can surpass them in quality. Of course, they are a purely tropical plant, but they would probably grow in the most southern parts of the country." (Elwood.)

Capparis micracantha DeCandolle. (Capparidaceae.) 43243. Seeds from Manila, P. I. Presented by Mr. Adn. Hernandez, Director of Agriculture, Bureau of Agriculture. "Seeds of a native fruit known locally as **Cambagat**. This fruit is about the size of a plum, bright red in color and has an exceedingly fine flavor, somewhat similar to a guava." (Hernandez.)

Cicer arietinum L. (Fabaceae.) 43273-43280. Seeds from Seville, Spain. Presented by Mr. Wilbur T. Gracey, American Consul, who secured them from Mr. Juan Matea Gimenez, Seville. "**Chickpeas.** or as they are called in Spain, **garbanzos,** are one of the principal

food products of that country, and may be said to be the staple food of the poorer classes. The seed, which is considerably larger than a pea, is encased in short, thick, hairy pods and forms, when roasted, the parched pulse of the East, and for this reason is sometimes known as the Egyptian pea. Chickpeas seem to thrive best in more or less arid regions, and for this reason the soil in the Seville consular district seems to be particularly suitable, owing to the intense heat and dryness of the summer months, and this district, which comprises the provinces of Seville, Cordoba, Cadiz, Huelva, Badajoz and Caceres, produces over half of the chickpeas grown in Spain. In that territory, the sowing is generally done in the month of March, and the crops are usually collected when the plants are perfectly dry at the beginning of August. It is said, however, that this practice is not to be recommended, as chickpeas which dry in the pods before being cut become exceptionally hard and are difficult to cook, as is not the case if they are collected when the plants become somewhat yellow, before they are absolutely dry, and are then piled in small heaps, and left to dry in a granary or well aired room." (Gracey.)

Cordeauxia edulis Hemsley. (Caesalpiniaceae.) 43260. Seeds of the **Yeheb Nut** from Aden, Arabia. Presented by Mr. A. G. Watson, American Vice-Consul, who obtained them from the Acting Governor of Italian Somaliland at Mogadiscio. A tree or shrub whose seeds have a high food value, and form an important article of commerce on the east coast of Africa, where they are eaten by the natives in preference to rice and dates. The plant grows where long droughts occur, the temperature not going below freezing. It quickly forms a long tap root, has evergreen leaves which stain the fingers magenta when crushed. It might be an excellent plant for the arid southwest. (Fairchild.)

Enbothrium coccineum Forster. (Proteaceae.) 43270. Seed from Bariloche, Argentina. Presented by Dr. Joseph Vereertbrugghen. A handsome evergreen shrub, about two feet in height, with oval, smooth, dark green leaves, nearly three inches long. The flowers are bright scarlet, and grow in racemes. This plant is chiefly confined to the Straits of Magellan and Tierra del Fuego, not reaching to Cape Horn. (Adapted from Curtis's Botanical Magazine, vol. 81, plate

4856.) "*Randal.* This is a beautiful tree and is giving wood that, here on the spot, is sold by the square inch. It is rather like hazelnut, perhaps nicer." (Vereertbrugghen.)

Nannorrhops ritchieana (Griff.) Wendland. (Phoenicaceae.) 43281. Seeds of the **Mazri palm** from Saharanpur, India. Presented by Mr. A. C. Hartless, Superintendent, Government Botanical Gardens. A low gregarious shrub, ascending to 5500 feet in Baluchistan and Mekran, stemless ordinarily, but sometimes with a stem 10 to 20 feet long. The leaves are 2 to 4 feet long, grayish-green in color, and are beaten with a mallet to remove the fiber, which is used in making mats, baskets, etc. The fruit is a nearly round 1-seeded drupe. The flowers, leaf-buds, and fruits are eaten by the natives, and the seeds are made into rosaries. The reddish-brown wool of the petioles is impregnated with saltpeter and used as a tinder for matchlocks, and the whole plant when dried is used for fuel, in arid regions. In Europe it grows best in a compost of sandy loam, with good drainage, and is propagated by seeds and offsets. (Adapted from E. Blatter, Journ. Bombay Nat. Hist. Soc. vol. 21, pp. 72-76.)

Phytelephas microcarpa Ruiz & Pavon. (Phoenicaceae.) 43374. Seeds of the vegetable **ivory palm** from Pernambuco, Brazil. Presented by Mr. A. T. Haeberle, American Consul, at the request of the American Consul-General, Rio de Janeiro. This palm is found native along the banks of streams and on springy hillsides in the Peruvian Andes at an elevation of about 3000 feet, and is closely allied to the one which furnishes the vegetable ivory or *tagua* nut of commerce (*P. macrocarpa*), although it has smaller fruits. The slender inclined stem, sometimes absent entirely, grows up to 10 feet in length, and the fruits are about the size of a child's head, resembling externally some Annonas to such an extent that the Peruvians call them *Anon de palma,* but the palm itself is called *Yarina.* The thick furrowed rind is tough and is reddish within, and may be eaten, having a flavor of melon or mouldy cheese. The albumen of the unripe seeds is drunk while still watery, or eaten when it becomes fleshy, resembling in taste a coconut in like states, but when quite ripe is too hard for eating. (Adapted from description by Richard Spruce, furnished by C. B. Doyle.)

