An Unstable Mutation of the Shippers Late Red Peach*

by

A. H. THOMPSON, A. F. VIERHELLER, and C. O. DUNBAR,
College Park, Maryland

From time to time mutations of various sorts have been found in commercial peach orchards throughout the nation. Many desirable mutations have been propagated, tested, and ultimately have become popular varieties in the commercial peach industry. Only rarely are such mutations found to be unstable; i. e., seem to revert to the "parent" or another type rather than continue as the originally observed sport type.

A sport of the Shippers Late Red peach has been found in western Maryland which, upon propagation, appears to be a very unstable mutation. The original mutation, a large, smooth-skinned nectarine type, was found during the 1945 season in the orchards of R. S. Dillon, Jr. near Hancock, Maryland. This orchard contained vigorous five-year-old Shippers Late Red peach trees which were bearing normal crops of large fruit true to the variety. A small secondary branch in the upper part of one tree was found in 1945 to be producing smooth-skinned nectarine type fruits as well as normal pubescent peaches. Budwood was selected from this branch in 1948 and worked to seedling trees in a nursery row. The budded trees were set out in the spring of 1949 in a commercial orchard.

In 1952, the 11 trees propagated from budwood of the mutation bore a commercial crop of fruit. Both smooth nectarine types and normal Shippers Late Red peaches were produced on a number of these trees. In 1953, the second year of bearing, it was found, on closer observation, that six of the 11 trees bore a moderately heavy crop of normal Shippers Late Red peaches and produced no smooth nectarine types whatever; the other five trees in the group bore both smooth and pubescent fruit types on each individual tree. In the case of the trees showing the mixture, a majority of the fruits on the trees were normal peaches. The number of nectarine type fruits on these trees varied from less than ten per cent of the crop to nearly one-third of the crop.

The nectarine type fruits produced in 1953 were generally smaller in size than

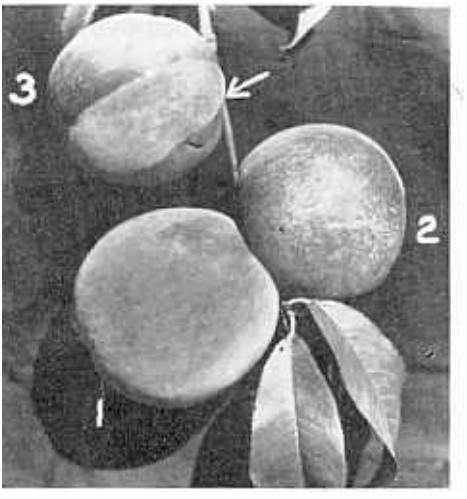

Fig. 1. Smooth-skinned mutation of the Shippers Late Red peach. No. 1—peach with normal pubescence, No. 2—smooth-skinned nectarine type, No. 3—fruit showing both smooth skin and normal pubescence; arrow indicates line of demarkation.

*Misc. publication No. 178; Contribution No. 2485 of the Maryland Agricultural Experiment Station, Department of Horticulture.

the peach fruits on the same trees, a difference illustrated by comparing fruits #1 and #2 in Figure 1. In general, however, the smooth-skinned fruits were large, ranging in size from 2¼ to 2¾ inches in diameter. Considerable red color developed on the nectarine type fruits, which exhibited the characteristic mottling so often associated with the nectarine. The ripening date of the nectarine types in 1953 was also about four days later than the Shippers Late Red peaches on the same trees. When ripe, the nectarine type fruits proved to be yellow-fleshed, freestone, and to have a finer-grained, smoother-textured flesh than the "parent" peach.

There appeared to be no particular pattern in the distribution of the nectarine type fruits on the various trees. Smooth-skinned fruits were found completely intermixed with pubescent types in all parts of the trees. Moreover, all but one of the nectarine type fruits exhibited both pubescent and smooth areas of skin on the same fruit, a phenomenon which was not observed on the original mutation. An interesting feature of the fruits showing both skin characteristics was the fact that the smooth-skinned portion of the fruit was always depressed with reference to the overall contour of the fruit. A more or less sharp line of demarkation between smooth and pubescent areas on the same fruit was usually evident (Figure 1, arrow). The smaller size of the nectarine fruits and the depressed character of the smooth skin on those fruits exhibiting both types of epidermis may bear a relationship to the observations of many horticulturists that nectarines are generally smaller than "parent" peaches.

As far as the authors have been able to determine, this is the first report of the coexistence of dominant pubescent and recessive smooth epidermis on the same fruit in the peach. This is apparently a chimeral condition, but in the light of recent cytochimeral studies of both the apple and the peach (1, 2) it appears that the nature of the chimera in this case is both obscure and complex. Furthermore, it is not known what happened to the original mutation which produced only smooth skinned fruits. The answers to these interesting questions can be obtained only through detailed cytological study of the material at hand.

Literature Cited

Dermen, Haig. Pattern of Tetraploidy in the flower and fruit of a cytochimeral apple. Jour. Heredity 44:31-39, 1953.

Dermen, Haig, Periclinal cytochimeras and origin of tissues in stem and leaf of peach. Amer. Jour. Bot. 40 (3):154-168. 1953.

Purple Autumn Raspberry

Your attention is called to the article on the Purple Autumn raspberry which appeared in the Summer 1953 issue of the DIGEST. The title of this article gives a somewhat misleading impression and requires correcting. Hershel L. Boll was with the Judson Nurseries, Bristol, Indiana, at the time when the article was published. However, the work he did together with A. S. Colby, in developing the Purple Autumn raspberry, was performed at the University of Illinois, Urbana, Illinois.

Attention— A. P. S. Members

Good progress is being made toward developing the program for the joint meeting of the A. P. S. with the Indiana Horticultural Society, to be held at Indianapolis on January 13, 14 and 15, 1954. It isn't too late to make plans for this meeting. A very full and interesting program is being planned, so be sure to attend.

—A. S. Colby, President
American Pomological Society