

WHERE ARE THE BEST PAPAWS?

American Genetic Association Offers \$100 for Information about Them—A Native Fruit That Has Been Long Neglected But Contains Much Promise

OF ALL the important native fruits of the United States, the least known is probably the papaw,¹ which grows in the forests from the Gulf of Mexico to the Atlantic, west to Oklahoma and as far north as New York and Michigan. As an ornamental tree or shrub, it is occasionally grown even beyond these limits.

Belonging to the family of Annonaceæ or custard-apples, the papaw has a good deal in common with those delicious fruits. Its creamy pulp is of exquisite texture in the mouth, while its distinctive flavor and its aroma, often too pungent, give it a decided individuality. The shiny black seeds occupy more space than is desirable, in most specimens.

The poor shipping quality of the fruit doubtless accounts largely for the fact that it is so little known outside of the immediate localities where it grows wild. It is not considered eatable until it is dead ripe and has begun to turn blackish in color; it sometimes hangs on the tree until Christmas, although it will have reached maturity in the latter half of September, when the flesh is usually yellow, occasionally white. Good individual fruits, according to Little,² usually weigh about half a pound apiece, but sometimes they attain a pound in weight.

Not only is it too soft to ship, under most circumstances, but it does not keep well after it is picked. Sometimes it can be held for a number of days, if picked a little firm, but ordinarily it must be eaten from the tree.

The drawbacks of the fruit, then, are largely of a commercial character. They are drawbacks which can probably be

removed by intelligent breeding. With this idea a number of individuals have undertaken during the last few years to improve the papaw; but there is still plenty of room for work, and the American Genetic Association therefore feels the desirability of calling attention to the papaw, and pointing out the attractiveness of the problem it offers.

BEST SEEDLINGS WANTED

Among the wild trees along the creeks and in the underbrush of the river bottoms, there must be many a seedling which combines superior quality with a tougher skin and greater firmness than usual. Probably farmers have picked out some of these trees and transplanted them to the orchard. The American Genetic Association wants to locate these superior trees, in order that they may be made available for rapid propagation; and a member has given \$100 as a stimulus to the search for the superior specimens.

Two rewards are offered from this fund. Fifty dollars will be paid for the largest individual tree, and \$50 for the tree, regardless of size, which bears the best fruit. The offer will terminate on January 1, 1917, thus including the coming crop-season in which members (or others interested) can keep an eye open for superior specimens.

The award for the largest tree will be made on the basis of photographs. The conditions to be observed are as follows:

Photographs must be on glossy paper, not smaller than 4 x 5 or 3¼ x 5½ inches, and must be of sufficient excellence to allow reproduction in the JOURNAL OF HEREDITY or elsewhere. Photographs in which the tree is so small that its details cannot be made out, cannot be considered. The measurement of the

