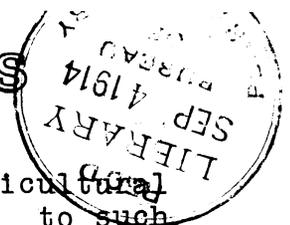


PLANT IMMIGRANTS



Descriptive notes furnished mainly by Agricultural Explorers and Foreign Correspondents relative to such newly introduced plants as 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. 97.

May 1914.

Genera Represented in This Number.

Amygdalus	38178	Paeonia	38339-340
Catalpa	38254	Paulownia	38184
Citrus	38101	Punica	38185
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	38279	Zinziber	38180
Mimusops	38172	Ziziphus	38244-247
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Osterdamia	38177		

Plates: Large-sized Chinese jujubes.
Chinese Haw orchard and fruits.
Fei peach orchard.

(NOTE: 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.)

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 or others interested.)

Matter in these multigraphed sheets must not be published without special permission.

Amygdalus persica. (Amygdalaceae.) 38178. Cuttings and plants of the Fei peach from Feitcheng, Shantung, China. "A remarkable variety of clingstone peach, considered to be the best in all China. Size large to very large; shape round, very heavy, often over one pound apiece; skin quite downy and of pale yellowish color with a slight blush on one side. Flesh very juicy and sweet and of excellent aromatic flavor, of white color, except near the stone where it is reddish. Stone very large and pointed, flesh strongly adhering to it. Ripens in early to middle October and possesses excellent shipping and keeping qualities. The trees are of erect growth when young, but when older they spread out considerably, remaining of open growth. To reach their greatest perfection these peaches need to be fertilized each spring, while during dry seasons, they are irrigated from wells. The fruit is also thinned. The soil they seem to thrive in best is a porous, light clayey loam of reddish color, retaining moisture quite well, but not becoming too soggy. The local people calculate that on an average a tree supplies ten dollars Mexican worth of fruit each season and they consider an orchard of these peaches a very valuable asset indeed. The climate around Feitcheng is of a semi-arid nature and this variety of peach may be expected to thrive especially well in the regions west of the Rocky Mountains. Chinese name, 'Fei tao,' meaning 'Fei peach.' (Meyer's introduction.)

Amygdalus persica. (Amygdalaceae.) 38272-276. Peach cuttings from near Tai an fu, Shantung, China. Five varieties, one said to be very large and juicy, weighing up to a pound, and keeping to December, another of medium size, ripening late, and keeping well, a third very ornamental flowering variety, with small, peculiarly-shaped 3-pointed, rosy-red fruits, and two of the 'pien tao' or flat varieties, of good quality. (Meyer's introduction.)

Catalpa bungei. (Bignoniaceae.) 38254. Trees of catalpa from near the village of Wang yu ko, Shansi, China. "A quickly growing Chinese timber tree, growing to large size, specimens seen 100 feet tall, with trunks 10-15 feet in diameter a few feet above the ground. The Chinese plant this tree for its wood, which is strong, light, durable and non-warping. It resembles walnut to a considerable extent and is much in demand for table tops and for fine furniture. This tree might possibly be profitably cultivated in the semi-arid sections of the United States where the winters are not too severe, while the summers may be quite hot. They are easily propagated from

roots that are close to the surface of the ground and the tree thrives best when planted close to irrigation canals and on sheltered places. Chinese name 'Tchiu shu', meaning 'autumn tree.' (Meyer's introduction.)

