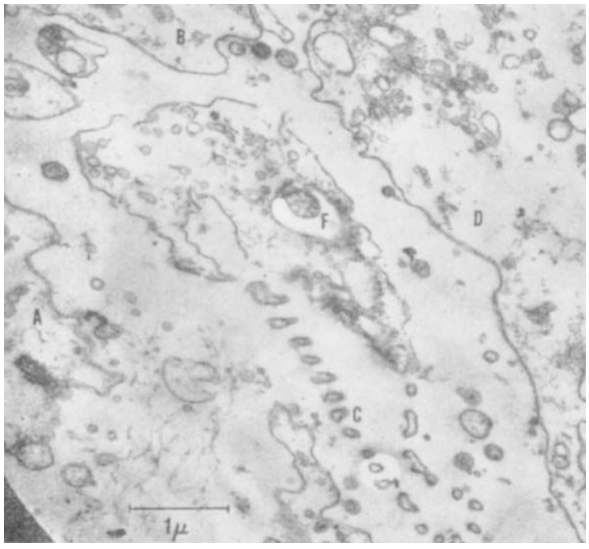

Fig. 3. Oblique cross-section of the base of a collar and flagellum. *F*, Base of flagellum; *C*, collar (somewhat distorted). The cytoplasm of the choanocyte is indistinguishable from that of the neighbouring cells, *A*, *B* and *D*

It might be suggested that the collar and flagellum belong to some sessile Choanoflagellate, embedded in the epithelium. Although only the outer parts of the choanocytes have been investigated with the electron microscope they evidently are very similar to the ciliated cells surrounding them, containing the same cytoplasmic structures and showing none of the features commonly found in flagellates (Fig. 3).

As will be described elsewhere[1], the other epidermal cells are also provided with a varying number of microvilli. This applies both to ciliated and mucous cells. In the ciliated cells the microvilli are evenly distributed between the cilia, while in the mucous cells the microvilli are often set as a brim along the border of the free cell surface. This brim shows a certain similarity to that of the choanocytes, but the row of microvilli is irregular and the flagellum is lacking. Obviously the function of the microvilli along the border of the surface of mucous cells is to lead the merocrine secretion free of the surface of the epithelium, which seems to be rather uneven, some cells protruding a few microns over the surrounding cells.

Of course, the appearance of choanocytes in Enteropneusta does not imply a close relationship between Parazoa and Stomochordata. It simply means that choanocytes are a more widespread structural feature than formerly believed, and not restricted to sponges and Choanoflagellates. The choanocytes can therefore no longer be used to support a close specific phylogenetical relationship between these two groups.

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Syncephalastrum associated with Bovine Mycotic Abortion

INVESTIGATIONS into an unusually high abortion rate among dairy cattle in Hong Kong have shown that a number of abortions were associated with fungal infections. In one such infection, the fungus has been shown to be *Syncephalastrum racemosum* (Cohn) Schroet. This is an addition to the list of fungi which have been implicated in bovine mycotic abortion, and also increases further the number of phycomycete fungi known to be abortifacients[1,2].

The fœtus, aged 3 months, was examined and cultured within a few hours of abortion. After surface-sterilization of the entire fœtus in alcohol, amniotic fluid was extracted aseptically and streaked on to plates of 'Sabouraud Dextrose Agar' (Oxoid) supplemented with streptomycin at 40 units per ml. Small fragments of cotyledons, fœtal membranes and the embryonic heart, liver, lung and stomach were also surface-sterilized and plated on to the same medium. Plates were incubated at 25° C and at the local ambient temperature (about 30° C), and the cultures were examined after 2–7 days. After 2 days, plates containing amniotic fluid, fœtal membranes or cotyledons all yielded numerous colonies of *S. racemosum*, and the fungus also developed in lesser amounts from the cultured heart tissue. All other tissues remained sterile over the incubation period.

Fig. 1. Hyphæ of *Syncephalastrum racemosum* in the amniotic fluid of an aborted cow fœtus

The amniotic fluid contained small aggregations of mycelium, visible to the naked eye; they were found to be composed of broad, aseptate, hyaline hyphæ which branched and anastomosed (Fig. 1). Similar hyphæ were visible in crush preparations of cotyledonary and fœtal membrane tissue. No superficial development of fungus was seen on pieces of tissue maintained in high-humidity chambers for 3 days, and no lesions were seen on the other organs or on the skin of the embryo.

Syncephalastrum racemosum appears to have been isolated from animals only once previously[3], when it was considered to be an intestinal saprophyte of a pig. The origin of infection in the present instance is not known; *S. racemosum* is, however, ubiquitous in Hong Kong. I have found that spores of this fungus form a regular component of the air spora over the island, and that during the period February–August 1963 they occurred in proportions equal to those of two other phycomycetous fungi associated with abortion, namely, *Mucor* and *Rhizopus*. *S. racemosum* has also been isolated from soil[4], and investigations continue into possible sources of high inoculum.

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