

be kept for a time under these conditions, the contents of the spore divide up into a number of smaller units. These soon come out and are capable of swimming about actively in the water on their own account. Hence they are termed *zoospores* or "animal" spores. Very soon each zoospore comes to rest, germinates, and produces an infection. In this way the number of infections may be very greatly increased, since one spore of the first kind may give rise to as many as thirty of the second, the whole procedure from the first spore to the new infection only occupying a few hours. However, under certain conditions the first type of spore may germinate directly and produce an infection, without any formation of active spores.

Although the destruction of the tops may in itself be serious by preventing the proper maturation of the tubers, it is not the worst form of the disease, since the tubers are themselves attacked. On the mature tuber the affected areas appear of a dull leaden colour and somewhat sunken. On cutting, brown diseased tissue is seen to underlie them. This may be confined to a thin superficial layer or may



Fig. 9. Tuber infected with the fungus of late blight. Note the discoloured areas under the skin, corresponding with the depressed discoloured areas visible on the surface.

involve most or all of the tuber. This form of the disease is commonly spoken of as a "dry rot." Although the dry rot produced by the fungus may work much injury, it is usually more important indirectly, since it permits the entrance of other organisms, especially bacteria, which rapidly destroy the tuber, producing a "wet rot." This may take place in the soil if this is wet and heavy, or in storage. The tubers apparently become affected, in the first instance, by spores washed against them by the rain. Exposed tubers or those near the surface are, therefore, especially likely to show the disease. The manner in which the first infections of the growing plant come about has been the subject of much discussion. Apparently the fungus remains alive in many of the infected tubers, and, if such be planted, becomes active, producing conidia either on the seed-tubers themselves or on the sprouts from them. These conidia, being subsequently carried to the leaves, give rise to the early infections from which an epidemic may later develop.