

the Canidæ, comprising the wolf, the fox, and the Arctic fox. This part is illustrated by six plates, and there are a number of text-figures and tables of comparative measurements which should prove useful, but nothing calls for special notice except the determination of the problematic *Lycaon anglicus*, Lyd., as a somewhat abnormal wolf, a conclusion which seems justified by the evidence now available.

For our knowledge of the Palæozoic fishes of the family Palæoniscidæ we are mainly indebted to the researches of Dr. R. H. Traquair, who continues his account of the British Carboniferous members of the family, describing the genera *Acrolepis*, *Nematoptychius*, and *Cycloptychius*; the last three of the seven plates illustrate the genus *Rhadinichthys*, which will, presumably, be described in the next part. The predaceous habits of the larger Palæoniscidæ are shown by a specimen of *Nematoptychius greenocki*, with the remains of a good-sized *Acanthodes* in the abdominal cavity, and another point of some interest to which Dr. Traquair directs attention is that in round-scaled Palæoniscidæ (*Coccolepis*, *Cryphiolæpis*, &c.), the scales on the upturned portion of the tail always preserved their original angular form, as they do even in the modern Chondrosteans. The probable explanation is that the markedly heterocercal tail of these fishes was a powerful organ of propulsion, and that no sacrifice of strength could be made to gain increased flexibility; the Palæoniscidæ were strong swimmers with wide gill-openings, differing in their manner of life from the more sluggish Crossopterygians and Dipnoans, with their restricted branchial apertures, paddle-like paired fins, and diphycercal or hetero-diphycercal tail.

In the fifth part of his monograph of the fossil fishes of the English Chalk, Dr. A. Smith Woodward concludes the Teleostomes and commences the Chimæroids. *Lophiostomus* and *Neorhombolæpis* are described as highly specialised Eugnathids, but of most importance is a very full description, accompanied by a restoration, of the Coelacanthid *Macroþoma mantelli*. Our knowledge of the Crossopterygian fishes of the order Actinistia is gradually becoming more complete; it is now some years since Dr. Smith Woodward made the interesting discovery that the pectoral fin was supported by a series of four hour-glass-shaped pterygials, exactly as in typical Teleosts, and in the present case he has elucidated many details of cranial structure.

Mr. Henry Woods gives another instalment of his elaborate monograph of the Cretaceous Lamellibranchs of England, describing the Solenidæ, Saxicavidæ, Pholadidæ, Teredinidæ, Anatinidæ, Pholadomyidæ, Pleuromyidæ, Poromyacidæ, and Cuspidariidæ. Several new species are included, and the preparation of the synonymy of some of the others must have been no light task.

The Palæontographical Society spares no expense in order to ensure that its monographs are properly illustrated, and the present volume contains twenty-nine plates, ten of which are assigned to Mr. Woods's memoir; the beautifully executed reproductions of English Cretaceous fishes, drawn by Mr. A. H. Searle

to illustrate Dr. Smith Woodward's monograph, call for special mention. Indices to the Cretaceous Cephalopods and the Jurassic Belemnites, described many years ago, conclude the volume. C. T. R.

COMPARATIVE PHYSIOLOGY.

Handbuch der vergleichenden Physiologie. Edited by Hans Winterstein. Band ii., Physiologie des Stoffwechsel; Physiologie der Zeugung. 1st and 2nd fasciculi, pp. 1 to 320; 3rd fasciculus, pp. 321 to 482 of the first half of the 2nd volume; 4th fasciculus, pp. 1 to 160; 5th fasciculus, pp. 161 to 304 of the 2nd half of the 2nd volume; 6th fasciculus, pp. 483 to 658. (Jena: Gustav Fischer, 1910.) Price 5 marks per fasciculus.

THERE are being published in Germany just now a number of important works of a biological nature, in which eminent investigators are collaborating to produce a more or less exhaustive presentation of their special branches of knowledge. The fasciculi are published at short intervals as they are ready, and not necessarily in the sequence in which they will ultimately be bound together. The present work is the latest example of this method of publication, and the growing science of comparative physiology is receiving its due share of attention. The editor, Prof. Hans Winterstein, has an ambitious programme before him, and hopes to complete the work in four volumes. The list of selected collaborators contains the names of some of the best known of modern investigators; the majority of these are Germans, but the names of Fredericq, of Liège, Carlson, of Chicago, Tigerstedt, of Helsingfors, Bottazzi, of Naples, and Godlewski, of Cracow, also occur upon the title-page.

The fasciculi at present to hand will all ultimately be found in one or other of the two parts into which vol. ii. is to be divided. The first three fasciculi and the sixth are occupied with a single article from the pen of Prof. W. Biedermann, of Jena, and it deals with the digestion and assimilation of nutriment in the various classes of organisms; the article includes the consideration of plant as well as of animal life, so the term comparative is used in the widest sense. The article is left to be finished in future issues.

The fourth fasciculus is devoted to an interesting monograph by Prof. Léon Fredericq on the secretion of protective substances, in which we have an account of such materials from the nematocysts of protozoa up to the more elaborate means of defence found in the vertebrata; this includes an account of toxins, antitoxins, and the numerous other substances included in a general study of the vast subject of immunity. The monograph overlaps into and nearly fills the fifth fasciculus also, which concludes with the commencement of an article by Dr. R. Burian, an authority well qualified to deal with the subject allotted to him, namely, excretion.

The enterprise of our German brethren is to be admired in the conception of such a monumental work, and the preliminary fasciculi hold out the best promise for its future successful realisation.

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