UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF PLANT INDUSTRY,
OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION.

NO. 86.

BULLETIN OF FOREIGN PLANT INTRODUCTIONS.

May 1, 1913, to June 1, 1913.

NEW PLANT IMMIGRANTS.

(Note: Applications for material listed in this bulletin 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.

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.)

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PLATE: Fruit of Cudrania tricuspidata.

ARRACACIA XANTHORRHIZA. (Apiacae.) 35400. Tubers of the apio from Caracas, Venezuela. Presented by Mr. H. Pittier, of this Bureau. "This plant is cultivated in the cooler mountain districts of northern South America, where the roots form the staple diet of the inhabitants. The plant is somewhat like the wild hemlock (Conium maculatum) but its leaves are broader, its stem not spotted, and its flowers are of a dingy purple color; the roots are large and are divided into several fleshy lobes of the size of a carrot, which when boiled are firm and have a flavor intermediate between that of a chestnut and a parsnip." (Masters, Treasury of Botany.) "Here the plants grow only in the mountains above 1500 meters. I do not know whether it reaches the freezing line, but everybody says it does not thrive at lower altitudes." (Pittier). For distribution later.

BROMUS SP. (Poaceae.) 35429. Seeds of a grass from the Argentine Andes, south of Lago Nahuel Huapi. Presented by Dr. Bailey Willis, of the Argentine Survey of the 41st parallel, S. lat. This and four other grasses and a rush were sent in as specimens of the pasture grasses of this portion of Argentina. For distribution later.

CANANGIUM ODORATUM. (Annonaceae.) 35243. Seeds of the ilang-ilang from Manila. Presented by Mr. O. W. Barrett, Chief, Division of Horticulture, Philippine Department of Agriculture. "A large evergreen tree of the family Annonaceae, native of Burma, but extended in culture to Java and the Philippines. An agreeable and highly valued perfume known as ilang-ilang is distilled from the flowers. It should succeed in Southern Florida and the warm portions of the Gulf Coast." (Dr. W. Van Fleet.) "The war correspondent, Mr. Creelman, called our attention several years ago to the possibility of growing this flower in Florida and shipping it to the northern markets as is now done with the Gardenia." (Fairchild.) For distribution later.

CERATONIA SILIQUA. (Caesalpiniaceae.) 35238-242, 35244-246. Cuttings of seven varieties of carob from Valencia, Spain. Presented by Mr. Claude I. Dawson, American Consul. These are cuttings of the best varieties grown in Valencia, full descriptions of which are given under S.P.I. Nos. 30914 to 30920, in inventory No. 27. For distribution later.

CITRUS SP. (Rutaceae.) 35247. Cuttings of an orange from Algiers, Algeria. Presented by Dr. L. Trabut, Service Botanique, Algeria. "This late Berna orange is the object of important export from Murcia, Spain, during the summer. The fruit is globular oval, medium in size, with very solid skin assuring its preservation." (Trabut.) For distribution later.

CORYLUS MANDSHURICA. (Betulaceae.) 35288. Seeds of a hazelnut received from Mr. Frank N. Meyer, Agricultural Explorer, Harbin, Manchuria. "A hazelnut found wild in the hilly parts of Manchuria, very resistant to cold and drought. The hulls of this hazelnut are very thick and hard while the kernels are small. The people however collect them and eat them mostly roasted and salted, and in that way they taste very good indeed. To be tested especially in the northwest plains section of the United States. Obtained on the market in Harbin." (Meyer.) For distribution later.

CUDRANIA TRICUSPIDATA. (Moraceae.) 35258. Plants from Laoling, Shantung, China. Received from Mr. Frank N. Meyer, Agricultural Explorer. "A wild shrub, sometimes growing into a small tree, found in dry places. Called by the Chinese Tcho sang, which means wild mulberry; the leaves are used for feeding silkworms in times of scarcity of mulberry leaves. This plant makes a similar impression to the osage orange but is of much smaller dimensions. Can be utilized in the drier parts of the United States as a hedge plant around gardens, as a fence material on farms, while it can also be employed for bank binding in the milder, semi-arid sections. This shrub is very thorny and can serve therefore very well for hedge purposes."(Meyer.) "Plants of this same species (S.P.I. No. 34493) introduced by Mr. E. H. Wilson, have fruited at Augusta, Ga., in the nurseries of P. J. Berckmans Sons, and the fruit is sweet and edible. It is closely related to our native osage orange (Maclura aurantiaca) and might hybridize with it. There are other edible fruited species also, so this introduction opens up a most interesting field for the breeder." (Fairchild.) For distribution later.