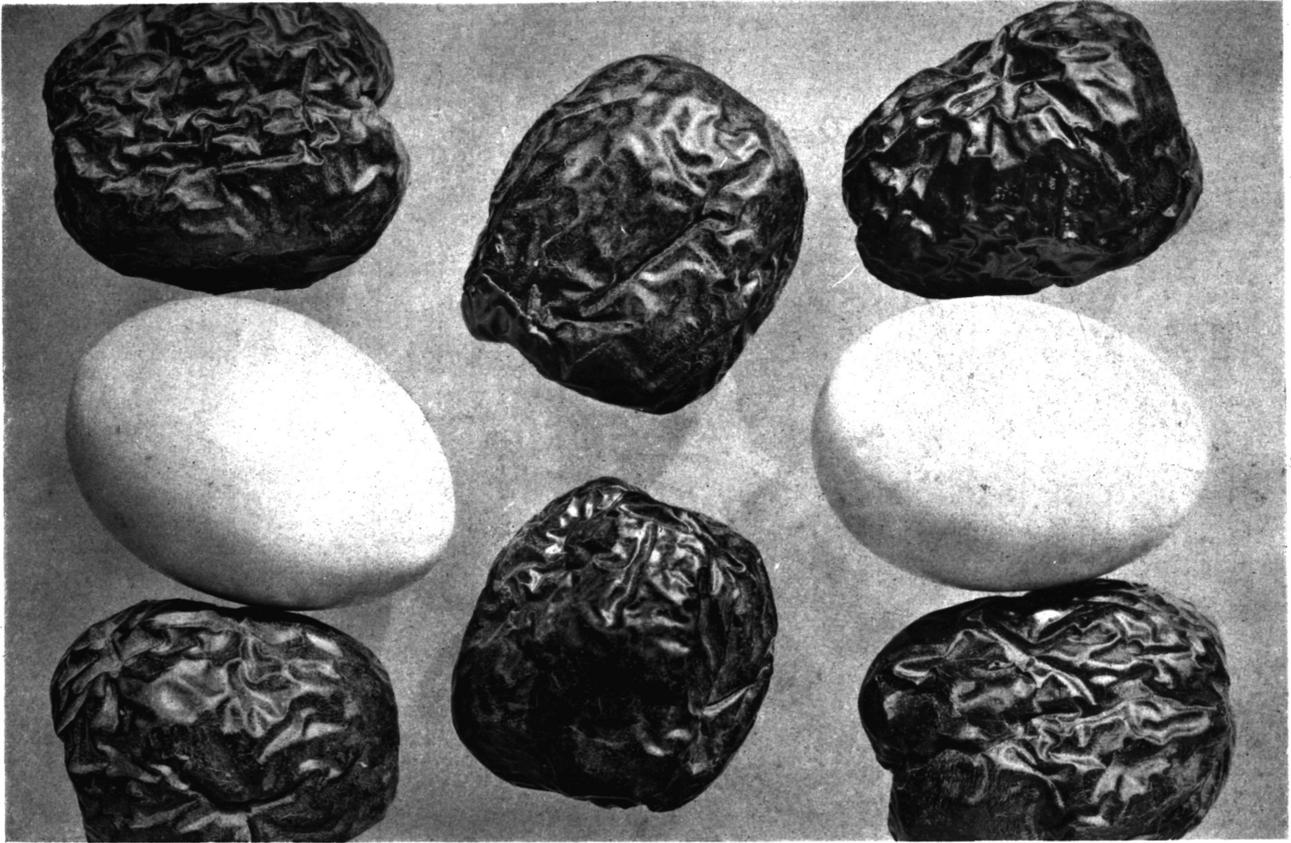
Citrus nobilis deliciosa. (Rutaceae.) 38101. Seeds of a mandarin orange from Lamao, Bataan, Philippine Islands. Presented by Mr. P. J. Wester, Horticulturist in charge of Lamao Experiment Station. "Seeds of a small, oblate, very thin skinned mandarin of most excellent quality, that is imported from China in considerable quantities. It is to my mind greatly superior to all the mandarins I have eaten here or in Florida with the possible exception of the 'Oneco', which it very much resembles in flavor. Considering how well the mandarin reproduces itself from seed, at least a few seedlings of excellent quality should be obtained from these seed." (Wester.)

Citrus hystrix. (Rutaceae.) 38293. Seeds of the cabuyao from Lamao, Bataan, Philippine Islands. Presented by Mr. P. J. Wester, Horticulturist in charge, Lamao Experiment Station. "A thorny tree from 6 to 12 meters in height with a rather dense rounded head, frequently with drooping branches; young growth more or less purplish, smooth. Leaves 16-24 cm. (6-10 in.) long, broadly winged, the area of the wings frequently exceeding the leaf area; fruit variable, from oblate to pyriform turbinate or oblong, smooth, to more or less corrugate, greenish lemon yellow; rind medium thick, flesh greenish, juicy, sharply acid, aromatic, contained in 12 to 15 locules; juice-sacs short and blunt; seeds many, flat, reticulate. Range from Malaysia including the Philippines to India. Like all other Philippine citrus fruits, the cabuyao goes under a multiplicity of names, varying with the tribal languages of the archipelago and the different forms of the fruit; some of these names are Suha, Balincolong, Biasong, Tibulit, Colobot, etc. Excepting the citron the cabuyao is perhaps less esteemed than any of the better-known citrus fruits in the Philippines and can scarcely be said to be cultivated. Some kinds are eaten with fish by the Filipinos and make a fairly good 'ade'. Most forms are also used in cleaning clothes and as a hair wash. The cabuyao has scarcely been introduced beyond its native habitat and is seldom seen even in botanical collections. For attractive shapeliness certain forms of the cabuyao are surpassed by no other citrus fruit. Some of these forms unquestionably will be recognized as subspecies or possibly as separate species on closer study." (Wester, Bulletin No. 27, Citriculture in the Philippines.)

