Sebaceous glands have only recently been associated with nematode infestation. Lyne and Sommerville[8] have found nematodes (*Capillaria*) in the sebaceous glands of the hair follicles bordering the upper and lower lips of the bandicoot (*Perameles nasuta*). Although Beaver[9–11] has demonstrated by histochemical and ultrastructural methods that the preputial gland is much more complex than a sebaceous gland and secretes both lipid and proteinaceous components, the branched alveolar structure of the two glands offers nematodes similar routes of access and similar lodging places.

There is fragmentary evidence of other parasitism in the preputial gland of rodents. Tumours in laboratory mice (*Mus musculus*) have been reported on two occasions[12,13], and may be carcinomata induced by viruses; Beaver[10] remarks on the frequent presence of bacteria in the lipid-protein secretion of the gland. To our knowledge, however, this is the first report of nematode parasitism in the preputial gland.

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J. MARY TAYLOR*
PHYLLIS A. PHELPS

Department of Biological Sciences,
Wellesley College,
Wellesley, Massachusetts.

B. ELIZABETH HORNER

Department of Zoology,
Smith College,
Northampton, Massachusetts.

* Present address: Department of Zoology, University of British Columbia, Vancouver, Canada.

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Spawning Behaviour of Rudd, *Scardinius erythrophthalmus* infested with Plerocercoids of *Ligula intestinalis*

THE plerocercoid of *Ligula intestinalis* is found in the body cavity of cyprinid fishes, where it causes castration[1]. Kerr[2] in 1948 showed that the presence of the plerocercoid reduces the number of basophils in the pituitary of infested roach, with consequent virtual elimination of gonad stimulating hormone of the pituitary, and this work was afterwards confirmed[3,4]. More recently, it has been shown that this occurs not only in roach parasitized by *Ligula* plerocercoids, but in other cyprinids as well.

At present observations are being made on an infestation of *Ligula* plerocercoids in rudd, *Scardinius erythrophthalmus*, in Ravensthorpe Reservoir, Northamptonshire. The adult rudd gather into large shoals before spawning in shallow weedy areas in the months of March, April and May. To determine whether the castration caused by *Ligula* plerocercoids affects the behaviour of the adult rudd, netting was carried out at spawning time while the adults were exhibiting courting behaviour. Adults were netted at random throughout the reservoir and by specific netting in the shoals of rudd showing courting behaviour.

Among 200 adult rudd removed from a courting shoal in shallow water there was only a single infected rudd, while the 75 adult rudd netted at random throughout the reservoir included 56 infected fish.

The behaviour of the infected fish is thus different from uninfected fish which spawn naturally. The part played by "natural stimuli", such as light, water temperature and water level, is not fully understood. A substantial part, however, is played by sterohormones[6] which are secreted into the water to stimulate spawning—male fish secrete copulin which brings females into a state of readiness to spawn. It is possible that the presence of the plerocercoid of *Ligula intestinalis*, by reducing the development of the gonads, inhibits the capacity of male fish to produce this hormone and the capacity of females to be stimulated by it.

T. S. C. ORR

Wellcome Laboratories for Experimental Parasitology,
University of Glasgow,
Bearsden, Glasgow.

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Oval Disk of Echeneid Fishes

THE oval disk on the dorsal surface of echeneid fishes has frequently been described as an adhesive apparatus or sucker. This may be partly correct, but the main function of the disk seems to be the collection of information from the surroundings, concerning such factors as temperature, pressure, the activities of other members of its own species, its hosts and enemies, and the availability of food and suitable breeding places. Adhesion is only a secondary function. In addition to riding on its host, the fish could actually be guiding the host in a particular direction, without the host being aware of any urge to secure the information which it is being directed to obtain.

Several minute structures on the disk have been overlooked. The little flap with a slit along its anterior border has led to the discovery of further structures. There is a tiny finger-like body, which I have called the "tactilodact", in a pit in the centre of the triangular front shield of the disk. It has a sensory function. Similar finger-like bodies, the subtractilodacts, are buried in tissue along the middle region and have sensory coverings which they can

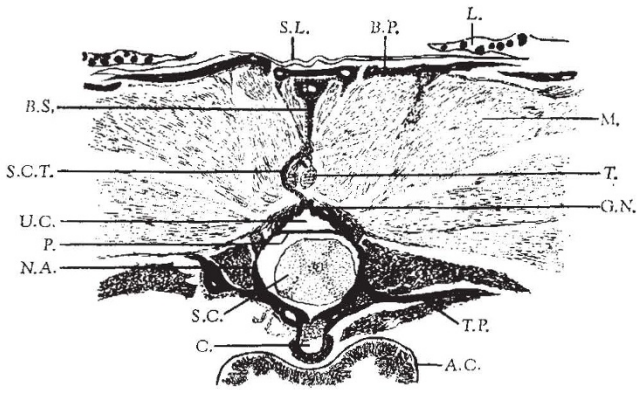

Fig. 1. Cross-section of the disk and vertebra of *Echeneis*. *A.C.*, Alimentary canal; *B.P.*, basal plate; *B.S.*, basi struts; *C.*, centrum; *G.N.*, gap in neural arch; *L.*, lamella; *M.*, muscles; *N.A.*, neural arch; *P.*, partition; *S.C.*, spinal cord; *S.C.T.*, suspensory connective tissue; *S.L.*, sensory layer; *T.*, tendon; *T.P.*, transverse process; *U.C.*, upper chamber.