GONOLOBUS EDULIS. (Asclepiadaceae.) 35249. Seeds of the cuayote from San Ramon, Costa Rica. Presented by Mr. Ad. Tonduz, exploring botanist. "An asclepiadaceous twiner with yellow flowers in small racemes, and long fruits, pointed at both ends, provided with longitudinal wings. The fruit is eaten while still soft." (Tonduz.) For distribution later.

HERITIERA LITTORALIS. (Sterculiaceae.) 35413. Seeds of the dungonlate from Manila. Presented by O. W. Barrett, Chief, Division of Horticulture, Philippine Bureau of Agriculture. "A medium-sized tree with a dense crown, leaves entire, leathery, dark above and silvery beneath. The wood is very hard and durable and is classed among the best of the Philippine hardwoods. The tree is a good ornamental and makes an excellent windbreak. It succeeds on moist land and grows well even in the proximity of salt water." (Barrett.) For distribution later.

IPOMOEA BATATAS. (Convolvulaceae.) 35280-281. Tubers of sweet-potatoes from Callao, Peru. Presented by Mr. Luther K. Zabriskie, deputy American Consul. Two varieties of sweet-potatoes, one white skinned, and yellow within, with an especially sweet taste, and preferred by the Peruvians, the other a purple-skinned variety. For distribution later.

JUGLANS MANDSHURICA. (Juglandaceae.) 35303. Seeds of the Manchurian walnut from Mukden, Manchuria. Received from Mr. Frank N. Meyer, Agricultural Explorer. "The Manchurian walnut is a stately timber tree, occurring in Manchuria and Japan. It is very sensitive to late frost and on that account has proven to be a difficult tree to grow away from its native countries." (Meyer.) For distribution later.

LOVOA SWYNNERTONII. (Meliaceae.) 35459. Seeds of brown mahogany from Mount Silinda, Melsetter, Rhodesia. Presented by Mr. O. J. Omer, American Board Mission in South Africa through the Forest Service of this Department. "This tree produces a splendid dark brown wood of great strength and durability and is found only in our forest here at Mount Silinda, the only forest of large trees in Rhodesia. The tree grows to a height of 150 to 200 feet, diameter 5 to 8 feet, a 150 foot tree requiring about a hundred and fifty years for growth. It is, I understand a true mahogany, and it is because of its rarity that I thought you might take an interest in experimenting with it in America. The temperature here varies from about 30° F. in the cold season to about 80° in the shade during the summer months, rainfall 70 inches, more than half of this falling during the three summer months, elevation 5000 feet, distance to sea one hundred and fifty miles, prevailing winds from the sea." (Omer.) "It is a fact worth mentioning that other trees from Rhodesia have done peculiarly well in Florida."(Fairchild) For distribution later.

MANGIFERA SPP. (Anacardiaceae.) 35403-412. Rooted cuttings of mango from Buitenzorg, Java. Presented by Dr. J. C. Koningsberger, Director, Botanic Gardens. Nine species of mango, and one related species shipped by Wardian case, introduced in order to secure the best Javanese varieties for comparative tests. For distribution later.

MEDICAGO SATIVA. (Fabaceae.) 35427-428. Alfalfa seed from Lima, Peru. Purchased from Dr. C. H. Tyler Townsend, Chief Entomologist, Peruvian Department of Agriculture. Two forms, one from a high altitude, the other from a drier region near sea level. For distribution later.