Citrus sp. (Rutaceae.) 38335. Seeds of the 'natsu mikan' from southern Kyushu, Japan. Presented by Mr. E. H. Wilson, collaborator of this Office. "During my recent trip to southern Kyushu I made a collection of the various citrus fruits cultivated there. Among these fruits is an orange which I am unfamiliar with. Its Japanese name is 'natsu mikan' and it is said to keep longer than any other variety and to be very sweet at midsummer. It is a light-skinned variety with rather pale flesh and the skin separates from the flesh as it does in the pomelo. The tree bears while still small and the fruit is decidedly handsome in appearance. In February and March it is still on the tree and the flavor is sour and very decidedly bitter. I shall test the fruit again at midsummer to find if it becomes distinctly sweet. Very likely this orange is well known to you but it occurs to me that sweet oranges at midsummer would find a ready market. If of any interest to you there would be no difficulty in securing a supply of seeds. I think growing plants could also be obtained. Apparently it is as hardy as the Navel orange." (Wilson.)

Crataegus pinnatifida. (Malaceae.) 38176, 38283-284. Cuttings and scions of a large-fruited haw from the village of Ta ching ko, near Tai an fu, Shantung, China. "The Chinese haw fruit seems to thrive best on well-drained semi-gravelly or sandy loam and the best quality of fruit is produced on trees that grow on mountain terraces. It is not unlikely to become a fruit of considerable importance in America, when once it has become known. The Chinese graft and bud this haw on wild and seedling stock of the same species, but experiments should be made to determine whether other species of *Crataegus* will also be suitable for stocks." (Meyer's introduction.) Three varieties, one of which, of agreeable sour taste, can be kept almost a year, and is excellent for jellies, compotes, cake fillings, etc.

Euonymus bungei. (Celastraceae.) 38237. Cuttings from the village of Tchang pai, Shensi, China. "A spindle-wood, usually seen as a shrub, but when not molested, growing to a medium sized tree. The plant is an excellent bank binder, throwing up suckers all around; it stands drought to a wonderful degree, while it resists alkali also to a certain degree. On most places this shrub is cut down every year, but this treatment seems to make it spread more. It deserves to be given a thorough test as a bank and soil binding plant, especially in the semi-arid parts of the United States." (Meyer's introduction.)



Ziziphus jujuba.

Dried Chinese Jujubes.

The large round jujube or *Ta-yuan-tsao* from Pai hsiang chen, Shansi Province, China. (Hens' Eggs for comparison). The Tsao or Chinese jujube has proven hardy in the latitude of Washington and has borne good fruit in Texas and California. The discovery by Frank N. Meyer and the successful importation of cuttings of this unusually large fruited variety, S.P.I. No. 38243, cannot fail to have an effect upon the spread of jujube culture in this country. Photograph by Meyer, Feb. 14, 1914.



Amygdalus persica. The Fei Peach.

An orchard of the Fei peach at Feitcheng, Shantung Province, China. A thousand taels (\$700) worth of fruit was sold from this small orchard in the fall of 1913. It is one of the highest priced peaches in China retailing for 4-8¢ apiece. A seedling of this Fei peach was fruited last season at the Chico Field Station, but Mr. Meyer has now succeeded in importing fine cuttings and plants of this very large late clingstone variety which the Chinese rate so highly. Photograph by Frank N. Meyer, March 20, 1914.

Hypericum oblongifolium. (Hypericaceae.) 38153. Seeds of a St. John's wort from Ventimiglia, Italy. Presented by Dr. Alwin Berger, Curator, La Mortola Gardens. "A shrub, truly hardy in England, with evergreen foliage and large handsome yellow blossoms, which is a native of northern India, Nepal, and the Himalayas. It is found growing at elevations of from six to twelve thousand feet. It is a small rather compact shrub, with red-brown terete branches. The leaves of this species which are the largest of the genus, are dark green above, pale and glaucous beneath, and two to four inches in length, and evergreen." (Botanical magazine, pl. 4949.)

