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# New York State Agricultural Experiment Station

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## A VIGOROUS ROOT STOCK FOR GRAPES.

Left, Ten one-year-old Concord Roots. Right, Ten Riparia Gloire Plants of Same Age grown along side of the Concord.

## IMPROVING GRAPES BY GRAFTING

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## IMPROVING GRAPES BY GRAFTING

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### **Why graft**

Many American varieties of grapes of excellent quality have certain defects which detract from their value when grown on a commercial scale.

Some of them give small yields, others have irregular bearing habits from year to year, some possess poor cluster characters, while still others are too sensitive to soil conditions for profitable production. For some years past in the Station vineyards at Portland and Fredonia, several of the common varieties of American grapes have been grafted on different root stocks and have been grown in the vineyards side by side with own-rooted plants of the same varieties. So marked has been the improvement in the grafted plants in many cases that a special study of vigorous root stocks for American grapes has been made in the Fredonia vineyards for the past five years.

Above everything else, grafting has improved the quality of the fruit of practically every variety that has entered into the test. In addition, grafting has in most cases given increased yields over own-rooted vines of the same variety and also greater cane growth and increased trunk diameter. It now seems to be largely a matter of finding the best stock for each variety and of working out cheaper methods for propagating grapes by this method, as the cost of grafting is the only obstacle that stands in the way of the practice becoming generally accepted by grape growers.

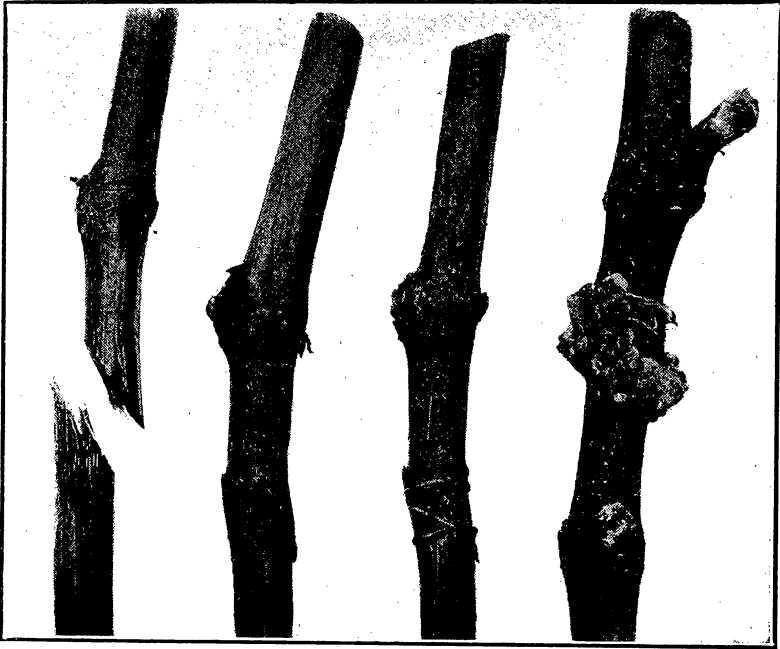
### **Stocks and varieties used**

Out of a large number of root stocks suitable for the purpose, three kinds were selected for the Station experiments. These were Clinton, Riparia Gloire, and Rupestris St. George. On each of these stocks were bench-grafted Delaware, Campbell, Niagara, Concord,

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\*Summarized from Bulletin No. 508 of this Station entitled The Behavior of American Grapes Grafted on Vigorous Stocks, by F. E. Gladwin. A copy of the complete bulletin may be had free of charge upon request.

Iona, and Catawba. Along side of the grafted vines were grown the same varieties propagated in the usual way and designated as "own-rooted" vines.



#### WHIP AND TONGUE GRAFTING OF GRAPES.

At left, stock and scion cut for joining. Second, stock and scion joined. Third, joined and tied with waxed twine. Fourth, the graft after the callusing process.

Each of these well-known varieties has some defect which it was hoped to overcome by grafting on vigorous stocks. Delaware is inclined to set more fruit than it can mature; Campbell is very erratic in its bearing habits and sensitive to soil conditions; Niagara has the "off-year" habit to a marked degree; Concord has a reputation for "running out" or deteriorating in yield and cluster characters when grown for a long time; Iona is one of the most difficult American grapes to grow successfully; Catawba on its own roots is often a light yielder and frequently fails to mature its crop. Many of these defects have been overcome by grafting.

Careful records were kept of fruit yields, cane growth, increases in trunk diameter, and quality of fruit for grafted and own-rooted vines of these several varieties.

All things considered, it is believed that Gloire is the best stock for Delaware and Concord; Clinton for Niagara and Catawba; while Clinton and Gloire appear to be about equal for Campbell and Clinton and St. George for Iona. The fruit of all the varieties except Iona was markedly improved in quality by grafting.

As a result of these tests, it is believed that American grapes can be materially improved in quality, that yields can be increased, and that more vigorous vines can be obtained by bench-grafting desirable varieties on suitable stocks. At present, the cost of grafted stock will probably be too great to warrant the commercial grower changing over to planting stock propagated in this way. Improved methods of grafting should lower the cost, however; and eventually, when the supply of grafted vines is more abundant, this method of propagation should prove a boon to commercial grape growing.

For the home planting, however, the immediate benefits to be secured from grafted stock will well repay the slightly greater cost of the stock, both by the production of better fruit and by the greater assurance of success.