

instead of its being wasted in the production of useless laterals. This will greatly enlarge and strengthen the leaves, and give more chance for light and air among them.

Some varieties keep on growing until quite late without ripening their wood. This can be remedied by stopping the shoots when they have grown far enough. Unripe wood accompanies unripe roots, and neither are desirable. The above, if faithfully carried out, is the perfection of summer pruning, and is really nothing but the prevention of useless growth. The removal of any considerable amount of foliage in the growing season is weakening to the vine.

#### PRUNING AND TRAINING

Constitute the important part of grape culture, and without them there can be no permanent success. A vine on trees, with plenty of room, will flourish with little or no pruning; and a young vine on a trellis will endure bad pruning for a time; but a poor method, or a good method poorly carried out, will ultimately result in failure. We prune to enable the vine to mature the greatest amount of fruit, with a satisfactory amount of wood for the following year. To do this intelligently, one must know something of the habits of the vine, the treatment to which it has been subjected, and the fertility of the soil in which it grows. There is enough in the subject for an entire essay, and I can do no more here than to give a few suggestions.

Before a vine can produce fruit, it must have bearing wood; i. e., well matured canes of the previous year's growth; and as the sap tends towards the extremities, especially the top, this bearing wood must be left on a level as far as possible. Otherwise, the sap will flow past the lower buds and force the top ones into a rampant growth. For

this reason it is entirely useless to attempt to cover any considerable amount of vertical space with a single vine, and expect it to bear above and below at the same time. With a majority of people it requires but a few years to get all the bearing wood to the top of the trellis. Where a cane of even two or three feet is left to bear, it must be bent to impede the flow of sap, in order that all the buds may start alike. If this be properly attended to, each bud will get its full share, the growth will be uniform, and but little summer pruning will be needed.

The proper amount of wood to leave for bearing depends on the age and strength of the vine, the fertility of the soil and the trellis accommodations, and can be best learned by experience. If allowed to over-bear, the wood and fruit will fail to ripen and the vine will be weakened, if not permanently injured. If pruned too close, a vigorous growth will follow, but little fruit will be produced, and, unless well summer-pruned, the usefulness of the vine will be injured for the following year, and the evil tends to perpetuate itself. The bearing wood should be evenly distributed over the vine and about the same amount on each arm.

#### DISEASES.

The grape, like all other fruits, is subject to disease, especially if its vitality be lowered by any means. Mildew and rot are most to be feared.

Mildew is caused mainly by too much moisture in the soil, and is augmented by a lack of air and sunshine on the foliage. Rapid and perfect drainage is the remedy.

The rot is caused by the spores of a fungus, which, though invisible to the naked eye, are carried by the wind and deposited on the fruit, where they germinate and grow, causing the rot. These rotten grapes lie on the ground all