Inocarpus edulis. (Fabaceae.) 38135. Seeds of the Tahiti-chestnut from Pago Pago, American Samoa. Presented by Commander C. D. Stearns, Governor. "One of the most striking features of the forest. It bears a kidney-shaped fruit which is eaten cooked, when not quite ripe, and tastes much like a chestnut. The wood is of light color, straight, of fine texture, and very tough. It is used for burning lime in open kilns, the wood having the remarkable quality of burning readily when green. In some of the Pacific Islands the nuts are preserved in pits, like breadfruit, where they ferment. In Samoa it forms a staple food for several months of the year. The wood is perishable and of little economic value. The bark is astringent." (Stearns.)

Malus sp. (Malaceae.) 38231. Scions of a crab-apple from Sianfu, Shensi, China. "A flowering crab-apple, of low branching, wide spreading growth, said to bear masses of small, double flowers of rosy-red color. Obtained from the garden of the English Baptist Mission Hospital at Sianfu." (Meyer's introduction.)

Malus sp. (Malaceae.) 38279. Scions of an apple from the village of Fan dja tchwang, near Tai an fu, Shantung, China. "A variety of apple, said to be large, of red color; flesh firm and of sweet flavor. Chinese name 'Ta ping kuo', meaning 'large apple'. Apparently very drought-resistant, and possibly of value for the drier parts of the United States." (Meyer's introduction.)

Mimusops sp. (Sapotaceae.) 38172. Seeds from the Rio de Janeiro Botanic Garden. "A small, sapotaceous fruit from the Jardim Botânico. Tree about 20 feet high. Fruit oval, slightly under one inch in length, maroon in color. The flesh surrounding the single seed is whitish and of very pleasant flavor resembling that of the sapodilla. (Dorsett, Popenoe and Shamel introduction.)

Olea europea. (Oleaceae.) 38336. Cuttings of olive from Bermuda. Collected by Mr. Peter Bisset, of this Office. "Cuttings from an olive that fruits sparingly in Bermuda. For trial in Florida where soil and climatic conditions are similar and where the olive does not fruit." (Bisset.)

Oryza sativa. (Poaceae.) 38327. Seed of a rice from Dakhla Oasis, Western Egypt. Purchased from Sheikh Abu Bakr, through contract made by Prof. S. C. Mason, of this Bureau, on his visit to the Oasis in October 1913. "This rice is a variety grown in the Oases of Kharga and Dakhla, and regarded by the natives as quite distinct from the so-called valley rice which is used in reclaiming the salty lands in the delta of lower Egypt. Mr. Wright, manager of the Corporation of Western Egypt at Kharga, and Sheikh Abu Bakr, the chief man of Dakhla Oasis, both especially recommended this rice as being a valuable crop for reclaiming salty lands. They stated that it can be grown successfully on land quite too strong for barley. My idea in bringing this in was not that it would be of sufficient importance to use as a main crop on high priced irrigated lands, but that it should be given a test as a useful crop in reclaiming lands at present too salty for the growing of alfalfa and barley. There are considerable areas of land of this character in the Coachella valley accessible to a good flow of artesian water. In Dakhla the land is bordered up with quite high ridges, and the water kept almost continuously on the rice, it being essential, of course, that there be some wash or lower tract into which the surplus water can be thrown. My idea is that it is this excess of water that really does the chief work of improving the alkaline ground rather than the rice crop itself, but if a crop of rice can be raised toward the expense of reclaiming such land and bringing it into condition for usefulness with other crops, the rice certainly justifies itself." (Mason.)

Osterdamia sp. (Poaceae.) 38177. Cuttings of a grass from the mountains near Tai an fu, Shantung, China. "A grass of low growth and of spreading habit, thriving to perfection on thin decomposed rock soil, along mountain paths where much tramping over takes place; also found on inclines where the mat of roots prevents the soil from being washed out. Of decided value apparently as a bank, lawn and golf-course grass, especially for the drier parts of the United States." (Meyer's introduction.)

