exhibited such responses implies that these units are confined to a fairly limited area. No attempt was made to locate the above unit precisely, but its position could be roughly determined from surface contours and measurement of electrode penetration. It was located somewhat lateral and considerably ventral to the mushroom body; the electrode was deep enough to be quite possibly recording from the vicinity of fibres entering the brain from the circumoesophageal connectives. The occurrence of the unit here reported seems to be the first direct evidence of electrical activity within the insect brain as a result of cercal stimulation.

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An *in vivo* Method for studying the Hair Cycle

STUDIES of the hair cycle have been carried out for many years on fixed material[1,2] and, more recently, in tissue culture[3]. In neither case can environmental influences on the initiation of the hair cycle, such as microcirculatory changes and presence or absence of oedema, be determined satisfactorily. In the following *in vivo* method, single follicles may be mapped and observed repeatedly at any time-intervals thereafter.

Young mice, 3–4 weeks old, of *BUB* (albino) strain, or C_3Hp (lightly pigmented) strain, are anaesthetized intraperitoneally with 'Nembutal', 75 mg/kg. The mouse rests horizontally on a holder with a long coverslip covering the dorsal surface of the pinna and adhering to it by means of glycerine. The holder fits on to the stage of a light microscope, the ear being transilluminated from below.

Blood vessels are mapped using sequential magnifications of 10–600 times, and the hair follicles, marked by the prominent sebaceous glands, are mapped in relation to the smaller blood vessels. The diameter of mapped blood vessels can be measured with a calibrated ocular micrometer, and comparative measurements made at different times and under different conditions.

The hair follicles in the apex of the mouse pinna are in the resting stage (telogen) until the animal reaches an age of about 6 months. They can be experimentally activated by various means, including applications of a dekeratinizing agent (commercial hair remover such as 'Neet'), or by plucking the hair. 'Neet' applied for 5 min will remove the external hair, and exert a minimal effect on regrowth. If applied for a longer time, it often causes vasodilatation and oedema, which can be observed under the microscope, and it hastens regrowth. Once the follicles are activated, all stages of the hair cycle except early anagen can be observed and studied.

The activity of the apical follicles of the pinna is much slower than the follicles of body skin, both with regard to spontaneous and induced cycles, thus facilitating time analyses. Figs. 1–3 show the same area of pinna on day 10 after plucking the hair (follicle inactive), on day 24 (follicle in anagen), and on day 32 (follicle in catagen).

The method has been used to study vasodilatation and oedema in relation to the hair cycle. It is at present being used to explore endogenous factors which are involved in the initiation of anagen.

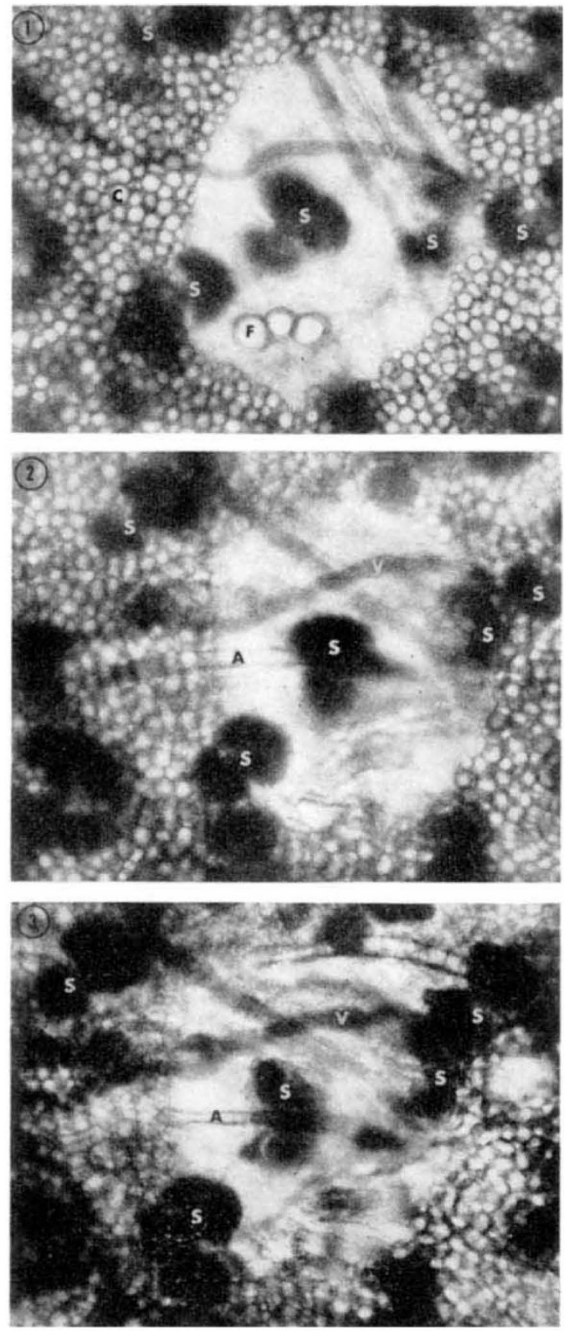

Fig. 1. Area of living mouse pinna, transilluminated, on day 10 after plucking the hairs. Sebaceous glands (*S*) are all that can be seen of the pilosebaceous units. The follicles are inactive. *C*, Cartilage; *F*, fat cell. (×150)
Fig. 2. Same area as Fig. 1, on day 24 after plucking. Follicle *A* (*A*) is in full anagen. *V*, Venule. (×150)
Fig. 3. Same area as Figs. 1 and 2, on day 32 after plucking. Follicle *A* is in late catagen. (×150)

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