MEDICAGO SATIVA. (Fabaceae.) 35427-428, 35435-443. Alfalfa seed from Poona, India. Presented by Mr. T. Forester Main, Deputy Director of Agriculture. Nine varieties differing but slightly from those of Western India. For distribution later.

MIDA ACUMINATA. (Santalaceae.) 35323. Seeds of the quandong from Sydney, Australia. Purchased from Anderson and Company. "The quandong, which is found in all the states of the commonwealth except Tasmania, is a beautiful evergreen tree, finally attaining a height of about 30 feet. It has opposite lance-shaped leaves, mostly two or three inches long, and rather numerous, insignificant flowers arranged on small, terminal branches. These are succeeded by globular fruits, about three-quarters of an inch in diameter, of a reddish color when ripe, and in that condition are often called native peaches. When the quandong is carrying a crop of fruit the smaller branches often become pendulous from the weight of it, and then the tree is decidedly ornamental, and produces a very fine effect in the landscape. The succulent outer part of the fruit is acidulous, but can be made into an excellent preserve and jelly having a flavor somewhat similar to that of guava conserve. It can also be used for tarts or pies, or served with cream. The outer covering, after the nuts have been extracted, may be dried either in the sun or in an evaporator. The nuts, which are called quandongs, have edible and nutritious kernels of a very pleasant flavor. They contain a large percentage of oil, which burns readily, producing a bright light. The oil can be expressed from the kernels by ordinary methods, and may eventually prove of considerable commercial importance. The trunk of the tree is not of great dimensions, for it rarely exceeds 8 or 9 inches in diameter. Its

timber is hard, not liable to split or warp, and when mature, of a yellowish color. It is easy to work, and on being freshly cut or reworked emits a pleasant fragrance. It is suitable for turnery, carving and cabinet work, and has been recommended for wood engraving. The drought-enduring qualities of established trees are remarkable, for their growth seems to be neither seriously affected by the hot winds that are periodically experienced in summer, nor by the long periods of dry weather which prevail in adverse seasons. Plants grown from seeds in nursery rows do not bear transplanting very well, for if the root system of the young seedlings is much disturbed they wil take some time to recover." (Fred Turner, in the Sydney Morning Herald.) For distribution later.

ONOBRYCHIS SATIVA. (Fabaceae.) 35313. Seeds of sainfoin from Issyl-kul, western Siberia. Obtained from Mr. I.M. Karsin, by Mr. Frank N. Meyer, Agricultural Explorer. "A native west Siberian forage plant obtained from Mr. I. M. Karsin at Issyl-kul, who believes that this western Siberian form of sainfoin is bound to play a great role some of these days as a late fodder crop in dry regions with short growing seasons. This sainfoin thrives best in a soil which contains considerable lime." (Meyer.) For distribution later.

PASANIA CORNEA. (Fagaceae.)35320. Seeds of the South Chinese evergreen oak, purchased from H. Green, Superintendent, Botanical and Forestry Department, Hong Kong. "An evergreen oak, said to be a very showy ornamental, but interesting particularly in bearing acorns as hard-shelled as the nuts of the American hickory, which contain a kernel almost as sweet as the Spanish chestnut. These acorns are sold in the markets of Canton and Hong Kong in large quantities and are keenly relished, not only by the Orientals, but also by Europeans. Although difficult to predict how hardy this species will be in America, it is worthy of trial in all regions where citrus fruits can be grown. A single specimen at my place in Maryland lived through two winters and grew slowly although the temperature dropped to 17° F. It succumbed the third winter however, although it was a very mild open one." (Fairchild.) For distribution later. For photograph see Bulletin No. 37 this series.

PINUS SPP. (Pinaceae.) 35289-294, 35300. Seeds of pines from Siberia and Manchuria. Received from Mr. Frank N. Meyer, Agricultural Explorer. Five species of pines,

some of them furnishing lumber, others suitable for ornamental planting. For distribution later.

