kann wohl auf etwa 5 mm geschätzt werden. Keine Unterschiede in der Tiefenverteilung zwischen jüngeren und älteren Larven. Wahrscheinlich befanden sich alle Fangstationen innerhalb der Laichgebiete des Herings im Kattegat oder in deren unmittelbarer Nähe. Das 1927 erbeutete Material ist für sichere Schlussfolgerungen zu spärlich, schliesst sich aber dem von 1926 an.

Südliche Ostsee: Hier ist das gesammelte Material nicht so einheitlich wie im Kattegat, wofür vier Gründe genannt werden: Die Ostsee-Fänge wurden in einem grösseren Zeitraum gemacht; das befischte Gebiet war grösser und umfasste wahrscheinlich Laichplätze als auch Stellen ausserhalb derselben; das Laichen ist vermutlich zeitlich nicht so beschränkt wie im Kattegat und erfolgt in mehreren Perioden; endlich ist die bathymetrische Verteilung der Larven ungleichmässig, die jüngeren Stadien leben höher als die älteren, was bei ungleichmässiger Befischung von Oberfläche und Tiefe sich am Gesamtresultat geltend macht. Als Grund für die verschiedene Tiefenverteilung werden die Salzgehaltsunterschiede zwischen Oberfläche und Tiefe angenommen. Laichplätze, an welchen die meisten und jüngsten Larven gefangen wurden, liegen an der Küste bei Karlskrona, an der Küste nördlich Simrishamn — vielleicht Endpunkte eines entlang der ganzen Hanö-Bucht sich erstreckenden Laichgebietes? — und im Gebiet Westküste von Bornholm—Arcona. Das Material von 1927 zeigt dem von 1926 ganz analoge Verhältnisse. KÜNNE.

G. GILSON. La pêche littorale sur les Côtes de Belgique. Cons. Perm. Int. pour l'Explor. de la Mer. Rapp. et Proc.-Verb. Vol. LI. Copenhague. 1928.

It is but seldom that one has the pleasure of reading a report dealing with such a lengthy series of observations which, with the exception of six years due to the disturbance of the war, have been carried on since 1905 as part of the Belgian contribution to the researches carried out in accordance with the programme of the International Council. Dr. GILSON's difficulties have been great since up to the present, Belgian research workers have lacked a Marine Laboratory and adequate staff, and the work has only been made possible by the generous expenditure of time and money by Dr. GILSON himself. Happily this state of things has ended and a new era opens with the establishment, for which Dr. GILSON was largely instrumental, of the Marine Laboratory at Ostende.

A very complete picture of the Belgian coastal fishery is given, in fact the fullest account of any coastal fishery that has been written, since it deals with the samples of the weekly catches of two types of vessels over a period of some 15 to 16 years. The boats were the "Canots", or open cutters of 1—3 tons, and the "Cotres", half-decked cutters of 5—10 tons, both using the beam trawl. In addition, samples were taken during the shrimping season of the hand pushed shrimp nets. Caught by a boat of each type, samples of all the fish and for a considerable period the invertebrates also, were sorted, identified and measured. For the purposes of this report, the Plaice, Dabs and Soles have been tabulated into three categories, those of 1—15 cms., 16—24 cms., and over 24 cms.

The sale of these three species of fish below 18 cms. is prohibited in Belgium, but the regulation is not strictly enforced and most of the fish of 15 cms. and over are landed.

The figures obtained from the single boats have been raised to the total catch of the whole Belgian fleet of "Canots" and "Cotres" which show clearly the immense destruction of very small fish which is caused by these small boats and the different effect of each type on each species of fish; for example, the "Cotres" catch the greatest amount of Plaice and Dabs, and the "Canots" the most soles. A very low percentage of the fish taken are over 25 cms. and nearly half are below 16 cms. in length.

The many tables and diagrams are worthy of an intensive study since much could be deduced from them with regard to fluctuations, movements offshore and other interesting matters. The main object of the report, however, is to show how greatly the stock of the open sea fishery must suffer from the inshore depredations. With all due reserve, Dr. GILSON raises the figures obtained from the Belgian coast to the whole continental North Sea coast up to the Skagerrak and concludes that the coastal fishery cannot destroy annually less than approximately $39^1/_2$ millions of young plaice, $121^1/_2$ millions of young dabs and well over 15 millions of small soles. While these numbers are but small as compared with the destruction of young fish by the steam trawlers fishing the North Sea, yet they add over 13 per cent. to the number of plaice of under 25 cms. caught annually in the North Sea as estimated by HEINCKE.

