

They are capable of surviving more adverse conditions than the summer spores. By burning up affected material in winter or early spring, before the winter spores have germinated, we can prevent to a considerable extent the spread of a fungus. Remembering this outline, for it is much the same in all these parasitic fungi, the reader will be in a position to understand the following descriptions of certain specific forms feeding among the tissues of the grape.

DOWNY MILDEW OR BROWN ROT (*Peronospora viticola*.)

This fungus which moisture seems to favor, attacks all green portions of the grape and appears about June. As soon as a spore falls upon the leaf, it germinates, and the germinal thread penetrates the tissue and passes between the cells, not into them; but small growths develop on the penetrating threads and these (*haustoria*) dip into the cells and abstract nourishment for the growing fungus. An examination of these minute threads by a microscope reveals no

partitions, such as are observable in the threads of "Black Rot." As development continues the thread-like structures of the fungus increase and form a mass (*mycelium*) which pervades the host plant; from this arise minute stalks, that make their appearance through the small openings (*stomata*) on the underside of the leaves, usually several in one opening. (See fig. 1). They appear in such numbers, as to form patches of a mouldy or frost-like appearance; opposite to these on the upper side of the leaves are pale green spots, which gradually turn brown, indicating a sickly condition of the leaf. These stalks under the microscope present quite a tree-like form as seen in the figure, and bear on the ends of the branches many oval bodies (*conidia*) which drop off as soon as they mature. If they reach favorable conditions, the

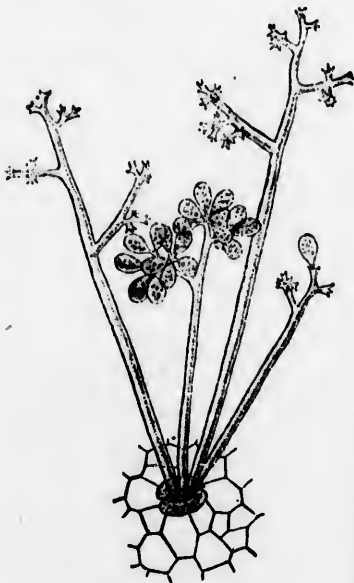


Fig. 1.

contents soon break up and spores are formed; these pass out, each capable of moving about, and after reaching a proper resting