

# ORIGIN OF INTRALOCULAR OOCYTES IN MALE APODA

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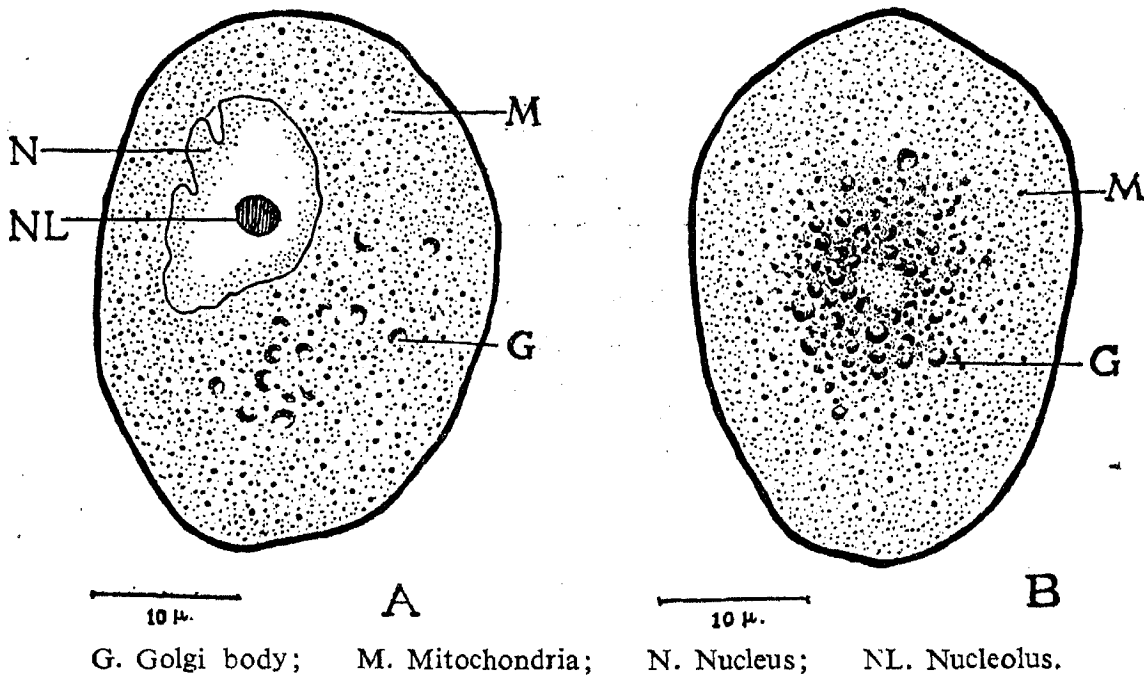
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THREE years ago I reported the occurrence of three oocytes in the testis of *Uræotyphlus narayani* (Seshachar, 1939). The ova which were all intralocular were fairly well advanced in development and were characterised by their large size, the germinal vesicle condition of their nuclei and the large number of nucleoli. That was the first time oocytes were found in the testis of any Apodan example and it was concluded that they were formed as transformations of primary spermatogonia. This conclusion is now amply borne out by the discovery in *Ichthyophis glutinosus* of an ovicell in the testis which bears all the characters of a transforming spermatogonium and I am now able to corroborate Witschi (1934) that intratubular ova in the testis are derived from a transformation of primitive gonia.

During a recent examination of fresh material of *Ichthyophis glutinosus* I noticed in a locule of the testis a cell which bore all the marks of an oocyte, but which had not advanced in development so much as the oocytes described by me in *Uræotyphlus*. This material happened to have been fixed in Kolatschev's fluid and the sections had been mounted unstained. The ovicell was large and extended over four sections each of seven microns thickness. Its appearance in two of them has been figured here. In one, the nucleus is seen; in the other, what is obviously the archoplasmic region is figured.

The oocyte is larger than a normal primary spermatogonium though much smaller than the ova described in the testis of *Uræotyphlus narayani*. It has a definite shape which is maintained by the development of a conspicuous envelope,—two features which at once led me, along with the large size, to distinguish the cell from the primary spermatogonium. Moreover, while the primary spermatogonium is always found either at the mouth of the duct or at the periphery of the locule, the oocyte projected into the cavity of the locule, a position which is never ordinarily occupied by the primary spermatogonium. The nucleus is slightly polymorphic and has a single nucleolus. The size of the nucleus is similar to that of the primary spermatogonium but the cytoplasm definitely showed evidences of increase in volume. The Golgi elements which are seen in the section figured in B, are in the form of numerous discrete crescentic bodies of various sizes arranged in a ring around a more or less clear space, the archoplasmic area. In the



primary spermatogonium, the Golgi apparatus is in the form of a compact body investing the sphere (Seshachar, 1936). This difference between the normal primary spermatogonium and the oocyte just described is very clear and striking. The intensity of osmication of the structures in the two cells also differs. In the oocyte the Golgi bodies were only slightly blackened while in a primary spermatogonium close by, the Golgi apparatus was deeply black. The mitochondria however, remained scattered in the cytoplasm.

From the above description of the oocyte it will be clear that it represents one of the stages through which a primary spermatogonium passes in its transformation into an oocyte. The small polymorphic nucleus and the single nucleolus (there are usually many in the fully developed oocyte) are characters of the primary spermatogonium while the large size and definite shape of the cell and its thick envelope remind us of the oocyte. It is evident that the first changes that take place during 'oviform degeneration' affect the cytoplasm. The increase in its quantity as well as the development of a definite envelope are only two of these changes. The Golgi apparatus which occurs as a compact body in the primary spermatogonium has become broken up here into discrete elements. The mitochondria appear to be the only structures which are unaffected; they occur scattered in the cytoplasm as they do in many cases in the primary spermatogonium.

## REFERENCES

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