

AUGUST KROGH. Über die Bedeutung von gelösten organischen Substanzen bei der Ernährung von Wassertieren. Zeitschrift für vergleich. Physiologie. Bd. 12, H. 3/4, S. 668—681. Berlin, 1930.

Whether dissolved organic substances in natural waters can or can not be used as a source of food by aquatic animals, has been a much debated question during the past two decades. Several attempts to prove or disprove the theory have been made, but the present investigation by KROGH is by far the most careful study of the problem that has yet been made. He has employed much more accurate apparatus and methods than his predecessors, and his results are, therefore, correspondingly much more reliable. Great care was exercised in reducing bacterial contamination to a minimum and his results were checked by two methods.

The experiments fall into two groups, namely (a) those in which grape sugar was employed and (b) those in which the dissolved organic substances found in natural waters were used. The latter experiments were performed for the purpose of avoiding the criticism that such substances as grape sugar are not present in natural waters, and therefore have no bearing on the problem. (In this connection it may be remarked that Wisconsin lake waters do not contain any sugars and only a very small percentage of the carbohydrate material that is present can be readily hydrolysed into sugar.) In the grape sugar experiments, it was found that *Daphnias*, fish and tadpoles actually took up small amounts of the sugar in solutions of 5, 20 and 40 milligrams per litre, but the amounts absorbed were equivalent to only about a quarter of the gas exchange. At the same time organic substances in corresponding or larger amounts were given off to the water by the organisms. In the experiments with natural waters containing about 10 milligrams of organic matter per litre, the mollusk *Dreissensia* and a species of *Leuciscus* gave off more oxidisable matter to the water than was eventually taken up by them. These results seem to indicate that very little use can be made of the organic substances dissolved in natural waters. The experiments are being continued by the author and his final conclusions will be awaited with very great interest.

C. JUDAY.

J. LE GALL. Statistique biologique et considérations sur la population harenguière de la Manche orientale et du sud de la Mer du Nord (matériel prélevé en 1929). Rev. d. Trav. de l'Off. des Pêches Mar. Tome III, fasc. 2, no. 10. Paris, 1930.

The leader of the biological laboratory at Boulogne s/m has for a series of years devoted a great deal of attention to the study of the autumn and winter herring in the transitional area between the Channel and the North Sea, and such continuous observations are of course the more useful the longer they are carried on. Here, after a rapid definition of the three herring "provinces" to be distinguished (Gris-Nez to mouth of the Somme, group I; mouth of the Somme to Cape Antifer, group II; and the Dijk-Sandettie region, off the Belgian coast, group III), the author proceeds to discuss the material collected during the autumn of 1929. Herrings were measured, scales taken for age reading and vertebrae counted, and in this way charac-