many other lochs and lochans in the Isles of South Uist, North Uist and Benbecula. Among these was Loch Ollay, only six hundred yards from the nearest station for *P. epihydrus*.

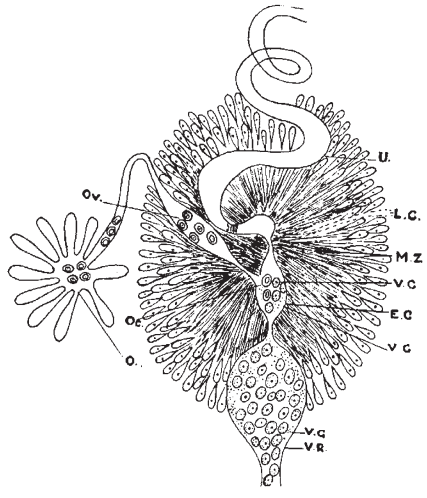
After our earlier investigations, special visits were made to South Uist in 1949 and 1950 to study the general biology of the species. The first of these was carried out in spring to acquire information about the early developmental stages of the plant, and the other in autumn to carry out similar work on its general ecology, etc. On both of these occasions *P. epihydrus* was very abundant. Still, in view of the extreme biogeographical significance of the plant, it is to be hoped that botanists will spare it as much as possible in case it suffers the same fate as has befallen other Hebridean rarities.

J. W. Heslop Harrison
King's College (University of Durham),
Newcastle upon Tyne 2. Nov. 26.

Female Reproductive System and Egg-shell Formation in *Fasciola hepatica* L.

An examination of serial sections of *Fasciola hepatica* shows that a narrow duct originates from the anterior end of the vitelline reservoir and runs for a short distance to open into a wide elliptical chamber situated in the central region of the shell gland (see diagram). According to Schubmann[1] and Stephenson[2], neither an ootype nor a receptaculum seminis is present in *Fasciola hepatica*, and, so far as I am aware, the presence of such a wide chamber has not previously been reported for this fluke. In order to distinguish the chamber from the ootype of other trematodes, I propose to call it the 'elliptical chamber'. In this chamber the vitelline granules, the vitelline cells and the oocytes are mixed together, and here the secretion of the shell gland is discharged and the egg-shell is formed.

Blumberg[3] and Sommer[4] held that the egg-shell of trematodes is formed from a secretion of the shell gland; but modern workers believe that it originates from globules or granules present within the vitelline cells[2,5,6]. Silver preparations (Aoyama, etc.) which I have examined reveal the presence of an extremely hyaline secretion present between the radiating protoplasmic strands of the medullary zone of the entire shell gland (see diagram). The secretion is light yellow in colour and exactly resembles the colour of the newly-formed egg-shell within the elliptical chamber. It is evident, therefore, that the gland secretes a hyaline fluid and that the fluid takes part in the formation of the shell.



Semi-diagrammatic drawing of the female reproductive organs of *Fasciola hepatica*. *E.C.*, elliptical chamber; *L.C.*, Laurer's canal; *M.Z.*, medullary zone; *O.*, ovary; *Oc.*, oocyte; *Ov.*, oviduct; *U.*, uterus; *V.C.*, vitelline cell; *V.G.*, vitelline granules; *V.R.*, vitelline reservoir

Immediately after the vitelline cells enter the vitelline reservoir they begin to discharge granules. The egg-shell is later reinforced temporarily from the inside by the vitelline granules; the latter ultimately serve as nutriment for the developing egg. Additional evidence in support of this interpretation was produced by an examination of torn eggs, situated within the lower part of the uterus, where a layer of vitelline granules was clearly visible lying inside the outer shell.

In view of the present findings, I believe that the suggestion of some workers for the substitution of the term 'Mehlis's gland' for 'shell gland' is not desirable.

It is hoped shortly to publish a fuller account of this work. I would like to express my thanks to Prof. R. A. R. Gresson for guidance during the course of the investigation.

H. K. Yosufzai
Department of Zoology,
Queen's University,
Belfast. Nov. 8.

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A New Method for the Demonstration of the Golgi Material

For the demonstration of the Golgi material in animal cells by the formalin silver nitrate method, Cajal's uranium nitrate[1], Da Fano's cobalt nitrate[2,3] and Aoyama's cadmium chloride[4] techniques are employed. As a result of careful experiments, I have found that the following new fixative gives very good results: cupric chloride (1 per cent in distilled water), 85 c.c.; neutral formol, 15 c.c.

The cupric chloride solution should be prepared separately and the neutral formol added just before use. Fix small pieces of fresh tissue for 2–4 hr. at about 20° C. Rinse quickly in two changes of distilled water, transfer to a freshly prepared 1·5 per cent solution of silver nitrate and keep in the dark for 8–24 hr. at about 20° C. The optimum time for the silver bath varies considerably for different animals and for different tissues from the same animal, and therefore must be determined experimentally. As a rule, the tissues of warm-blooded animals require less time in the silver bath than do those of poikilothermous animals. Rinse quickly in two changes of distilled water, transfer to a freshly prepared reducing solution (hydroquinone 1 gm., sodium sulphite 1·5 gm., neutral formol 15 c.c., distilled water 85 c.c.) and keep in the dark for about six hours. I find that ordinary sodium sulphite crystals are very satisfactory and that it is not necessary to use anhydrous sodium sulphite as recommended by some authors. Wash for about half an hour in running water. Cut frozen sections, or alternatively bring up to absolute alcohol and clear in cedar-wood oil, embed in paraffin wax. Sections may be toned with gold chloride and