

BOTANY

The Fruits and Man

"A Classic of Science"

How Our Common Fruits Had a European Origin and The Difference if America Had Cradled Our Civilization

WERE THE FRUITS MADE FOR MAN, OR DID MAN MAKE THE FRUITS? By Asa Gray in the *American Naturalist*, Vol. VIII, Salem, Mass. Peabody Academy of Science, 1874. This is an exact reprint of the original publication.

THESE NEED not be taken as mutually exclusive propositions; for as "God helps those who help themselves," and man's work in this respect is mainly, if not wholly, in directing the course or tendency of Nature, so there is a just sense in which we may say "the art itself is Nature," by which the greatest triumphs of horticultural skill have been accomplished. Moreover I am not one of those naturalists who would have you believe that nothing which comes by degrees, and in the course of nature, is to be attributed to Divine power.

The answer I should give to the question, as we thus put it, is:

1. Some fruits were given to man as they are, and he has only gathered and consumed them. But these are all minor fruits, and such as have only lately come within the reach of civilized man, or are not thought worth his trouble. Huckleberries and cranberries, persimmons and papaws are examples, taken from this country. Whether even such fruits have or have not been under a course of improvement, irrespective of man, is another question.

2. Others have come to man full flavored, and nearly all that he has done has been to increase their size and abundance, or extend their season. Currants and gooseberries, raspberries and blackberries, chestnuts, and above all, strawberries, are of this class.

3. But most of the esteemed and important fruits, as well as the grains, have not so much been given to man as made by him. The gift outright was mainly plastic—raw material, time and opportunity. As to the cereal grains, it

is only of the oat that we probably know the wild original; of wheat there has been an ingenious conjecture, partly, but insufficiently, confirmed by experiment; of the rest, no wild stock is known which is not most likely itself an escape from cultivation. Of some of them, such especially as maize, not only can no wild original be indicated, but in all probability none exists.

So of the staple fruits; of some the wild originals can be pretty well made out; of more, they are merely conjectural; of some they are quite unknown and perhaps long ago extinct.

To cite examples in confirmation or illustration of these points, to note how very ancient some of our varieties of common fruits are, and how very recent certain others—to consider how they have originated, with or without man's conscious agency, and how they have been perfected, diversified and preserved, mainly under man's direct care—would be to expand this note into an essay, and yet to say nothing with which pomologists are not familiar.

It would be curious to speculate as to what our pomology would have been if the civilization from which it, and we ourselves, have sprung had had its birthplace along the southern shores of our great lakes, the northern of the Gulf of Mexico, and the intervening Mississippi, instead of the Levant, Mesopotamia and the Nile, and our old world had been open to use as a new world less than four hundred years ago.

Seemingly, we should not have as great a variety of choice fruits as we have now, and they would mostly have been different, but probably neither scanty nor poor. In grapes, at least, we should have been gainers. Our five or six available species, of which we are now just beginning to know the capabilities, would have given us at least as many choice sorts and as wide a diversity as we now have of pears; while pears would be a recent acquisi-

tion, somewhat as our American grapes now are. Our apples would have been developed from *Pyrus coronaria*: and might have equalled anything we actually possess from *Pyrus Malus* in flavor, though perhaps not in variety, if it be true, as Karl Koch supposes, that the apples of the orchards are from three or four species. At least one of our wild hawthorns, *Crataegus tomentosa*, in some varieties, bears a large and delicately flavored fruit, evidently capable of increase in size; it might have been in the front rank of pomaceous fruits. In a smaller way our service-berry would have been turned to good account. Our plums would have been the progeny of the *Chicasa*, the beach plum, and our wild red and yellow *Prunus Americana*, which have already shown great capacity for improvement; our cherries might have been as well flavored but probably not as large as they now are. But instead of peaches and figs, we should be discussing manifold and most luscious varieties of persimmons and papaw, the former probably equal to the *kaki* just acquired from the far east. As to strawberries, gooseberries and currants, we should have lost nothing and gained something, as we possess several species besides the European types themselves; as to blackberries and raspberries we should have been better off than now, by the earlier

▼
R
A
D
I
O
 ▲

**The Fels Planetarium
of the
Franklin Institute**
 an address by
JAMES STOKLEY
 Associate Director in charge
of Astronomy for The
Franklin Institute and
Science Service Staff Writer
on Astronomy.

To be given Friday, Oct.
13, at 3:00 p. m. Eastern
Standard Time over stations
of the Columbia Broadcast-
ing System. Each week a
prominent scientist speaks
over the Columbia System
under the auspices of
Science Service.

development and diversification of our indigenous species. And we might have had all our finest strawberries a thousand or more years ago, these having come from our American types, *Fragaria Virginiana* with its varieties (which, as well as the old world *F. vesca*, occurs all across the continent), and *F. Chilensis* which ascends the Pacific coast to Oregon.

