Table 1. NUMBER OF ROWS OF CELLS PER NEST OF *Ropalidia variegata*

No. of colonies	No. of nests	Plant	No. of vertical rows per nest 1	2	3	4	5	6	7	Mean
5	53	*Diospyros*	1	18	20	9	4	0	1	3·0189
11	47	*Musa*	1	28	11	7	0	0	0	2·5106

Table 2

Group	Rows of cells per nest < 3	3	> 3	Total
A	19	20	14	53
B	29	11	7	47
A + B	48	31	21	100

As the nests always hang from their first cells, they are unable to withstand permanent deviations from their initial vertical postures that may be caused by wind. When the position of a leaf bearing these nests is slightly altered, the stability of the tilted nest is restored by adding new cells or rows of cells along the side nearer to the line of gravity. A colony on a leaf lasts for a few months, and during this period the leaf may be subjected to further deflections in different directions. Thus, the number of cell-rows in a nest increases in course of time, and the nests show vast variations. In many nests, the early formed cells follow a two-row pattern. But, with time, more and more cells are added at various positions of the nest to combat the disturbances caused by the wind.

One of the nests of a colony, which had two rows of cells, slipped from its attachment and was refixed by a paper clip. Obviously the repair was not approved by the wasps, for they forthwith added new cells, forming a further five vertical rows of two cells each, thereby restoring the equilibrium of the nest[4]. The biological significance of this phenomenon is important. In changing the structure of the nest to suit different sites and trees, the wasp demonstrates adaptability to ensure survival under varying conditions.

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Infection of *Culex fatigans* with a Microsporidian

BIOLOGICAL control is assuming an ever-increasing importance as a means of augmentation of, or substitution for, the use of pesticides in the control of both medically and economically important arthropods. This applies in particular to *Culex fatigans*, the main vector of *Wuchereria bancrofti* throughout most of the tropics and subtropics. Control of this mosquito is complicated by the widespread occurrence of resistance to most insecticides, together with the complexities of larval control by sanitation or other non-insecticidal methods.

In the course of attempts to infect *C. fatigans* with various pathogens and parasites, infections with a microsporidian provisionally identified as *Plistophora culicis* Weiser[1,2] were established in both adult and larval stages of this mosquito. The spores of this microsporidian were obtained from Prof. Meir Yoeli, of New York, who found it to be the cause of high mortality in his colonies of *Anopheles stephensi*. The infection originated in wild-caught *Anopheles dureni* from the Congo[3].

The infections were obtained in the adults by suspending a cotton-wool swab moistened with a fresh suspension of spores in a cage containing newly emerged mosquitoes. The swab was moistened morning and evening with distilled water. No alternative food supply was provided for the first week, then sugar water was made available.

Larvae were infected by hatching *C. fatigans* eggs in a bowl to which fresh spores had been added. Once again no food was added for the first week during which time mortality was high. Thirty-three larvae remained alive at this stage. From these a total of three adults, two pupae and two larvae were found to be infected.

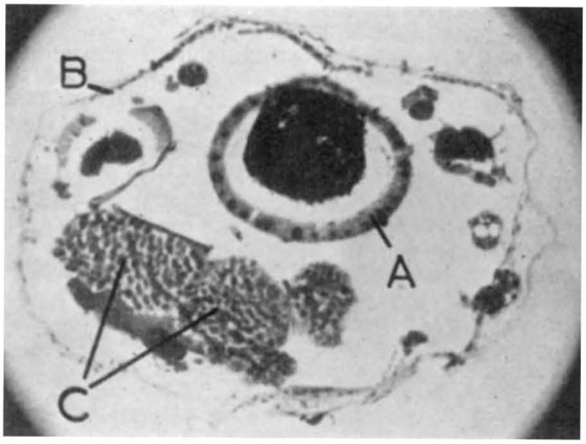

Fig. 1. Transverse section of larva of *Culex fatigans* showing developmental stages of *Plistophora culicis* in fat body. *A*, Gut wall; *B*, body wall; *C*, infected fat body

No external signs of infection were noted in the parasitized larvae, pupae, or adults, all infections being found on microscopic examination. Larvae, on sectioning, showed considerable involvement of the fat bodies (Fig. 1). The infection did not prevent larvae pupating or adults emerging from these pupae; larval life was prolonged, however, up to 56 days in one case.

Further experiments are being carried out using spores stored in distilled water at 0° C for 2–4 months and spores stored in liquid nitrogen, either dry or in glycerol, for 3–12 months. Infections have been established in *Anopheles stephensi* using spores stored dry in liquid nitrogen for 3 months.

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Air Movement and Termite Behaviour

TERMITES show great activity around even a small breach in their nest and soon begin to build to repair the damage. In laboratory vessels, termites seal off any gaps to the outside air, even around the edge of an apparently close-fitting stopper. The stimulus inducing this behaviour has most often been considered to be a fall or gradient of humidity (see, for example, Grassé and Noirot[1], Stuart[2]).

I have investigated the nest-building behaviour of the damp-wood termites *Zootermopsis angusticollis* and *Z. nevadensis* (Hagen). In addition to the behaviour already described, these insects build crusts or ledges of material over their living quarters when they are kept in laboratory vessels. This material usually consists of faecal or wood particles cemented together with a watery secretion exuded from the anus. In large specimen tubes that contain a central partition made of wood or cardboard and sawdust for building material at the bottom of the tube, the termites tend to build on upward-facing edges and ultimately build a ledge from the top of the partition across to the walls of the tube. Any gaps in the partition above a certain level are filled in. It was found, however, that whereas building continued at a rapid and fairly constant rate at a relative humidity of 92 per cent, at lower relative humidities (56 per cent and 35 per cent) the rate of building was initially lower and building ceased almost totally after the first 24 h of the experiment, when the overall activity of the insects was greatly