be found that the fungus, as a rule, is located near and round the shoots or twigs, because the cuticle there is tender and liable to receive injuries from frost or hail, making it a convenient "nest" for the spores of the fungus, which commences life as a saprophyte—i.e., a feeder on decayed substances.

The Canker fungus attacks some varieties of apple-trees more than others. Those which yield the best eating apples are most liable to it. Trees with the thinnest and smoothest bark are most liable.

Pear-trees are affected by "Nectria ditissima" in the same way as apple-trees.

Plum-trees are also infected by this fungus, and it is also destructive to oak, beech, ash, hazel, alder, maple, and lime trees.

The spore-bearing cases of the fungus appear first as minute red dots (fig. 1 B); from these a thread like substance starts, which penetrates the rind and wood, whose juice tissues are dried up and destroved. The slow action of these threads in course of time, causes distortions and malformations of the surrounding parts, and death to all branches above the centre of its action (fig. 1 D). After a time. crimson spore-bearing cases, are formed in small groups, they are flask-shaped and distinctly visible to the naked eye. Within these little sacs "asci" are found (fig. 1 E); they have two cells which contain eight spores Rfig. 1 F). They germinate quickly in water, and placed upon trees infect them with canker.

Experimenters have succeeded in causing infection by placing these spores on wounded parts of healthy trees.

## Prevention and Remedies.

Never use grafts from infected trees or those showing any trace of the fungus.

Examine young trees to see if there are any wounds upon them, with a strong magnifying glass, to discover the little red dots caused by the fungus.

Cut out all infected parts with a sharp knife; cut away and burn all infected branches. If a tree, in an orchard, is badly cankered, cut it out and burn it to prevent contagion.

A strong solution made with 20 lbs. of sulphate of copper to 100 gallons of water, applied in the late autumn or winter, to the infected parts, repeating the operation two or three times during the winter.

Trees badly infected should be sprayed all over by means of a spray pump.

One pound of sulphate of iron to every gallon of water, applied in the winter, will prevent mossy growths which harbour fungi and insects.

Keep trees free from Aphides which carry the fungus from tree to tree.

There are many diseases wrongly designated as canker. The action of true canker is comparatively slow: it has been ascertained that it does not usually extend more than half an inch in a year; while in other attacks attributed to "canker" the disorder usually spreads with far greater rapidity, and trees are quickly destroyed. One form of affection of this nature is undoubtedly due to bacterial agency, and to the bacillus defined by Professor Burrill in the "American Naturalist " as " Micrococcus ( Bacillus ) amylovorus." This microbe is most disastrous in its effects upon apple and pear trees in the United States, and spreads with great rapidity. Pear trees, perhaps, are more liable to this infection than apple trees in the United States, but the liability of the two kinds of trees varies in different States. It attacks chiefly the inner bark and cambium of the body of the tree, as well as its most important branches. Unlike the fungus Nectria ditissima, producing the ordinary canker, which establishes itself only in already existing wounds, scars, and cracks upon the bark of trees made by pruning, hail, insects, or by other fungi, the "Bacillus amylovorus" descends with the sap in the living bark, through the twigs and branches, to the body of the tree. Trees infected by this microbe are found to be perfectly healthy at their roots and up to the part where the blight has reached, showing that in-