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FUNGOUS DISEASES OF ORCHARD AND GARDEN.

By W. H. Brittain, B.S.A., Pathologist and Entomologist.

PLANT-DISEASES.

By the term "disease in plants" we understand any change in a plant in the direction of a reduced vigour or vitality of that plant, or, in other words, any deviation from the normal behaviour or form of the plant.

Plant-diseases are of several kinds:—

(1.) Those caused by flowerless parasitic plants—viz., fungi, bacteria, and slime moulds;
(2.) Those caused by flowering parasitic plants;
(3.) Those due to insects and other animal parasites;
(4.) Those due to unfavourable conditions of temperature, soil, etc.;
(5.) Physiological disturbances, under which are considered troubles of a non-parasitic origin, the cause of which is not very well understood.

This article deals with the diseases belonging to the first group.

The fungi are plants, just as apple, plum, and cherry trees are plants; they are, however, much simpler in structure than are the ordinary plants we see about us. Fungi have neither root, stem, nor leaf, the place of these organs being taken by a mass of fine threads which penetrate the substance upon which the fungus grows and do the necessary work of obtaining food. These threads compose what is known as the *mycelium* of the fungus.

Corresponding to the seeds of the higher plants, fungi produce bodies known as spores, of which there are several kinds, and by means of which the species is perpetuated.

Fungi possess no green colouring matter. By means of their green colouring matter the higher plants are enabled to manufacture their own food, from materials taken in from the soil and air; but fungi must obtain their food already prepared from living or dead animals or plants—if from a living plant they are called parasites, and if from a dead one, saprophytes. The plant or animal upon which a parasite feeds is called the host, however unwilling the relationship may be.

For the purpose of treatment, fungi may be divided into two main groups: (1) External parasites; (2) Internal parasites. In fungi belonging to the first group the mycelium is quite superficial and the parasite feeds near the surface. In those belonging to the second group the mycelium penetrates directly into the tissues of the host, and the appearance of the fungus upon