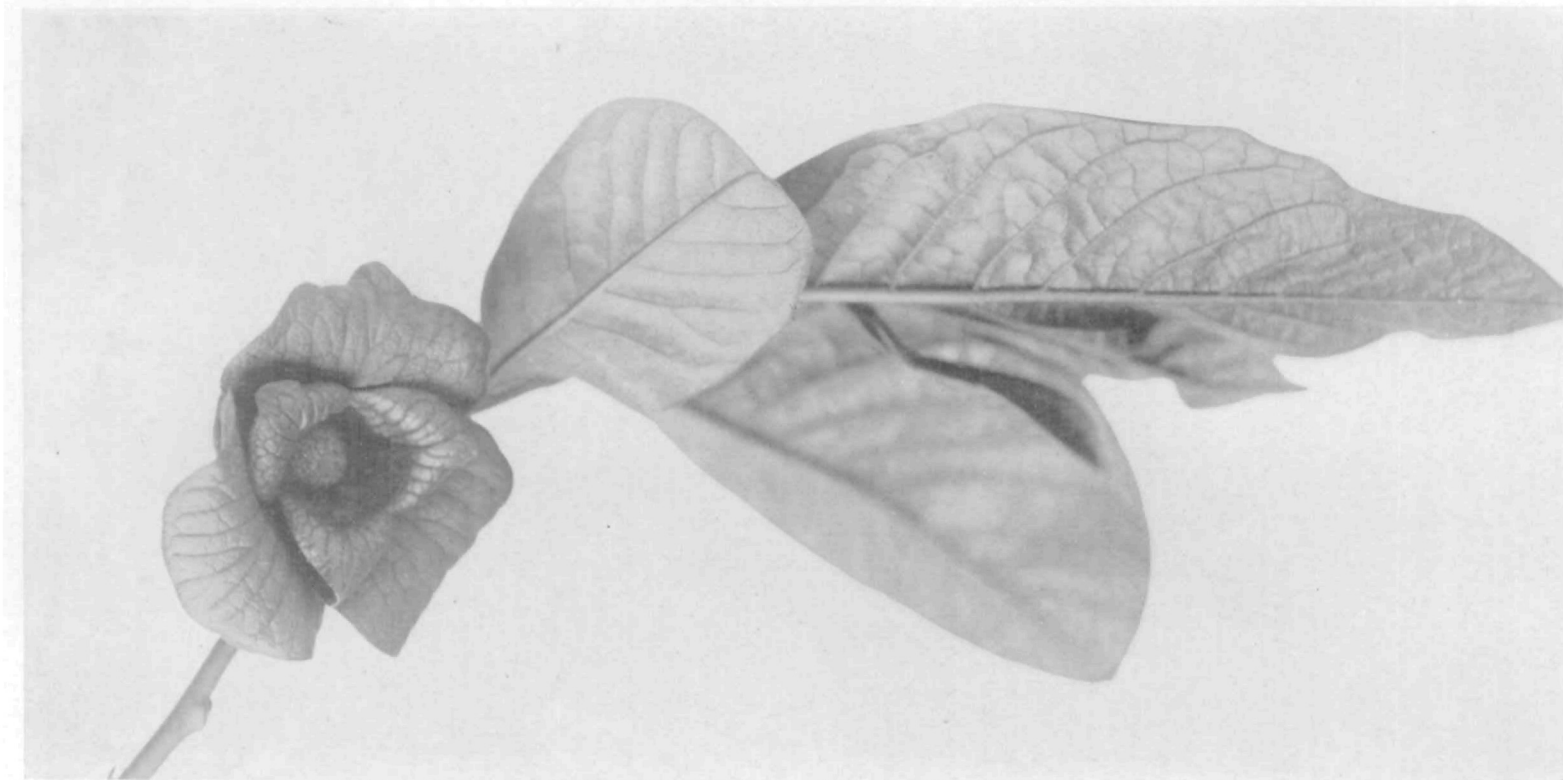
¹ *Asimina triloba* Dunal. So little is the papaw known that its very name has been stolen from it and applied, through a confusion in sound, to the tropical papaya or tree-melon (*Carica papaya*) which was described by J. E. Higgins in the JOURNAL OF HEREDITY for May, 1916 (vol. vii, pp. 208-220). The genuine papaw is no more related to this tropical papaya than it is to the apple or strawberry, and the application of the name *papaw* to the papaya should be stopped.

² A Treatise on the Papaw, by James A. Little, Cartersburg, Ind. Pp. 18, price 25 cents. This is the only thing published on the subject aside from an occasional magazine article.



THE PAPAWE TREE IS HIGHLY ORNAMENTAL

It is worth growing around any home, merely for its beauty. Those who know the tree only as it grows in dense thickets can hardly realize what an attractive form it develops when standing by itself and given some care. Its glossy leaves, not unlike those of a magnolia in appearance, attract the eye; even without the added charm of its flowers and fruit, it would be worth a much more conspicuous place in American horticulture than it now holds. The tree can be grown without much difficulty from seed, and is easily grafted. (Fig. 1.)



FLOWER OF THE PAPA

It is not conspicuous, but possesses an individuality which makes it highly prized. It is purplish in color and has been likened to the flower of a hollyhock, although the resemblance is not very close. It lends itself admirably to ornamental arrangement in the Japanese style which is becoming justly popular in the Occident nowadays. (Fig. 2.)

tree must be given in detail. In making it the only method which may be followed is to take the circumference of the trunk at two feet from the ground. It is desirable that the full height of the tree and spread of branches, as well as the girth, should be stated; if they cannot be measured exactly, they should be estimated. Photographs should, when possible, contain some object, such as a human figure, which will aid in giving a realization of the size of the tree; but such figure should be beside, not in front of the tree. It is necessary that the photograph should include the whole tree. If there are other trees growing beside it and cutting off part of it these other trees should be included in the picture. Contestants may send photographs of as many different trees as they like.

With each photograph, a statement should be submitted telling all that is known about the tree, with reference to its age, the size of crop it bears, the quality of the fruit; the character of the soil and surrounding vegetation. It is particularly necessary that photographers should state whether there are many other papaw trees in the neighborhood—within a radius, say, of five miles. If the tree is on private land, and likely to be destroyed, the fact should be mentioned. It will be helpful if photographers can tell to what extent the tree is subject to attacks by disease or insects. In short, the council desires to gain as much information as possible about the papaw trees of the United States; but it imposes as few hard-and-fast restrictions as possible, because of the varying conditions under which photographs may have to be taken, or under which they have been taken at some time in the past.

