Preservation of Inshore Fisheries*

FOR a number of years past, British inshore fishermen have experienced difficult times due mainly to scarcity of fish on the grounds which they work. The problem of how best to bring about an improvement in these fisheries is a very difficult one which, for some considerable time, has occupied the attention of local fishery committees and other interested bodies. It is generally agreed that the capture and destruction of young fishes, too small to be landed and exposed for sale as a food commodity, are against the best interests of any fishery. With only one exception, the fishing methods at present in general use do not cause wasteful destruction of young stages. There cannot be the least doubt, however, that trawling works great havoc amongst fish stocks by indiscriminately capturing and killing not only marketable but also the small unmarketable members. The most obvious and satisfactory way, therefore, of preserving fish populations and maintaining successful fisheries, would be to prohibit trawling altogether. For many reasons such drastic action cannot be taken. What then are the other possibilities, if any ?

An effort to obtain accurate and adequate data upon which to base a satisfactory answer to this question has been made by Mr. H. J. Buchanan-Wollaston, of the Ministry of Fisheries Laboratory, Lowestoft. For the locus of his researches, extending from 1924 until 1929, Mr. Wollaston chose the English Channel coast and worked mainly from Poole (Dorset) and Beer (Devon). At both of these small ports a very active inshore fishery is carried on.

A comprehensive report on these researches, together with recommendations bearing upon protective legislation, has now been published. This report, states the author, is specially addressed to inshore fishery committees and to the fishermen themselves. To the former it is intended to serve as a guide in dealing with the fisheries over which they have legislative control, and to the latter as a help in deciding whether or not protective legislation is desirable.

Concerning the problem with which he deals, the author is able to state definitely that any attempt to increase the stock of fish on a restricted inshore ground by transplantation seems not to be practicable, at any rate so long as the present methods of wasteful fishing are allowed to continue unregulated. In March 1926 and in May 1927, small plaice were transported from certain Dutch nursery grounds to Poole Harbour with absolutely negative results, so far as any benefit to the local fishery was concerned.

Numerous other experiments and observations carried out by Mr. Wollaston support the view that the enforcement of a minimum size of trawl mesh—the actual measurements to differ slightly in different localities according to the various conditions peculiar to them—would be beneficial. The entire closure of certain bays and similar areas which act as nurseries and/or sanctuaries for the young stages is also discussed in the report. For various reasons, the author hesitates unreservedly to recommend this procedure, at any rate within the area with which he is dealing.

Mr. Wollaston is to be congratulated on having demonstrated very successfully how productive of useful data can be the intensive study of a local fishery in a restricted area, carried out from very minor fishing ports.

* Ministry of Agriculture and Fisheries. Fishery Investigations, Series II, Vol. 13, No. 1, 1933: Inshore Trawl Fisheries of Dorset and Devon. By H. J. Buchanan-Wollaston. Pp. 69. (London: H.M. Stationery Office, 1933.) 3*s*. 6*d*. net.

Structure of Proteins

IN the April issue of the *Berichte der Deutschen Chemischen Gesellschaft*, Prof. Abderhalden and Herr Heyns describe the synthesis and characterisation of three amino-hydroxy-fatty acids, which are of considerable interest to biochemists, since they have for some time been regarded as structural units in the building up of proteins, although the constitution of the actual products of hydrolysis of these proteins has never been completely established. The three acids studied are the α-amino-β-hydroxy derivatives of *n*-butyric, *n*-valeric and iso-valeric acids, of which the last two are called β-hydroxy*nor*valine and β-hydroxyvaline respectively.

The synthesis of such compounds is by no means easy, and many different methods were attempted before success was attained. β-Hydroxyvaline had already been synthesised in 1922, although not under that name, by Schrauth and Geller, and their results have now been substantially confirmed. By using ethyl crotonate instead of ethyl ββ dimethyl acrylate as starting-point, the present authors have been able to synthesise α-amino-β-hydroxy-*n*-butyric acid. The addition-compound which the unsaturated ester makes with mercuric acetate and methyl alcohol is decomposed first with potassium bromide, then with bromine. After hydrolysis of the ester, the bromine is replaced by the amino-group and the methoxyl by hydroxyl, when the amino-hydroxy-butyric acid is liberated.

The synthesis of β-hydroxynorvaline was effected by an adaptation of a method devised by Sörensen. α-Chloropropyl ethyl ether was condensed with the sodium derivative of phthalimido-malonic ester and the product hydrolysed.

These methods of synthesis leave no doubt about the structure of the resulting acids, and the latter have been further characterised by means of their phenyl carbimide, benzoyl and phenyl hydantoïn derivatives. Direct comparison with the products derived from proteins by Schryver, Rimington and others was not possible, but it seems certain that they are not identical. Stress is laid on the fact that whereas Schryver's compounds readily yielded dibenzoyl derivatives, two of these compounds benzoylate only at the amino-group, and the melting-point of the dibenzoyl derivative of α-amino-β-hydroxy-*n*-butyric acid is 60° higher than that of the compound previously described under that name. Further investigation of the natural products will be necessary before the discrepancies can be explained.