ROW OF CAJUPUT TREES ON THE EVERGLADES. CAJUPUTI (MELALEUCA) LEUCODENDRON (L.) LYONS.

Two-year-old trees from seed, planted by Mr. Robert Werner at the Davie Experiment Farm, Dade County, Fla.

The remarkable bark of this tree, composed of thin layers of soft cork which are easily separated from each other, and the oil of cajuput, which is used extensively in liniments and for skin diseases and of which the leaves contain a considerable percentage, combined with the extreme ease of propagation, abundance of seed, and the fact that the trees will stand flooding on the Everglades and even by brackish water, make this species worthy of special attention. Photographed (P20015FS) by David Fairchild at Davie Experiment Farm, Dade County, Fla., February 6, 1916.

THE CHINESE DRY-LAND ELM IN GEORGIA, ULMUS PUMILA, S. P. I. NO. 22975.

Specimens of this Chinese elm have attracted attention by their remarkable vigor and apparent adaptation to the severe winters and frequent dry summers of Iowa and the Dakotas, the rainy winters and cool summers of the Puget Sound region, the intense dry heat of the interior valleys of northern California, and the humid subtropical summer climate of the Gulf States. The tree illustrated has had five growing seasons from a small cutting and is now 27 feet tall and has a trunk circumference of 18 inches three feet from the ground. It stands on the place of J. B. Wight at Cairo, Ga., in unusually rich barnyard soil. Photographed (P19854FS) by R. A. Young at Cairo, Ga., August 10, 1916.

Prosopis spicigera L. (Mimosaceae.) 43282 Seeds from Saharanpur, India. Presented by Mr. A. C. Hartless, Superintendent, Government Botanical Gardens. A deciduous thorny tree, found in the arid zones of the Panjab, Sind, Deccan, etc. It is easily raised from seed and coppices well. The tap root is enormously long, in one specimen measuring 86 feet in length, penetrating the soil to a depth of 64 feet. From the stumps of pruned branches and other scars a gum exudes, similar to gum arabic, but, although worthy of investigation, hitherto not used. The bark of the tree is used as a tan. The pods are sometimes used for medicinal purposes, but more often are employed as fodder, and in some localities the poorer classes eat the bark. (Adapted from Watt, Dictionary Econ. Prod. India, vol. 6, part 1, p. 340-341.)

Prosopis strombulifera (Lam.) Bentham. (Mimosaceae.) 43386. Seeds from Argentina. Collected by Dr. J. N. Rose, and Mr. P. G. Russell, U. S. National Museum. "This grows commonly in the Mendoza desert and is a low shrub not over twelve inches high. Its peculiar screw shaped pods look like bright yellow spikes of flowers a short distance away. The plant might prove to be a very good hedge or border plant in western Texas and Arizona. The pods hang on long after the leaves have fallen." (Rose.)

Schinopsis lorentzii (Griseb.) Engler. (Anacardiaceae.) 43352. Seeds from Buenos Aires, Argentina. Presented by the Director, Botanic Garden. "Tree with very hard wood, unequally pinnate coriaceous compound leaves, flowers in branched panicles; fruit a samara. The products which are extracted from this tree constitute the principal resource of the inhabitants where the tree grows. It is one of the Argentine woods which, exposed to the air, buried in part or entirely, or submerged in water, will keep 25 years in good condition, as attested by experiments made by the Argentine railway with posts, beams, ties, etc. When full-grown, the logs are made into beams, ties, telegraph poles, etc., and exported in large quantity. The charcoal is very compact; and the extract (tannin) is an important product. The saw-dust is much used as an astringent." (Carrasco.)

Toona ciliata Roemer. (Meliaceae.) 45288. Seeds of **Toon tree** from Darjeeling, India. A large, rapidly

growing decidous tree, 50-80 feet high, and sometimes 20 feet in diameter, growing chiefly near streams in tropical sub-Himalayan regions, also in low elevations in western and southern India. The wood obtained from this important timber tree is not eaten by white ants, is durable and not liable to warp. It is used for furniture, carvings, cigar and tea boxes. The bark is used as a tonic, and the flowers are the source of red and yellow dye. The seeds, young shoots and leaves are given to cattle as fodder. (Adapted from Watt, Commercial Products of India, p. 290, under *Cedrela toona.*)

Triticum spp. (Poaceae.) 43340-43373. From Montevideo, Uruguay. Presented by Mr. L. Moreira Acosta, Laboratorio Agronomico. "A collection of prize wheats of the First National Exhibit of wheats. These wheats are degenerates, but adaptable to our climate, which has several drawbacks to the cultivation of cereals, due to their resistance and robustness. You will be able to judge our progress in the cultivation of this cereal which has only in late years had scientific attention devoted to it by our agricultural experts who have studied in our institutes." (*Acosta.*)

Notes from Correspondents abroad.