TRITICUM DURUM. (Poaceae.) 35314. Seeds of a durum wheat from Issyl-kul, western Siberia. Obtained from Mr. I.M. Karsin, by Mr. Frank N. Meyer, Agricultural Explorer. "Var. melanopus. A valuable black-bearded summer durum wheat having the bracts close together. Selected by Mr. I. M. Karsin at Issyl-kul, who finds that in dry western Siberia, wheat with short dense ears requires less moisture to mature and are less easily injured by long droughts than wheats with long loose open ears. This variety melanopus especially needs but little moisture to ripen fully." (Meyer.) For distribution later.

ZIZIPHUS TRINERVIS. (Rhamnaceae.) 35416. Seeds from Manila. Presented by Mr. O. W. Barrett, Chief, Division of Horticulture, Philippine Bureau of Agriculture. "A tall shrub or small thorny tree of vigorous growth. This species may prove a good stock for the improved varieties of Ziziphus jujuba in the tropics where this species does not succeed well on its own roots. It should be planted on well-drained land." (Barrett.) For distribution later.

ZIZIPHUS JUJUBA. (Rhamnaceae.) 35253-257, 35260. Scions of jujubes from Laoling, Shantung, China. Obtained by Mr. Frank N. Meyer, Agricultural Explorer. Several varieties, one bearing almost entirely seedless fruits, which are steamed and dried for winter use, another with fruit the size of small eggs, and a third with very sweet fruits. For distribution later.

NOTES FROM CORRESPONDENTS ABROAD.

CHILE. Santiago. Mr. W. F. Wight, writes March 29, 1913. "In regard to Chiloe, it is in large part an unknown wilderness and there is one man who can be of very great service, namely Dr. Roberto Christie, Casilla F, Castro, Chiloe, Chile. Dr. Christie knows southern Chile better than any other living man and I am sure will send us some very interesting seeds such as the Cypress of Chiloe, and many others. Through Dr Christie's help I was able to get into a region totally uninhabited and never visited by any botanist. There is on the west coast near Quilan and south of Cucao, a plant with a fruit like a Pandanus, (Dr. Christie calls it a Bromelia but it may not be) which I think may be of considerable value.

The leaves are perhaps as long as those of New Zealand flax and yield a fibre from which the Indians make a very strong rope. I saw them use this rope in ways that would severely test its strength and there can be no doubt on that point. If any one will take this matter up and grow the plants it would be worth while to spend some money to secure it. There was no seed and young plants would have to be sent. These would have to be taken up with some earth and carried in sacks on horseback over a terrible trail for some distance, then across a lake and again by cart or on horseback to Castro, from which point they can be shipped. Dr. Christie can attend to this if you want it done. I suspect this plant is entirely unknown outside Chiloe and there are only two men who really know the way south into this region. By the way, I have a plant something like celery with edible stems and leaves. Dr. Christie thinks it the wild form of celery but that is old-world, and I found this where there is no definite knowledge of anyone's having lived for an unknown length of time, though there was once an ancient people for I found bits of pottery within 20 miles. The present Indians do not make pottery, neither have they ever been known to do so, while what I found was in the earth and was being exposed by the wind uncovering it in the hills 200 feet above the sea."

