

NOTES
ON
RECENT OBSERVATIONS ON OIDIUM HEVEAE.

BY
F. BEELEY.

Following the outbreak of secondary leaf fall early this year, a report on which was published in Quarterly Journal Vol. 2, No. 2, it was thought that observations on the continued activity of the fungus within a field of rubber might prove of value. Accordingly microscopical investigations were made at various times of the year with a view to determining the manner in which the fungus carries over from year to year without the assistance of a known resting spore stage. As a result of these investigations the following facts have emerged:—

1. The conidial (powdery mildew) stage of the fungus occurs on the inflorescence of the rubber tree at all times during the year.
2. Flowers developed from the terminal buds of leading branches of the tree were almost invariably infected, and within a few days of the bud bursting the very active sporulating fungus may be found in abundance on the flower buds and on the floret stalks.
3. Flowers developed from lateral buds appeared to be infected later in their development, possibly from spores blown from the heavily infected terminal flowers.
4. Stems and young leaves on known infected trees did not develop the disease during the months June—September.
5. Young leaves developed at the end of September and in October were found to have small patches of the active fungus on the midrib.
6. At all times during the period under observation the field contained trees which were in flower.
7. Very few seeds have set, and of these some are light in weight. This, however, may be due to drought and not to disease.
8. Living germinating spores of *Oidium Heveae* have been found in the axils of mature leaves, in the bud scales of terminal buds and on seed pods.
9. A terminal bud just beginning to open was found to be infected with the active fungus. It would appear, therefore,

that the delicate tissues of such buds serve to carry over the fungus during inclement weather or when new young leaves or flowers are not present.

10. Following heavy rain the conidiophores and spores disappear, but after a few days' dry weather fresh conidiophores are developed from the creeping surface mycelium.
11. Young known infected inflorescences when brought into the laboratory (temperature 25°-32°C) developed chains of 2-4 spores within two days while, in a cold chamber, (temperature 11°-14°C) rapid growth with production of numerous conidiophores bearing chains of 3-7 spores has been obtained on living *Hevea* flowers in the same period of time.

It would appear, therefore, that optimum growth for *Oidium Heveae* takes place at temperatures considerably lower than those normally experienced in tropical countries.

In conclusion it may be said that the weather conditions during the past year have been favourable to the growth of the fungus on certain parts of the tree, particularly the flowers, throughout the whole of the year, while young leaves appear to be susceptible to the disease during a part of the year only. It is evident, however, that, in the manner of growth of the rubber tree in plantations, suitable tissues whether leaf, flower or bud are always available to maintain a continued life of the fungus in its mycelial and conidial stages.