The tree should be shown with full summer foliage.

All photographs submitted will become the property of the American Genetic Association, to be kept as a scientific record or used in any way that the council may think desirable.

In the award for excellence of fruit, it will not be necessary to submit a photograph of the tree, since many of the best papaws grow in dense thickets where it would be impossible to make a picture. It will be necessary, however, to give a description of the tree from which the fruit is taken, telling approximately how large it is, exactly where located, and whether or not it can be transplanted, or twigs obtained for grafting. The amount of fruit it bears should also be stated. The contestant must send by parcel post to the office of the American Genetic Association, 511 Eleventh Street N. W., Washington, D. C., at least six fruits, all from the same tree, and all ripe enough to be eaten. The award will be made on the basis of the excellence of flavor, small

number and size of seeds, but more particularly on the condition in which the fruits reach this office, taking into consideration the number of days they have been in transit; for the great need of the market is for a fruit that will keep and ship well, and if these qualities are once obtained, selection of the best for propagation can be depended on gradually to improve the quality.

The same tree may, of course, be entered for both awards—for size of tree and for quality of fruit.

CULTIVATED TREES ELIGIBLE

If anyone is cultivating the papaw and has produced a variety that he considers of superior excellence, it will be entirely permissible for him to enter this in competition. The award is not limited to wild trees; although the number of trees in cultivation is believed to be so small that it is probable some of the many wild trees will be found superior to anything known in orchards.

It is the hope of this association that the superior trees found will be propagated by grafting, and a large quantity of them secured within a few years. The papaw can be grown from seed, but only with difficulty from suckers, while transplanting is recognized to offer much trouble. One correspondent describes the general experience when he says, "I have been growing papaws for seventy-five years, not willingly but because I could not help it. It is claimed there is no way to kill a papaw except to transplant it and try to make it grow."

Grafting in the spring has been found to offer no great obstacles, however, and is the best means of propagation, from the plant-breeder's point of view. Budding has not given good results, but this may be due to wrong technique. So far as is recorded, the papaw has not been grafted on any stock except its own, and there appears to be no necessity for any other stock.

One of the promising fields for plant-breeding, in connection with the papaw, appears to be in hybridizing it with its close relatives, the tropical annonas, the genus which includes the bullock's-heart, sweet-sop, sour-sop, and the

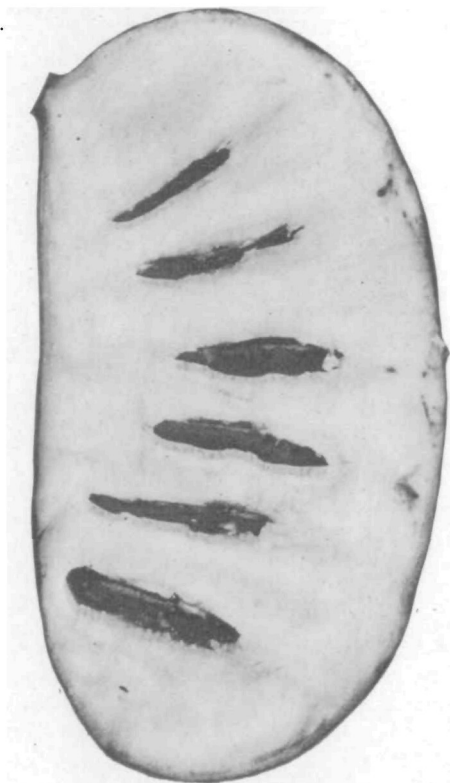
incomparable custard-apple or cherimoya. These fruits are larger and finer than the papaw, but too tender to grow in the United States except in southern California and southern Florida. There would appear to be a good chance that they could be crossed with the papaw, and a fruit produced

propagation of the papaw. To grow seedlings, he writes, "My plan, which has been entirely successful, is to make a hill like a watermelon hill and plant about five seeds two or three inches deep in the fall. In part for protection but mainly for shading the plants when they come up I place a barrel with both heads out over the hill and let it remain for a year or two. After that the barrel may be removed and then the plants will bear the sun. It must not be expected that the plants will come up until the harvest or later. The plants will not get more than 2 or 3 inches high the first year, but the root will be proportionately much larger than the top. The second year the plants will grow 6 or 8 inches high and after that they will greatly increase in growth from year to year. It will take them six or eight years to come into bearing."