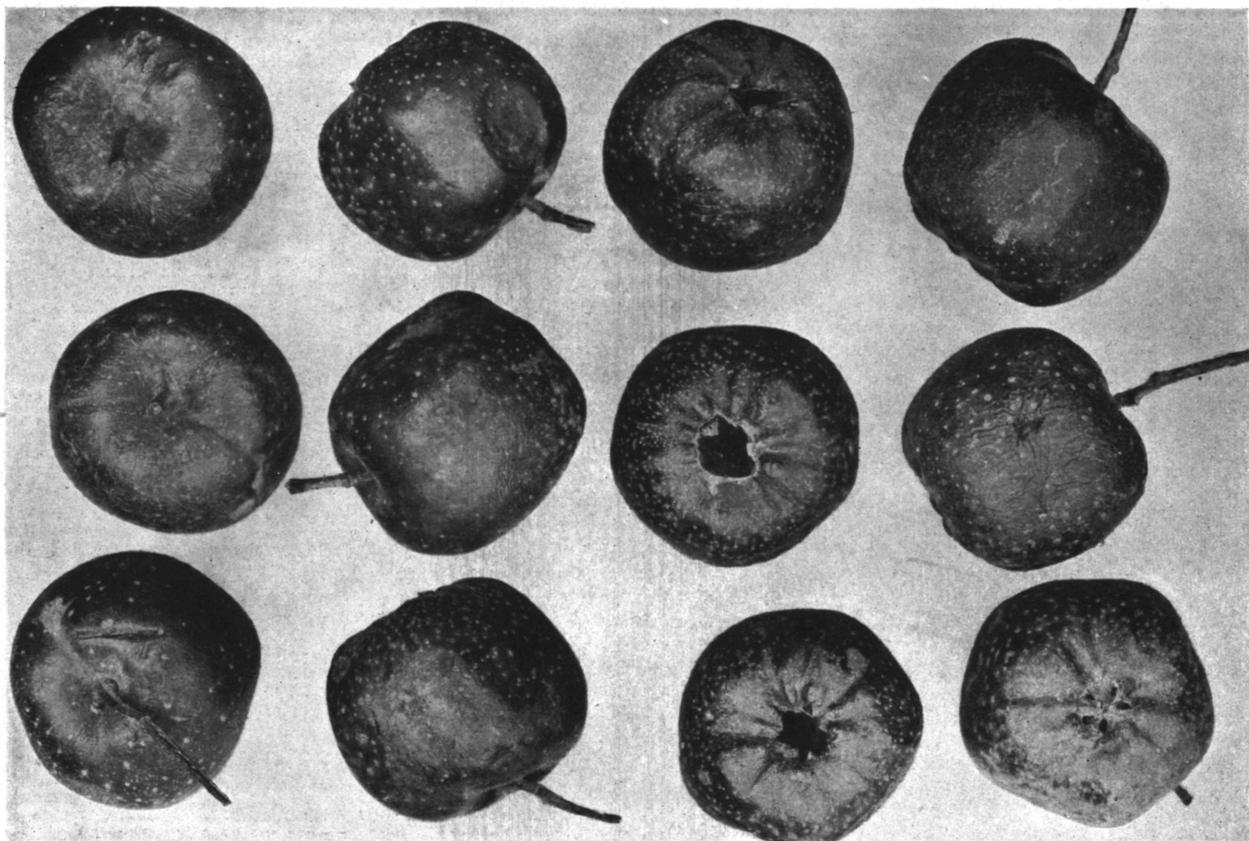
Paeonia albiflora. (Ranunculaceae.) 38339. Plants of herbaceous peonies from Tsaochou fu, Shantung, China. Among these are said to be yellow, green and black peonies. (Meyer's introduction.)



Crataegus pinnatifida.

Chinese Haw Orchard.

An orchard of Chinese Haw trees near Tai an fu, Shan-tung province, China. Trees of the Chinese haw which were grown from seeds sent in in 1906 by Mr. Frank N. Meyer are now growing in various localities in this country. As yet none of the imported varieties have fruited. The fact that good sized haw orchards are planted in China should encourage American horticulturists to study our own haw species and find out if they or the Chinese species are not worthy of orchard cultivation in this country. Photograph by F. N. Meyer, March 21, 1914.



Crataegus pinnatifida. Chinese Haw Fruits.

A superior variety of the large Chinese haw, from the markets of Tai-an-fu. They are there known as the large sour haw (*Ta suan tsa*). From these fruits (shown natural size) is made a marmalade which is eaten extensively in North China. Samples of this marmalade imported by Mr. Meyer indicate that it is of very good quality. Photograph by F. N. Meyer, March 20, 1914, Tai-an-fu, Shantung, China.