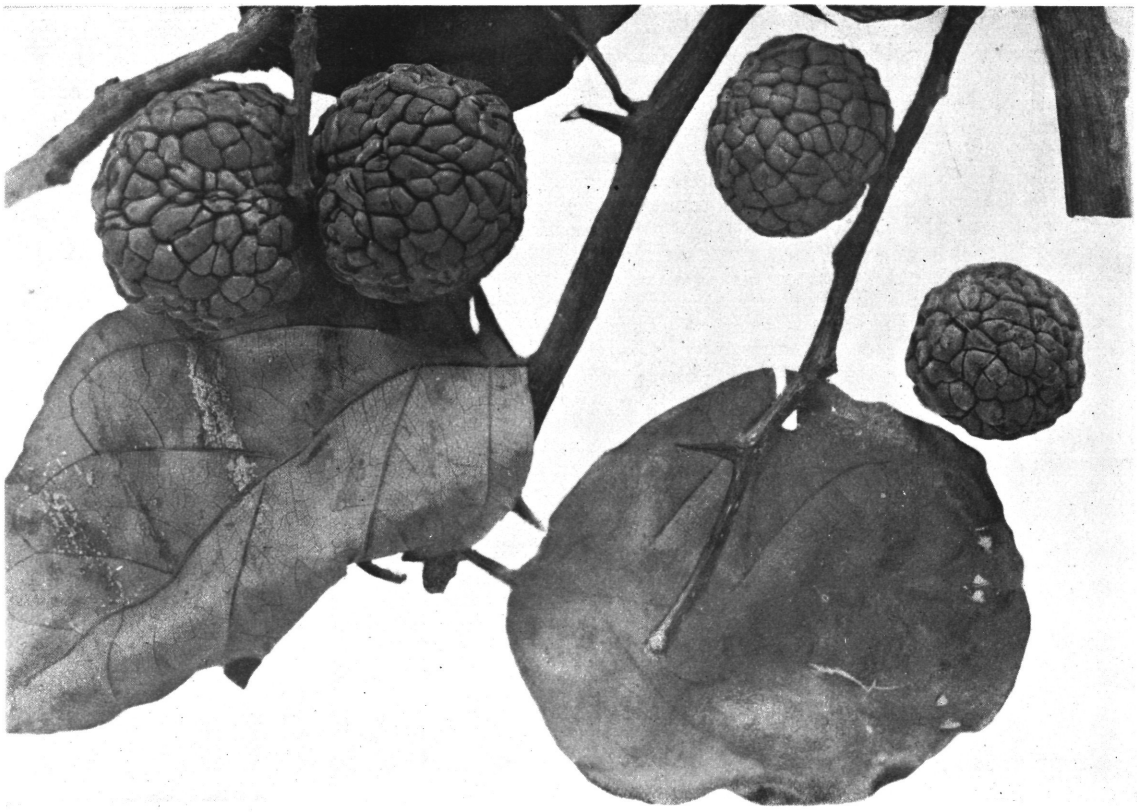
CHINA. Shantung. Tsi-nan-fu. Mr. Frank N. Meyer writes April 5, 1913. "I hope that the shipment which I am sending by post today will reach Chico O.K. and that the stocks there are not too far advanced, for there are among this lot the interesting seedless jujubes and a large fruited variety, the size of the fruit being like small hen's eggs. I have also been getting some interesting varieties of vegetables. A variety of the egg plant with large reddish white fruit, a great rarity apparently. Also some muskmelons and cucumbers. The weather all of a sudden has become very warm here and poplars and willows have already good sized leaves. The lilac, ornamental crab apple, apricot and plum are in full bloom. I am afraid that scions cannot be sent any more over that long distance to America and several things will have to be gotten this coming winter. With my present interpreter and assistant I am getting on the track of several things of which I have heard nothing before and as I probably have another two years before me here in China I suppose I will be able to bag the major part as time advances. A week or so from now I hope to return to Peking, and after having finished accounts and reports, prepare myself for

the big trip to Honan, Shansi, Shensi, and Kansu, which will last perhaps up to January, 1914, after which time I have to return again to this rich province of Shantung."

INDIA. Lahore. The Superintendent of the Government Agri-Horticultural Gardens, Mr. W. R. Mustoe, writes us April 24 "our crop of Pistacia integerrima seed is very short this year, but I shall be able to collect you a few pounds. The reason why it did not germinate with you last year was no doubt because it got too dry. Even with us it will not come up unless sown within 5 weeks after collection. We have great difficulty in keeping parrots from destroying the seed as they have a special liking for it and will clear a tree in a few days. Therefore I may have to charge you the wages of two boys for a month to watch the trees, but this will not cost more than 10 shillings."

