The inhibiting influence of light is also demonstrated, the effect increasing with increasing root size; and there is an apparent interaction between light and gibberellic acid. The response to optimal concentration of gibberellic acid is greater in light than in darkness and the inhibiting effect of light on the growth-rate is more than overcome.

Fig. 2 presents the results of another experiment in which the course of root growth in response to 8 p.p.m. gibberellic acid was followed over a period of time. Again there is a marked response to acid treatment though it is initially much greater in light- than in dark-grown roots.

In spite of certain difficulties in interpretation of these results, it is clear that gibberellic acid can stimulate root elongation. It is also apparent that light inhibits root elongation, and that, under some conditions, gibberellic acid and light interact. Nevertheless, the results presented are not incompatible with Lockhart's[3] contention that the action of artificially supplied gibberellic acid is specific on elongation and not directly connected with light responses. With the view of analysing the light inhibition of root elongation, studies of its action spectrum have been initiated. There are preliminary indications that the light-reaction peaks at 5400–5800 A. with subsidiary peaks at 3800 A. and 6600 A. A full report on this work will be published elsewhere.

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Partial Inhibitory Effect of *Plistophora culicis* on the Sporogonic Cycle of *Plasmodium cynomolgi* in *Anopheles stephensi*

During some experimental work carried out on the cytology of early oocysts of *Plasmodium cynomolgi* in *Anopheles stephensi* an interesting observation was made. Three batches of laboratory-bred *Anopheles stephensi* were fed on a rhesus monkey (*M.* 172) infected with *P. cynomolgi*. Dissections of 4–10 mosquitoes on each subsequent day showed that the first and third batches of these mosquitoes were also infected with a microsporidian (*Plistophora culicis*). (Such infections have previously been described by Garnham[1] and Canning[2].) Nearly 50 per cent of the dissected mosquitoes showed a moderate infection of *P. culicis* in the first batch, a light infection of about 5 per cent in the second batch, and approximately 100 per cent with heavy infections of *P. culicis* in the third batch. A poor rate of infection by *P. cynomolgi* was found in the first and third batches of *A. stephensi*, and this was considered due to the partial inhibitory influence of *P. culicis* on the development of the oocysts in these mosquitoes. This view was supported by the findings of good oocysts counts in the mosquitoes dissected from batch two in which the *P. culicis* infections were very light.

Plistophora culicis had not only invaded the fat bodies and Malpighian tubules, but also in many mosquitoes the whole surface of the mid-gut was covered by the microsporidian. The inhibitory influence on the development of *P. cynomolgi* in such insects was primarily reflected in a low oocyst count; in most mosquitoes only one or two oocysts could be found on each mid-gut. The growth of these oocysts was also retarded. Thus five-day-old oocysts measured 19μ in diameter compared with the normal oocyst size 21μ seen in mosquitoes uninfected with *P. culicis* after this time. Seven-day-old oocysts measured only 55μ in diameter compared with the normal size of 60μ. The diameter of mature oocysts in the mid-guts heavily infected with *P. culicis* was only 84μ compared with the usual 90μ. The highest rate of infection with *P. cynomolgi* oocysts in the mosquitoes concomitantly infected with *P. culicis* was 20 per cent and the lowest 10 per cent. Many degenerating oocysts were seen.

One may conclude that the partial inhibitory effect of *Plistophora culicis* on the sporogonic cycle of *P. cynomolgi* in these batches of *A. stephensi* may be due to the following possibilities: (1) The scarcity of essential nutriments in the body of the host may be responsible for the retarded growth and degeneration of fully developed ookinetes and young oocysts. These essential substances were presumably taken up by *P. culicis* for its own development. (2) Many specimens devoid of oocysts showed the whole surface of the mid-gut covered with *P. culicis*. The presence of this microsporidian may have prevented the penetration of ookinetes through the stomach wall and resulted in the degeneration of these 'vermicules' inside the lumen. (3) The heavy infection of Malpighian tubules with *P. culicis* may cause abnormality in their function. Afterwards the deposition of toxic substances might interfere with the development of oocysts and sporozoites of *P. cynomolgi* in the insect host.

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Isolation of a Soil Coccus capable of utilizing 'Tween 80' as a Sole Source of Carbon

It is interesting that some organisms can utilize as their source of carbon a synthetic substance such as 'Tween 80' (polyoxyethylene sorbitan mono-oleate). My collaborators and I[1] have proved that tubercle bacilli can utilize 'Tween 80' as a sole source of carbon, and Yamane *et al.*[2] then devised a simple and practicable 'Tween'-agar medium for tubercle bacilli containing 'Tween 80' as a main source of carbon. I wished to investigate[3] the details of the mechanisms of 'Tween' metabolism, but tubercle bacilli are not suitable for this purpose because their growth is so slow, their endogenous substrates are too abundant[4], and experiments with the bacilli can be dangerous. I therefore decided to try to isolate bacteria more suitable for the purpose from the soil.

The isolation was carried out on Yamane–Minami–Yasui agar[1], which contained 'Tween 80' as a sole source of carbon. After incubating the supernatant of soil suspension at 37° C. for 24 hr., a few bacterial colonies were developed, among which there was a coccus. This organism was a Gram-negative coccus