Paeonia moutan. (Ranunculaceae.) 38340. Plants of tree peonies from Tsoochou fu, Shantung, China. "Twelve rare varieties of tree peonies, among which are said to be yellow, blue, green, and black flowered ones. The soil best suited to these tree peonies is a loose porous, sandy loam, with perfect drainage and of great depth. In the district to the northwest of Tsoo-chou one finds such soil and climatic conditions as seem to suit this peony to perfection and the plants are grown there on fields as regular crops and are sent all over eastern China, going as far south as Canton, and as far north as Mukden to be used mainly for forcing purposes. There are said to be more than 300 varieties in cultivation here. The best time for transplanting is considered to be September, while propagation is effected through division. The plants require three and one-half feet distance in all directions to develop to perfection, while older plants need even 4-6 feet distance apart. At the approach of winter these peonies are covered over with some soil, which is taken away again in early March. This saves the flower buds from being winter-killed and reduces danger of damage by men or beasts, as the wood of the tree peony is quite brittle. It is thought that possibly an industry could be established in some suitable section of the semi-arid southwestern United States, where the tree peony could be grown in large quantities, to supply florists with one of the most decorative flowers for winter forcing purposes." (Meyer's introduction.)

Paulownia fortunei? (Scrophulariaceae.) 38184. Root cuttings from the village of Chin kao tchien, Honan, China. "A paulownia, planted here and there on sandy lands as a soil binder and a windbreak. The wood is of a very light nature and is used in the construction of light furniture, playthings for children, bowls, jars, etc. Of value as a soil binder and an ornamental park tree, especially for the mild wintered sections of the United States." (Meyer's introduction.)

Punica granatum. (Punicaceae.) 38185. Cuttings of a pomegranate from Tsoochou fu, Shantung, China. "A pomegranate, producing very large double flowers of a brilliant red color. No fruits are set. Chinese name, 'Hswang sheh liu hua,' meaning 'Double flowered pomegranate.' Obtained from the garden of the Roman Catholic Mission." (Meyer's introduction.)

Pyrus sinensis. (Malaceae.) 38240-242, 38262-271, 38277-278. Cuttings of pears from Shansi, Honan, and Shantung, China. Fifteen varieties, some of which are remarkable for their keeping qualities, and others of very large size, all of probable value for breeding work. (Meyer's introduction.)

Rollinia orthopetala. (Annonaceae.) 38171. Seeds of the 'fruta de condessa' from Rio de Janeiro, Brazil. "The 'fruta de condessa' (Countess's fruit) indigenous in the state of Rio de Janeiro, from whence the fruit is shipped to the markets of the capital and sold there at 100 to 400 reis (4-14 cents) apiece. In general form the fruit is conical to cordate, frequently 3 to 4 inches in diameter. The surface is covered with conical protuberances of varying prominence, and is creamy yellow in color when the fruit is fully ripe. The skin is rather tough and not easily broken; it surrounds the milky white, somewhat mucilaginous flesh, in which the seeds are embedded. The flavor is somewhat insipid, but is evidently esteemed by the Brazilians as evidenced by the quantity of the fruit sold. The seeds are not as numerous as in many other annonaceous fruits, but are about the same size as those of the cherimoya. The fruit ripens in February and March in this region. Should be given a trial in Florida and southern California particularly as a stock for the cherimoya and other choice annonaceous fruits." (Dorsett, Pope-noe, and Shamel introduction.)

Rosa spp. (Rosaceae.) 38161-166. Seeds of roses from Ventimiglia, Italy. Presented by Dr. Alwin Berger, Curator, La Mortola Gardens. Six varieties of roses, as yet unidentified, from E. H. Wilson's collections in western China. Of probably value for rose breeders and for comparative tests.

Saccharum narenga? (Poaceae.) 38257, 38332. Cuttings of sugar cane from Honan, China. Two numbers, one a very hardy variety of low sugar content, the other a mixture of varieties, of higher sugar content. Recommended for trial for molasses production, and also for fodder for milch cattle. (Meyer's introduction.)

Salix sp. (Salicaceae.) 38233. Cuttings of a willow from the village of Tong dja pu, Shensi, China. "A willow, growing to be a tall tree, with a heavy trunk. The main branches are of erect growth and of dark green color, but the young twigs are slender and gracefully drooping and of a delicate yellowish color. A fine tree for parks, especially when planted in a clump or as solitary specimens, where they can be seen from some distance." (Meyer's introduction.)