JAPAN. Tokyo. Mr. H. Dauke writes May 2, 1913. "There are two different kinds of bean meal in this country. One is prepared from the 'Soja' bean and the other from the 'Adzuki' bean. The meal of the Soja bean, 'Kinako', is prepared by grinding the parched bean in a handmill. The meal of the Adzuki bean, 'Sarashi-an', which is mostly used in the manufacture of cakes and confections is produced in the following way. The bean is first boiled in water, and the resulting pulp then strained through a cloth bag leaving nothing but the refuse behind. This liquid is then allowed to evaporate and the solid mass remaining is ground into a fine flour in a handmill. The meal is sometimes prepared in another way. The bean is ground up in a handmill and the flour allowed to dry in the air. The meal of the Soja bean, 'Kinako' is commonly used for food in the state of flour, sweetened with sugar in covering the 'Mochi' (the rice-cake which is made by steaming glutinous rice and pounding it in a mortar). The meal of the Soja bean is often used in the manufacture of the cake called 'Mameginto' by mixing the sugar and 'Ame' (the glutinous jelly made of rice flour) in it. The meal of the Adzuki bean, 'Sarashi-an' is used in various ways. Bean meal soup is made by boiling bean meal in water, sweetening with sugar, and is served with a portion of 'Mochi', the rice cake. This soup is called 'Shiruko' and is highly relished by the Japanese. When the thick solution of 'Shiruho-an', sweetened with sugar, is boiled down it is called 'An'. It is sometimes used as a filler or an icing for the 'Mochi', but is more widely used in the manufacture of cakes and confections. Most of the cakes are made from this bean meal."

PHILIPPINES. Manila. Mr. O. W. Barrett, writes April 5 1913: "Mr. Wester is exceedingly busy at Lamao Experiment Station in building up a very large and interesting collection of the world's best citrus plants. We are continually finding new and more or less peculiar native varieties, many of which appear to be natural hybrids, some kinds carrying two, three, and perhaps four species in their 'blood". Mr. Wester has writen the manuscript of a Citrus bulletin intended for arousing the interest of the Philippine planter in this industry which we hope will within a few years develop into one of considerable importance. I am leaving to-day for a brief visit to Mindanao. It is quite possible that I may be able to procure some interesting material for you on this trip. You will be interested to know that a new fruit from southern Palawan, discovered last year, bids fair to put the mangosteen itself 'in the shade'. None of us in this Division have seen the fruit itself, but although it is said to be a vine the leaf much resembles that of the Durian: the fruit itself is said to be on the same style as the mangosteen but is very much larger, contains more edible pulp, and the flavor is, according to report, about ten times better than that of the mangosteen. We have just one live plant but we hope to get a considerable number of the fruits in June. We have several thrifty branches of the Siamese seedless pomelo and as soon as budwood is available we shall take great pleasure in sending same to you. Mr. Boyle is much interested in the peculiar hairiness of the young shoots of this peculiar variety; the pubescence disappears after a few months but its presence is in my opinion a very distinctive point. We are still waiting for photographs and further details as to the plantation from which we received our budwood. You will be interested to know that we sent yesterday, a collector to Portuguese Timor,--at least we have first claim on all the economic material he gets there. It is claimed there are several very distinct citrus types in the East Indies. Another collector going through the interior of New Guinea promises us 'first choice'. Our banana collection now contains well over 100 'named sorts', some of which, of course, are undoubtedly duplicates. We have succeeded fairly well in raising a number of interesting African and Indian sorts from seeds. Mr. E. D. Merrill, Botanist of the Bureau of Science, promises to try to straighten out the taxonomy of Musa if we will furnish him fresh material; it seems that the recent monograph of Musa is a failure. We are continually finding wild bananas here in the hinterland of Luzon, strange Musa spp. some of which appear to be undescribed."



CUDRANIA TRICUSPIDATA.

Fruit of the Chinese Che tree, a near relative of the Osage orange, but with edible fruits, shown in natural size in the photograph. This fruit was grown at the Berckman's Nursery, Augusta, Georgia, from introductions made by Mr. E. H. Wilson, of the Arnold Arboretum, from Central China, but the plant has also been recently found and sent in by Mr. Frank N. Meyer, Agricultural Explorer, from the province of Shantung, in northern China, which has a semi-arid climate with light frosts. The striking similarity between the fruit of this species and the Osage orange suggests the possibility of making a hybrid. Photograph from fruit presented by Mr. P. J. Berckman's Nursery, Augusta, Ga.

(Issued July 24, 1913.)