Then we should consider how much earlier our race, with an American birthplace, would have been in possession of tomatoes, of the pineapple, of the cherimoyer and the other custard apples, of the star-apples and other sapotaceous fruits, of chocolate, of Lima beans in all their varieties, of peanuts; not to speak of potatoes, sweet potatoes, and "Jerusalem" (that is, girasola or sunflower) artichokes: the last supplemented by our ground-nut (*Apios tuberosa*) would have been the first developed esculent tubers, and would probably have held their place in the first rank along with potatoes and sweet potatoes of later acquisition.

Among the causes and circumstances which have given to the fruits of temperate climates of the old world their preëminence, *opportunity* is one. How many potential fruits of value lie undeveloped in this country we know not, and now shall never know. They have lost their opportunity. Necessity, which is the mother of pomology as well as of other invention, has been fully supplied out of other accessible, and in some cases no doubt originally better, materials.

There are some, however, for which evidently "a good time is coming." Of these, our wild grapes are foremost. They have such a start already, and seedlings, whether from crosses or otherwise, can be produced and selected and reproduced in so short a space of time, that they will probably have achieved their position when the American Pomological Society holds its centennial celebration.

Blackberries, from *Rubus villosus*, are in similar case; and if due attention be paid to the low blackberry or dewberry, and to the sand blackberry of New Jersey and farther south, the foundation for a greater diversity of excellent sorts will be laid.

As to cranberries, already an important staple, increase of size and abundance of production are all that are to be expected. It is easier to bring about improvements in the direction of sweet-

ness than in that of acidity. Huckleberries, also, have probably nearly reached their perfection unassisted.

A few wild fruits may be mentioned which manifestly have great capabilities, that may or may not be developed in the future. The leading instances in my mind are the persimmon and the papaw, —not the true papaw, of course, which we have in Florida, but the *Asimina* or western papaw, so called. Both persimmons and papaws are freely offering, from spontaneous seedlings, incipient choicer varieties to be selected from; both fruit when only a few years old, thereby accelerating the fixation of selected varieties into races; and both give fruits of types wholly distinct from any others we possess of temperate climates. He that has not tasted a *kaki* has no conception of the capabilities of the *Diospyros* genus. The custard apples of the West Indies give some idea of what might be made of our papaw, when ameliorated by cultivation and close selection from several generations. I have understood that one of the veteran pomologists of the country, Dr. Kirtland, of Ohio, a good while ago initiated a course of experiments upon the papaw in this regard; it would be well to know with what success, and whether the breeding and selection have been continued through successive generations.

Our American plums, already mentioned, have for many years been in some sort of cultivation, and have improved upon the wild forms; but I suppose they have not been systematically attended to. Their extreme liability to black-knot and other attacks renders them for the present unpromising.

Finally, if pomology includes nuts, there is a promising field uncultivated. Our wild chestnuts are sweeter than those of the old world; it would be well to try whether races might not be developed with the nuts as large as *marrons* or Spanish chestnuts, and without diminution of flavor. If we were not too easily satisfied with a mere choice among spontaneous hickory nuts, we might have much better and thinner shelled ones. Varying as they do excessively in the thickness of the shell and in the size and flavor of the kernel, they are inviting your attention, and promising to reward your care. The pecan is waiting to have the bitter matter between the shell and the kernel bred out; the butternuts and black walnuts to have their excess of oil turned into farinaceous and sugary matter, and their shells thinned and smoothed by

continued good breeding; when they will much surpass the European walnut.

All this requires time, almost unlimited time; but it is not for those who are enjoying the fruits which it has taken thousands of years to perfect, to refrain from the good work which is to increase the enjoyments of far future generations.

Science News Letter, October 7, 1933

The British climbers who recently tried to reach the top of Mount Everest installed telephone connections in their camps high on the mountain, and received weather news by wireless from India.

While laboratory tests show that a tiny fraction of an ounce of mustard gas in the lungs will kill a man in a minute, in actual field use it takes about two tons of this gas to produce a single death.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912

OF SCIENCE NEWS LETTER published weekly at Baltimore, Md., for Oct. 1, 1933.
Washington
District of Columbia } ss.

Before me, a Notary Public in and for the District of Columbia aforesaid, personally appeared Watson Davis, who, having been duly sworn according to law, deposes and says that he is the Editor of the SCIENCE NEWS LETTER and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Editor, Watson Davis, 21st and Constitution Ave., Washington, D. C.

2. That the owner is:
Science Service, Inc., 21st and Constitution Ave., Washington, D. C., a non-profit corporation without stock, operating as the Institution for the Popularization of Science.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent. or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

Watson Davis,
Editor.

Sworn to and subscribed before me this 27th day of Sept., 1933.

[SEAL]

Charles L. Wade.
(My commission expires March 26, 1938.)