

The larger lesions vary in length from 6 in. to 18 in. and completely girdle the stem, while the numerous small lesions accompanying them may be only about $\frac{1}{4}$ in. in diameter and more or less circular in outline. There is no sharply marked margin to the lesion, for the dark-brown colour of the diseased region merges gradually into the normal colour of the stem. Nor is there in this disease an abrupt change in level at the junction of diseased and healthy tissue.

As in the *Botrytis* disease, the vegetative hyphæ invade the outer tissues of the stem or branch and cause their death. After a certain time spores are produced. In the present case, however, they are not formed freely on the surface as conidia, but are enclosed in minute black chambers buried just beneath, but opening by a pore on to, the surface of the host plant. If the epidermis of a lupin-stem be removed the tissue lying immediately beneath it will be found to consist of

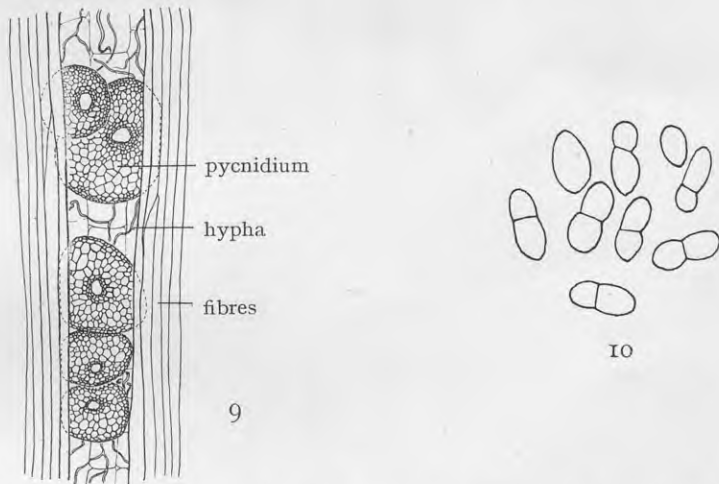


FIG. 9, PYCNIDIA ($\times 58$), AND FIG. 10, SPORES, ($\times 750$), OF ASCOCHYTA PISL.

strands of fibres running parallel to one another down the stem. Each strand is separated slightly from its neighbour, the narrow intermediate region being occupied by thin-walled cells. It is down these rows of soft tissue separating the fibrous strands that the pycnidia, or chambers in which the spores are produced, are formed. As the pycnidia attain their full size they push up the epidermis covering them, causing it to fall away and leave exposed the corrugated light-coloured surface of the fibres. Before the epidermis is burst away, however, the presence of pycnidia beneath it may be detected by the occurrence of small ruptures in the epidermis about the size of a pin-prick. These ruptures are due to the projection of the mouths of the pycnidia through the epidermis.

In Fig. 8 is shown a lesion from part of which the epidermis has broken away. Between the strands of fibres in the region where there