Besides the destruction caused by this inshore trawling of fish, Dr. GILSON raises a question that has too often been overlooked by the advocates of the "thinning" theory, and that is the effect of continuous trawling, even by the small beam trawl, on the bottom living invertebrates which form the food of fish. The examination of the trawl contents after hauling in certain localities revealed the fact that a very great quantity of the bottom fauna are killed or mutilated, which not only reduces the amount of the benthic fish food but also consequently of planktonic food since many of the benthic forms have a planktonic larval stage. It would be interesting to know whether the relative amount of destruction of bottom fauna by the light seine net used by the Danes and the beam trawl used by other continental coastal fishermen could have any bearing on the more rapid growth rate of the plaice off the Danish coast as compared with the slow growth rate of the Dutch coast.

Dr. GILSON urges the necessity for International regulations in order to protect the young fish and presents his arguments very convincingly. He rightly concludes that the resources for recruiting the offshore stock are not inexhaustible and suggests two means of protection. Firstly, the institution of preserves for young fish where no fishing would be allowed; these areas would be chosen after a full examination by means of bottom sampling and should be where fishing was unprofitable or difficult owing to the nature of the bottom. Secondly, the institution of an International size limit of 22 cms. This he believes to be too low but the really effective limit of 25 cms. would ruin the inshore fishermen. However, he considers that it might be gradually raised later on.

The arguments against a size limit are well known, in particular that

it would not keep the boats off the young fish grounds and the fish would merely be thrown overboard dead. He is of the opinion, however, that with proper precautions by the fishermen, a considerable proportion of the fish caught by the inshore fishermen could be returned to the sea alive. There is, moreover, a recent development in the fishing industry which furnishes a powerful argument in favour of a size limit; this is the utilisation of undersized fish and wasted parts of fish for the manufacture of meal and other bye-products. While it is all to the good to turn the inedible portions of marketable fish into such products, the fact that a market for fish of any size is increasing can only be viewed with great apprehension and every effort should be made to check the expansion before it reaches unmanageable proportions.

Space will not permit one to deal with the many other points that Dr. GILSON brings forward; it must suffice when it is said that no one who is investigating the problems of the North Sea should fail to make a careful study of this most interesting report; for the first time the coastal fishery has been examined with sufficient continuity to obviate the erroneous ideas that are obtained from spasmodic sampling, where such factors as weather, shoaling, and migrations can give but a very distorted impression. D. E. T.-P.

H. M. KYLE. Die Seefischerei von Grossbritannien und Irland. Handbuch der Seefischerei Nordeuropas. Herausgegeben von H. LÜBBERT und E. EHRENBAUM. Band VI. Heft 1—3. Mit 1 Titelbild, 77 Abbildungen im Text und auf Tafel I—V. S. 1—169. Stuttgart 1929.

An account of the sea fisheries of northern Europe in ten volumes is being published at Stuttgart, with Mr. H. LÜBBERT and Professor EHRENBAUM as Editors. The sixth volume is devoted to the sea fisheries of Great Britain and Ireland by Dr. KYLE. The first three (of four) parts of this volume have just been issued under the title given above.

These three parts are concerned respectively with:—

1) An historical account of the development of British Fisheries (57 pp.).
2) Administration and regulation of the Fisheries (19 pp.).
3) Methods of Fishing and Fishing Vessels (90 pp.).

It may be said at once that this work is clear, compact, up-to-date and so far as is possible in the limited space allowed, a complete account of British sea fisheries — past and present.

No branch of the fisheries — however insignificant — is omitted and the more important sections of the fisheries are described with a wealth of detail and with abundant illustrations.

Dr. KYLE deals first with the historical account under four separate headings. From the commencement to the sixteenth century, from 1600 to 1800, from 1800 to 1900 and finally from 1900 to 1925.

The main aspects of this important and interesting branch of the sea fisheries are adequately dealt with.

Dr. KYLE traces the development of the British sea fisheries from