

## MYCOLOGICAL NOTES (18).

### GERANIUM STEM ROT CAUSED BY PYTHIUM SP.

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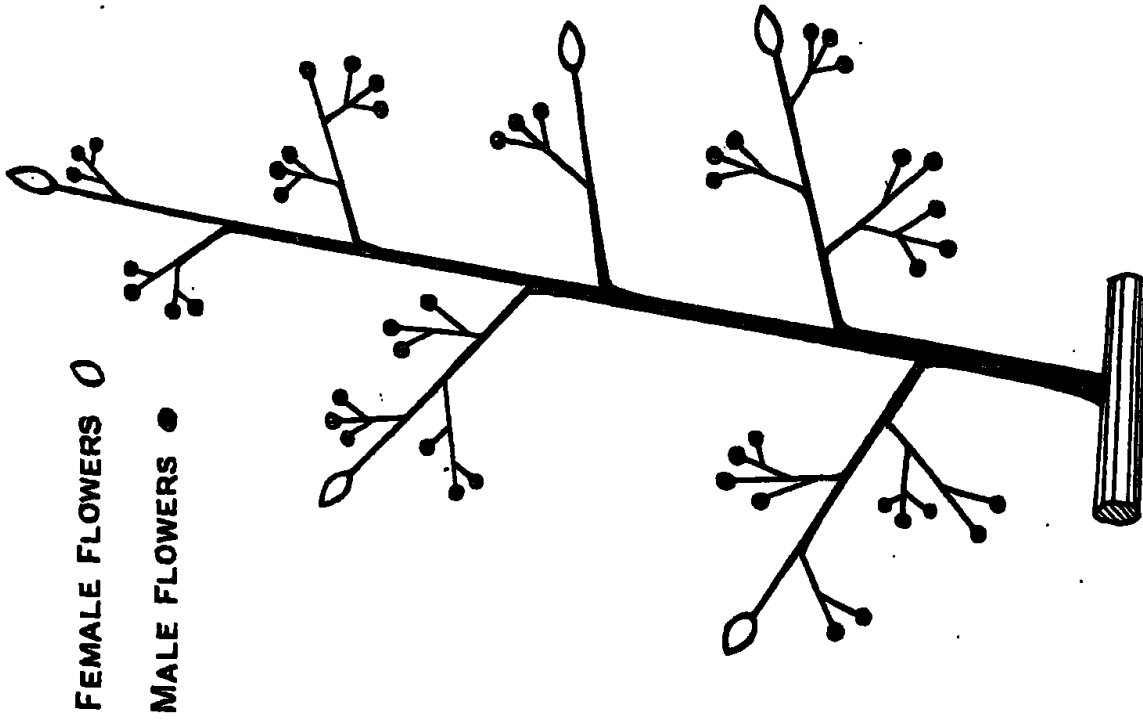
**W**HILST taking geranium cuttings recently the writer found a plant affected by a stem rot. At the junction of two branches, just at soil level, the tissues of the stem were blackened and rotted, and a large lesion due to mechanical injury indicated the point of entry of the invading organism. The branch was removed, and a second cut made at a node six inches above the first showed the tissues here also to be rotted, although there was no external sign of injury beyond the original lesion. On splitting open the stem the central pith was found to be dark green and soft, and microscopic examination showed that it consisted of a mass of individual cells with shrunken walls and no apparent contents beyond starch grains, which were numerous and prominent. Running among the cells were fungus hyphae, narrow and with many oil drops, and it was apparent that the condition of the pith was due to the absorption of the middle lamellae of the cells by an enzyme secreted by the fungus. The cut surface darkened rapidly on exposure to the atmosphere. The xylem cylinder and cortical tissues were not affected, which accounted for there being no external symptom of disease at this point.

Portions of diseased tissue taken into culture produced pure growths of a species of *Pythium* allied to, if not identical with, the fungus which is responsible for "damping-off" of seedlings in nurseries. Braun (1) records a stem rot of geranium due to *Pythium* and it is evident from his paper that the present case was taken in the early stages. The disease he describes is common on cuttings. The cutting fails to root, the base turns black and rots, the affection spreads up the stem and generally

results in the blackening of all the stem tissues and the death of the cutting. Several species of *Pythium* are held responsible for the disease (the symptoms are too closely similar to allow of their being justly separated into "diseases") but is not intended to enter here into a discussion of the merits of the various species of *Pythium* concerned. The author unfortunately fails to suggest control measures beyond stating that in cases of attack by *P. complectens* the progress of the disease is eventually stopped by the formation by the plant of a cork cambium which delimits the diseased tissue and arrests the advance of the fungus. Buddin and Wakefield (2), however, suggest soil sterilisation, the burning of diseased material and the avoidance of excessive moisture, the treatment which is given in cases of "damping-off."

#### REFERENCES.

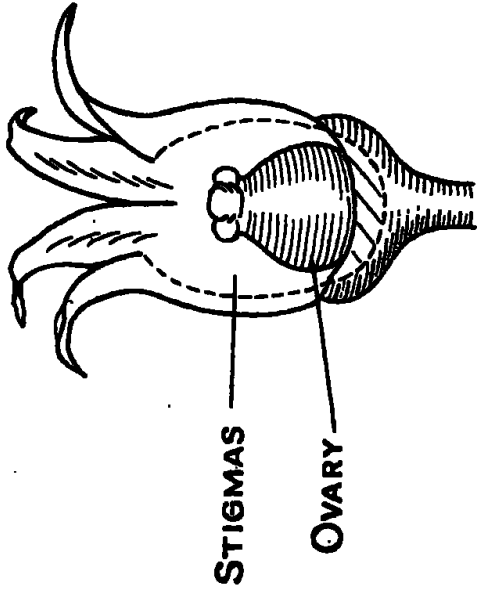
1. Braun, H. Geranium stem rot caused by *Pythium complectens*, n. sp. J. Agr. Res., XXIX, 8, 1924, p. 399.
2. Buddin, W. and Wakefield, E. M. Black leg of *Pelargonium* cuttings. Gard, Chron. (III) LXXV, 1924, p. 25.



FEMALE FLOWERS ○

MALE FLOWERS ●

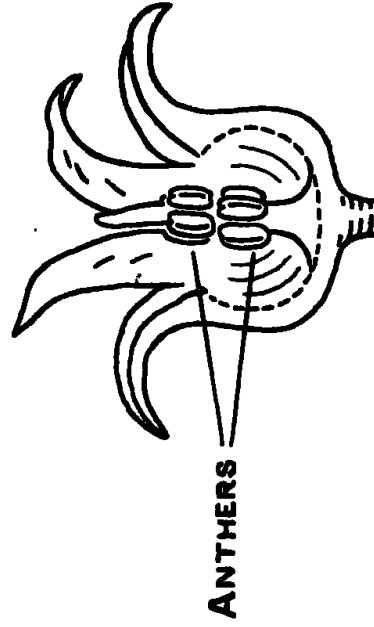
FIG. 1



STIGMAS

OVARY

FIG. 2



ANTHERS

FIG. 3