Zinziber officinale. (Zinziberaceae.) 38180. Rhizomes of ginger from Feitcheng, Shantung, China. "A variety of ginger grown on sandy loam in the vicinity of Min yang to the south of Tai an fu. Much hawked about throughout Shan-

tung and retailing at from .10 to 12 cents Mexican per pound. It is much relished as a condiment in soups and with meat dishes and is considered to be very healthful, so much so in fact that Confucius advised his pupils to make ginger one of their relishes to be eaten daily. The Chinese plant the rhizomes as soon as the soil becomes warm and harvest the plants in the autumn after a light frost; the rhizomes are stored in cool dugouts and kept covered over with slightly moist sandy soil. Chinese name 'Hsien chiang', meaning 'Fresh ginger.'" (Meyer's introduction.)

Ziziphus jujuba. (Rhamnaceae.) 38244-247, 38249-253, 38258-261. Scions of jujubes from Shansi and Honan, China. Thirteen varieties, all from regions heretofore unexplored horticulturally, and one with fruits said to be larger than ordinary hen's eggs. Some varieties preferably eaten fresh, others when put up in weak brandy. (Meyer's introduction.)

NOTES FROM CORRESPONDENTS ABROAD.

Mr. O. F. Cook writes from Coban, Guatemala, May 20, 1914: "At last we have reached a place accessible to a post-office, and can begin sending a few things. As I feared the Florida trip has made us too late for several things that could have been had in abundance in March and April. The cotton has been harvested for the most part, and we were not able to carry out the plan of making individual plant selections, and were obliged to content ourselves with seed in bulk. The hard shelled anona at Cahebin has a definite season in April, and no fruits or living seeds were to be had, but an American coffee planter has located here and I left some mailing tubes with him for next year, and with proper reminding in February or March these seeds could probably be had without serious difficulty as the trees are not rare about Cahebin. The tree is quite large and of upright habit, quite different from the other anonas. The leaves are thick, dark green and shining, like those of a magnolia. It is also said to be a free bearer, and the shell is very hard. Another find not properly appreciated before is the green sapote, injerto, or roxtul as the Indians call it. This was described recently by Pittier as *Calocarpum viride* but the generic name is a homonym and I have proposed *Achradelpha* to replace it. This new species is a much finer tree than the true sapote and apparently much better adapted to a cool climate. The foliage is much heavier than that of the sapote and of a deeper green color, in form and general appearance not very unlike that of the loquat. But the trees grow to a large size and are very handsome. They take the place of the sapote altogether at the higher altitudes around Coban, though both trees are found in the Senabu and Cajabin districts. The

failure of the sapote to thrive in Florida need not exclude the green sapote, and a trial planting will be in order. We shall send some seeds by mail and keep others with us. They are like those of the true sapote, but smaller and in some varieties much shorter, for the fruits of the green sapote run through the same series of varietal forms as those of the sapodilla. The quality of the flesh is distinctly superior to that of the true sapote, and much more likely to please the American palate. Anybody who likes papayas or Japanese persimmons might be expected to think favorably of the green sapote, for it comes distinctly into the same class of sweetish smooth-textured pulpy fruits. There is no astringency or unpleasant aftertaste whatever, so that one of the curing difficulties of the persimmon would be encountered. On the outside the fruits are a pleasing yellowish green color, more or less russeted at either end. The flesh inside is yellow, but with a reddish or brownish tinge, not as yellow as some of the Japanese persimmons, nor as dark as others.

"At present we are busy with the pacaya palms which are grown here in great abundance, so that any amount of seed could be obtained. Some of the palms have four, five, or even six pacayas, as the edible male inflorescences are called, so that we did not over-estimate the amount of the fruit that might be produced in a successful planting. I feel confident that the palms would grow very well under hot house conditions such as Goar and Reasoner have, and would suggest that a planting be made on that basis at Miami, with the idea of leaving some of the palms to grow to maturity. They attain a height of 12 to 15 feet but fruit much younger, probably in the third or fourth year.

"I might add that the roxtul or whatever it is to be called should have a chance in California as well as in Florida. Its climatic requirements should be much the same as those of the avocado. It is a much less tropical species than that of the true sapote."

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