the nucleolus may be a site of synthesis of ribonucleic acid.

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Orientation of the Mitochondria during Mitosis

LITTLE is known concerning the behaviour of the mitochondria during cell division. Therefore we have studied the mitosis of cells from the tail of the pancreas in very young albino mice of the Danish State Serum Institute strain. The mice were three to eight days old (weight, 3–3½ gm.). For vital staining of the pancreatic cells the technique of Scott[1] was used. The carotids were clamped, a needle, wire gauge 26–27 (outer diameter, 0·5 mm.; inner diameter, 0·22 mm.), was introduced into the left ventricle of the heart, and Janus Green B solution 1/100,000 was injected at a pressure of 250–300 mm. mercury in the course of some fifteen minutes. The heart was contracting during the injection.

Half an hour before this procedure, 0·1 c.c. heparin solution (5 : 100) had been injected into the abdominal cavity.

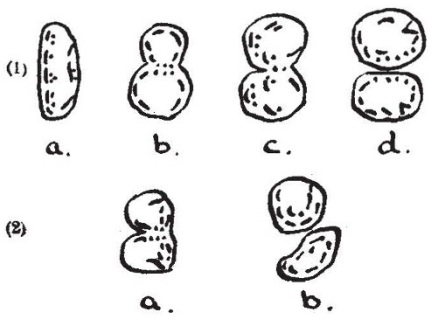
In 190 mice thus examined, only 51 mitoses were seen going on, including all phases of the division.

As soon as the injection has been finished, the pancreas was dissected out; this takes about five minutes, and a bit of the tail was pressed between a slide and a coverslip. The cells were observed at a magnification of 2,400 × (Zeiss, apochrom. *H I* 90, *K* 7 ×, binoc.) During the observation the preparation was kept at 20–22° C.

We tried to photograph the mitochondria, but did not obtain satisfactory pictures, possibly because proper film material was not at our disposal.

During all the phases of mitosis the mitochondria always move in such a manner that they are symmetrically arranged in relation to the plane of cleavage. This is seen from the drawings.

This finding is in accordance with the statistical observations reported by M. D. Thurlow[2,3], from whose work it seems probable that in mice all nerve cells contain the same number of mitochondria.



Mitochondria during mitosis: (1) Mitosis from prophase to telophase; (2) mitosis from anaphase to telophase

The symmetrical distribution of the mitochondria during mitosis indicates that they are of high importance to mitosis, and in their behaviour cannot but remind us of chromosomes during division.

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Feeding and Reproduction in the Pyramidellids

THE mode of life and relationships of the Pyramidellidæ have remained more obscure than those of any other group of the gastropods, though such aberrations as the presence of a radula, the hermaphrodite gonad and their suspected parasitic habit have aroused comment[1,2]. Pelseneer[1] described the feeding of *Brachystomia rissoides* (Hanley) = *Odostomia scalaris* Macg. which is parasitic on *Mytilus*: several individuals congregate on the edge of the shell of the mussel and each protrudes a long proboscis which is fixed to the inner surface of the mantle. No further details are given.

A similar association has now been established between five other species of pyramidellids and other animals, and the feeding process observed. *Odostomia eulimoides* Hanley lives on scallops, *Pecten* and *Chlamys*; *O. lukisii* Jeff., *O. plicata* Mont. and *O. unidentata* Mont. lurk among colonies of *Pomatoceros*, *Serpula* and *Spirorbis*; *Chrysallida spiralis* Mont. on those of *Sabellaria* spp., while it is known that *Turbonilla rufescens* Forbes is associated with a cœlenterate as yet unidentified. When the opportunity occurs, these molluscs extend a long proboscis and attach it to the body of their host—to the mantle of a lamellibranch, the tentacle of *Pomatoceros*, or, in the case of *C. spiralis*, it is thrust through the mouth of *Sabellaria* and fastened to the wall of the gut.

The gut is extremely specialized in connexion with this mode of feeding. There is a long introvert lined by a specialized epithelium, and when this is protruded it is found that the mouth is surrounded by a sucker by means of which the proboscis is fastened to the body of the host. Above the mouth, in the centre of the sucker, lies a second opening from which projects a long, hollow stylet which represents the fused jaws. Both mouth and stylet lead to a long, narrow tube, the modified buccal cavity, divided into two channels: the ventral, from the mouth, leads to a muscular pump; the dorsal contains the stylet into which run the ducts from the salivary glands. The sucker secures the proboscis to the prey; the body is pierced by the stylet, saliva may be used to loosen the tissue, and fluid, with perhaps loosened cells, is then sucked in through the mouth by the pump. The œsophagus is a long capillary tube leading to a simple stomach, and a short rectum passes to a mantle cavity, which contains many simplifications similar to those described in *Omalogyra*[4].

Each species of pyramidellid seems to restrict its feeding to one host. Were we to know these, then it appears that the collection and study of this little-known group would be greatly simplified.

Specialization also extends to the reproductive system, and of particular interest is the method of copulation, for this appears to be effected by an