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FIGS. 1 AND 3. TOOLS USED IN RINGING GRAPE VINES; 2. VINE SHOWING RING OF BARK JUST REMOVED; 4. SAME AT CLOSE OF SEASON.

HOW RINGING AFFECTS GRAPES.

F. H. HALL AND WENDELL Paddock.

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*Connected with Fertilizer Control.
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Ringing grape vines is practiced by many growers to secure earlier maturity and larger bunches of grapes. A ring of bark is removed from the bearing arm between the main vine and the buds which are to produce the fruit of the season. This does not interfere with the ascent of the sap, which passes through the outer ring of undisturbed wood; but it does prevent the return of the food which has been formed from the sap in the leaves. Thus parts of the branch above the ring can draw upon all the food formed in the leaves of that branch, none of it passing on to build up the parent vine. Consequently the overfed bunches grow faster and become larger than their less favored mates; but the vine itself may suffer, and size may be added and early maturity produced at the expense of quality.

Ringing is performed either with knife or with tools like those shown in the figure, a band of bark about an inch wide being removed. Since the ringing robs the plant, it must be done with care to prevent permanent injury to the vine by the continued drain. However, by keeping the vines well fed, by maintaining a good supply of vigorous foliage kept free from diseases and insects and by modifying the method to suit the system of training, vineyards which have been ringed for ten or fifteen years have been kept growing and still yield heavily. In the two-arm Kniffin system of training the ring is removed from each arm beyond the fifth bud thus leaving ten buds to furnish leaf surface

*This is a brief review of Bulletin No. 151 of this Station on Experiments in Ringing Grape Vines, by Wendell Paddock. Anyone interested in the detailed account of the investigations will be furnished, on application, with a copy of the complete bulletin; and the names of those who so request will be placed on the Station mailing list to receive future bulletins, popular or complete as desired.
to support the vine; in the four-arm system only the two upper arms are ringed, leaving the lower ones for foliage and fruit; and in the renewal system the ring is removed just beyond the renewal bud, so that several shoots in the center of the vine supply it with necessary food. In any system all fruit below the ring should be removed as it will not ripen well, but will uselessly draw food from the already cheated vine.

Experiment. At Poughkeepsie the vines were trained on the two-arm Kniffin system and both arms of most of the vines tested were ringed beyond the fifth bud, four vines only being ringed beyond the renewal bud. No difference was noticed between these two methods; but great difference, particularly with some varieties, between ringed and unringed vines. Delaware ripened 9 days earlier, Niagara 14 days, Concord 17 days and Empire State 21 days; and there was a slight gain in size with Moore's Early and Niagara, but Delaware and Moore's Early showed a decided loss in quality, and Worden's tendency to crack was decidedly increased. Two vines of Niagara, ringed beyond the renewal bud, succumbed to the treatment, dying before the second season was over. The results of the second season, which was dry and hot toward its close, were not so marked. Empire State was the only variety to show gain in size and hastened maturity.

At Lodi the renewal system is used and vines were ringed just beyond the renewal bud. All varieties tested showed a gain in size, compactness of bunches or earliness, this being quite marked with Concord, Geneva and Niagara; but the quality of the finer-flavored sorts, as Delaware and Niagara, was inferior on the ringed vines. In the second season no new growth was allowed to form beyond the fruit on some of the ringed vines, the ends of the vines being trimmed off; and the quality of the fruit was improved on such vines. As at Poughkeepsie, the differences in size and earliness were not so striking as in the preceding season.

Results. These experiments tend to show that ringing will mature grapes of some varieties earlier, and will make larger and more compact bunches; but the amount of difference will vary with the variety, season, condition of foliage, cultural care, and quantity of fruit allowed to mature on the vine. The quality of finely flavored grapes is liable to be lowered; but this may be remedied to some extent by trimming ringed vines so but little new growth forms. With careful management the vitality of the vines need not be seriously impaired.

The question of desirability of ringing and profit therefrom is one which each grower must decide for himself.