

NATURAL SELECTION OF BLIGHT-RESISTANT AMERICAN CHESTNUTS APPEARS PROMISING

Jesse D. Diller

Pathologist, Northeastern Forest Experiment Station
Forest Service, U. S. Department of Agriculture

Although it has been over a half century since chestnut blight was discovered in the United States, and about two decades since most of the merchantable dead trees were salvaged, many people still continue to hope that a native blight-resistant chestnut may be found. They are encouraged in this hope by the persistency of sprouting, and occasionally fruiting of some of the larger sprouts.

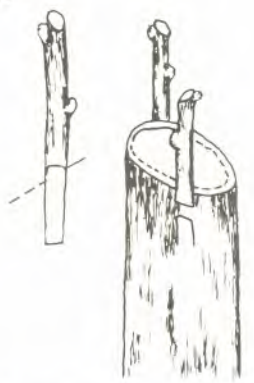
Until recently the U. S. Forest Service knew of 57 large surviving chestnuts ranging from approximately 8 to over 30 inches in diameter (dbh). A few months ago an article in Outdoor Life by Arthur Grahame requested individuals to report the locations of such trees to the Forest Service. We received reports from nearly 700 people. We are now screening these reports and have made a limited field survey to determine if any of these trees, through natural selection, appear to have resistance to the blight. Our limited survey indicates that about one fifth of the trees reported from the New England and North Atlantic states show promise; they range from 6 to 10 inches d.b.h. and exhibit evidence of some degree of blight resistance. The fact that the above scattered trees all occur within a 400-mile radius of New York City, in an area that was swept by the blight approximately fifty years ago, we think is encouraging. The real test will be their continued survival and growth in the future. Of the others reported from the northeast approximately three fifths were either of Asiatic or European origin, or sprouts less than 6 inches d.b.h. from the stumps of blight-killed American chestnuts. We propose to make a similar spot check this autumn in an area embracing western Pennsylvania, eastern West Virginia, northern Virginia and Maryland, all within the above mentioned 400-mile radius.

Our next step will be to include these older American chestnuts with the previously known 57 trees in a screening program. Scionwood from selected trees will be grafted on seedling root stock at a number of localities. These grafted trees will be exposed to natural blight infection. Those that survive may eventually be artificially inoculated with the blight fungus. The next step would be to develop controlled breeding programs and techniques for large-scale vegetative propagation.

A number of cooperators are assisting in the initial screening tests. If you are interested in testing some of this material and have facilities for grafting work, let us know by letter to the Northeastern Forest Experiment Station.

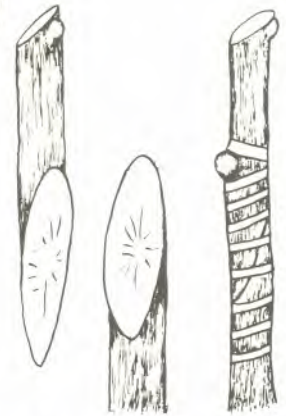
GRAFTING METHODS SUITABLE FOR CHESTNUTS

(1)



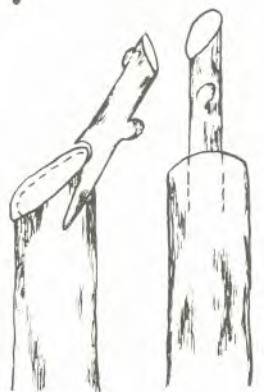
SLOT BARK

(2)



SPLICE (OR WHIP)

(3)



MODIFIED CLEFT

(4)

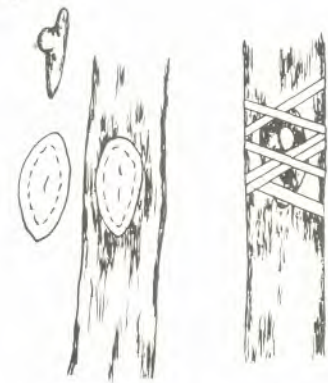
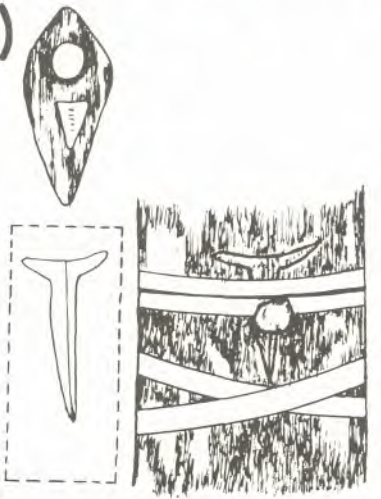


PLATE BUD

(5)



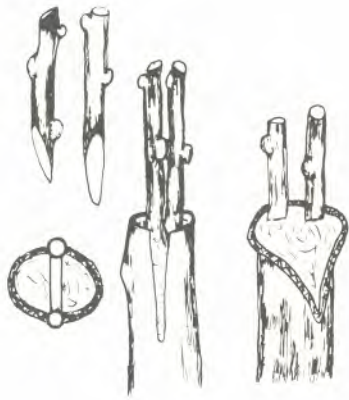
SHIELD BUD

(6)



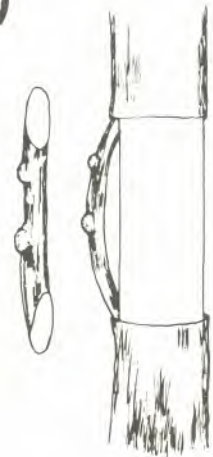
WHIP

(7)



CLEFT

(8)



BRIDGE (OR GIRDLE)