

ZOOLOGICAL CLUB, UNIVERSITY OF CHICAGO—
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THE PRONEPHROS IN TESTUDINATA.

WIEDERSHEIM, in his paper, 'Über die Entwicklung des Urogenital apparatus bei Crocodilen und Schildkröten,' 1890, states that he has been entirely unable to distinguish between pronephros and mesonephros. A study of the earlier development explains his position.

From some very young embryos of *Aromochelys* and *Platypeltis* it has been possible to determine the origin and extent of the pronephros. It arises as segmental outgrowths from the posterior somatic region of the somites and is very marked, bridging over the fissure from one somite to the next. The tips overlap and fuse with the following outgrowth. In a very young series the fusion is so complete that a prominent and quite even ridge or welt is formed, extending from the sixth to the tenth somite. Stretching from the end of the pronephros we find the pronephric duct at first close to the somites, further back free, and at its tip at least in some cases fused with the ectoderm. Mitsukuri says he has proved this fusion beyond the possibility of a doubt.

As we proceed to the later stages, however, a new factor comes in which greatly modifies these conditions. Before there is more than a hint of the lumen in the pronephric tubules; we see in some of the same somites (from the second pronephric tubule, on) as well as further back, at the point where they pass in the middle plate, a thickening and occasionally a small bubble-like lumen. These are the Anlagen of the mesonephric tubules. They become more and more distinct. In some series we find the funnel of the pronephric tubule and that of this mesonephric rudiment, opening side by side into the body cavity, but further posterior, and in older embryos we find the pronephric funnels opening into these rudiments of the mesonephros and through them into the body cavity.

There is no break between the pronephros and mesonephros. The first purely mesonephric tubule is in the next somite to the last one which shows the fusion of pronephric and mesonephric elements. Thus it becomes clear that although the pronephros is distinct in

origin, it arises as segmental outgrowths from the somites and extends over but few segments; the mesonephros arising from the middle plate extends almost as far anterior as the pronephros, and the two are so fused in the later stages that the parts cannot be distinguished without a study of their development.

The glomus is not seen in any of the stages described, except as a cluster of cells resembling blood corpuscles may be very rarely found alongside of the aorta. Its origin and development will be discussed later with the further development of the excretory system.

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Titles of other papers read during the two months: 'The Maturation, Fertilization and Early Cleavage of *Myzostoma*,' Dr. W. M. Wheeler; 'The Germinal Vesicle in *Amphibia*' (Carnoy), F. L. Charles; 'Dr. Mead on Annelid Cytogeny,' W. L. Treadwell; 'The Stage of Synapsis in the Squid-egg,' Miss M. M. Sturges; 'The Photospheria of *Nyctiphanes* with Remarks on the Origin of Luminous Organs,' Dr. S. Watase; 'A Comparative Study of Cell Lineage,' S. J. Holmes; 'Notes on a new *Peripatus* from Mexico,' Dr. W. M. Wheeler; 'A New Pigeon Hybrid,' Dr. C. O. Whitman; 'Carnoy on the Fertilization of *Ascaris*,' W. H. Packard.

NEW BOOKS.

- Fossil Plants.* A. C. SEWARD. Cambridge, The University Press. 1898. Vol. I. Pp. xviii + 452. 12s.
- A Text-Book of Botany.* E. STRASBURGER, F. NOLL, H. SCHENCK, A. F. W. SCHIMPER; translated from the German by H. C. PORTER, PH.D. London and New York, The Macmillan Company. 1898. Pp. ix + 632. \$4.50.
- Methods for the Analysis of Ores, Pig Iron and Steel.* Easton, Pa., Chemical Publishing Co. 1898. Pp. 130. Paper, 75c.; cloth, \$1.00.
- The Meaning of Education and other Essays and Addresses.* NICHOLAS MURRAY BUTLER. New York and London, The Macmillan Co. 1898. Pp. xi + 230. \$1.00.

Erratum: On page 468, lines 10 and 11 from the bottom of column 1 the words neurite and dendrite should be transferred.