More recent experiments than those of Mr. Little indicate that if planted as soon as taken from the fruits the seeds lie dormant in the soil for one year and germinate the second spring. There appears to be little difficulty in transplanting the young seedlings from the seed bed to the nursery row and getting plants 12 to 18 inches tall in two years, providing they are grown in rich garden earth. Transplanting has to be done in the spring before any growth starts.

Finally, as the season of ripening is coming on, it will be of interest to quote Mr. Little on the value of the fruit.

"The principal use of the papaw," he writes, "is to eat from the hand but there are other uses that it can be put to. It makes splendid custard pie. There is no finer dessert than papaw eaten with cream and sugar. It is used to make beer the same as the persimmon by putting the fruit in a jar, mashing it, and putting water on it and letting it stand until fermented. It also answers to make pudding just the same as persimmon pudding is made. It is also said that brandy equal to peach brandy is made of papaws. Marmalade which is equal to that of pears or peaches may be made of papaw. The custard may be spread on a board and dried like



THE PAPAW

Cross section of a fruit, natural size, photographed by W. E. Rumsey, of the West Virginia Experiment Station. The flesh is ordinarily yellow but sometimes white, and custard-like in consistency, with a peculiar pungent aroma. (Fig. 3.)

which would be hardy in a large part of the United States, while superior in quality to the papaw itself. So far as is recorded, this cross has never been made.

PROPAGATION FROM SEED

It may be helpful to give the advice of the late James A. Little on the

pumpkin leather. Papaws may be kept in their natural state till midwinter or longer by laying them down in oats. At this present date, January 27, Mr. Thompson has them down in oats that

are just as good as when taken from the tree." On this last point, another correspondent writes that he has found no better place to store them than in the dry leaves at the base of the tree.

Eugenics for Arabic-Speaking Peoples

Hall al-'Uqdah bi-Mulakhkhas al-Ifadah fi Intaj al-Awlad hasab al-Iradah (The Untying of the Knot in a Comprehensive Resumé on the Production of Children according to Will), by A. J. Arbeely, M.D. Pp. 193, price, \$2.50. Published by the author, 1723 U Street N.W., Washington, D. C.

The title of this book, implying that it is devoted to sex-control, fails adequately to describe its nature, for the theory of sex-control (based on nutrition and the influence of the parental mind) occupies only a third of the book, although it is said to be based on 1,000 cases. In the first two-thirds of the book the author, a Syrian physician with forty years of experience, gives a general treatise on eugenics, marriage and parenthood. It is written in a wholesome tone, with abundant detail, and gives an amount of information about heredity and race betterment which has not hitherto been available in the Arabic language, although the ancient Arabs had some sound empirical ideas on the subject. Muhammad is reported to have commanded, "Select

your wives with a view to offspring," and again to have said, "Avoid the rank plant which grows on a dung-hill." When asked to explain this he replied, "I had in mind the woman who is beautiful but whose ancestry is bad." Marriage and parenthood were held in the highest esteem, but the veneration of them was sometimes carried to an extreme, as is reflected in another saying credited to the prophet, "A fecund black wife is preferable to a sterile white one." Dr. Arbeely does not attempt to discuss this phase of the subject, which offers an attractive field of research for some Orientalist. It should be added that the literary style of the author is admirable, as those who know his lexicographic and journalistic work would expect.

Feeble-mindedness and Charity

More than half of the men who, in New York, apply to the Joint Application Bureau for Aid or patronize the Municipal Lodging House are morons, according to the estimate of Charles B. Barnes, Director Bureau of Employment of the State of New York. If careful examination should prove his estimate to be correct, he says, "it would mean an entire change in the attitude of the courts, charitable organizations, and the public generally toward them. We would no longer seek to 'rehabilitate' them. The long and weary path of attempting to make them self-supporting would be abandoned. The attempt to 'reform' them, in the sense in which it is now used, or the obtaining from them of promises to reform, would not

be made. Other disposition would have to be made of them. We would commence to treat our mentally defective as well and with as much consideration as we now treat our physically defective, and no more stigma would be attached to the one than to the other." For treating the feeble-minded among the applicants for charity, he declares that the farm colony with forcible detention is the only practical plan; by this means most of them could be made self-supporting, while at the present time most of them are annually costing society far more than they earn. On economic as well as humanitarian grounds, therefore, a revision of methods of distributing charity, which would eliminate the feeble-minded, appears to be justified.