Mr. Wilson Popenoe writes from Guatemala City, January 18, 1917, as follows:

"I am just back from a successful trip through the Highlands. I went in company with a young American from Boston, who is here in the interests of the Babson Statistical Organization. Our route was as follows: From Guatemala City to Chimaltenango the first day, stopping there over night, and riding the second day to Tecpan. Here we spent a day, and then rode to Panajachel, where we spent another day and rode to Solola, thence to Totonicapan. Here we spent a day and then rode to Quezaltenango, where we spent two days, and then walked to San Felipe, whence we took the railroad to Mazatenango, stopped there a day, and came on back to Guatemala City. It was a very interesting trip but one of the coldest propositions I have met in a long time. Between Solola and Totonicapan we rode at midday for several miles over a plateau just below 10,000 feet in elevation, where the ice had not yet melted in the puddles beside the road, And this in the Tropics! For about a week we were above 7000 feet nearly all the time, and of course I

was on the lookout for avocados. What I have been trying to ascertain is, How high can the avocados be grown in Guatemala? Previously I had never seen it above 7000 feet, which is about the extreme limit of the orange zone. But on this trip, I found avocados at Tecpan (7500 ft.) and most remarkable of all, at Totonicapan (8500 ft.) On looking carefully over the town, I found that most of the trees in the gardens were peaches, apples, the wild cherries which occur in this part of Guatemala, and a few other hardy things,- strictly temperate in character. The matasano (*Casimiroa edulis*) was seen here and there. I found three or four young avocado trees in protected situations which had escaped the frost and looked pretty well and then found two large trees which had been frozen badly. They had the limbs killed back to the trunk, and scarcely a leaf on them. So far it did not look very promising. But finally I ran across a large tree growing in a patio (practically all of them were in patios) which had escaped practically uninjured, stood 40 feet high, and was carrying quite a little fruit. On examination the fruit proved to be of first-class quality. The idea of growing avocados 1000 feet or more above the zone in which oranges can be grown strikes me as rather surprising. Aside from the avocados, there was scarcely anything of interest in Los Altos, as that region is called. The wild cherry was in bloom and I will see it again in fruit, probably, when I go back to Totonicapan. That is a remarkable region, sure enough; wheat and oats, principally wheat, with some apples and peaches in the towns, but practically all seedlings, of course. On the way back we spent a day at Mazatenango, and I went out to look up the *anay*. I found that the tree had bloomed recently and was full of young fruit; it was also carrying a lot of ripe fruit which I did not see when I was there before. It looks as though it must bloom twice a year, as I was told it bloomed in April and had not expected to find it in bloom as yet. I obtained 150 fruits and am taking the seeds down to Quirigua to plant. I plan to go down to Amatitlan in a couple of days and cut some more budwood to put in this week's mail. When I said that one of the varieties from San Cristobal was the best avocado I had seen, I did it deliberately. It is really a magnificent fruit. If course I cannot forecast its behavior in the States, but as a fruit it is certainly splendid. As to the *coyo*, I did not intend you

to understand that I consider it a superior fruit to avocado. I think I said, or at least I intended to say, that I thought its flavor was really superior to that of the avocado. It has some weak spots, of course, but I am strongly impressed with its remarkably rich and nutty flavor. Kensett Champney considers that its flavor is superior to that of the avocado. He seems to think it "wears well" but of course I can not state my own experience. I will admit that I am somewhat enthusiastic over it. As you know, I have a habit of getting enthusiastic over these new things. After my second trip to the Verapaz, I will write up an account of the *coyo,* tempered with as generous an amount of conservatism as I can muster, and send it up to you. I want to get a little more data than I now have. As it grows wild up to 5000 feet or above, it must be about as hardy as the Guatemalan avocado. Many thanks for Dr. Galloway's notes re the condition of my shipment of budwood from the Verapaz. They were a great help to me, because of their clearness and comprehensiveness. I regret that I cannot enthuse over the *Pacaya.* I have eaten it several times, under protest, and unless the inflorescences are very young they are bitter. When very young they form an excellent matrix for salad dressing. The palm is a beauty, however, and fairly hardy. It ought to be given a wide trial in Florida and California. The work here remains fascinating. There is a great deal to be done yet before I will feel satisfied to end the search for the best avocados, but I am pushing things as best I can, and I hope nothing will happen to knock us out. I am in the pink of condition. I neglected to mention in this letter that I have found the first serious injury done to avocado fruits which I have seen in Guatemala. At Panajachel that larva which bores in the seeds, and which seems to be the same as the one Mr. Sasscer found in some of the seeds I sent up, is causing tremendous damage. I have some photos of fruits cut open, showing the injury, which I will send up soon and which will make the matter much stronger than I can do it with words. A large percentage of the fruits I examined were infested, and many were so badly so that they were not fit to eat. This is unquestionably a serious thing, and one we must guard against carefully. I have some infested seeds in an improvised breeding cage and am going to see if I can breed out some of the adult insects."

United States Department of Agriculture.
Bureau of Plant Industry.
Office of Foreign Seed and Plant Introduction.
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