

wenn man im Gegensatz zu Ford sich zur Ansicht vom Vorhandensein von Heringsrassen bekennt. Denn ein Merkmal ist das Produkt von Erbmasse *und* Umwelt. Man kann zu den "äusseren" Faktoren auch noch die "inneren" hinzufügen. Eine andere, noch unentschiedene Frage ist es, ob man heute schon die wirklichen, charakteristischen *Unterschiede* in den Merkmalen erkannt hat.

Ford berichtet dann noch weiter über die Versuche künstlicher Befruchtung und Erbrütung von Heringseiern und die Unmöglichkeit, die so gewonnenen Larven bis zu dem Zeitpunkt weiterzuzüchten, zu dem man Wirbelzählungen vornehmen kann. Die Myomerenzählung stösst auf die bekannten Schwierigkeiten. Auch andere Untersuchungen an Entwicklungsformen sind noch nicht abgeschlossen.

Ein letzter Abschnitt beschäftigt sich mit der besonders praktisch bedeutungsvollen Frage nach den Möglichkeiten für eine Voraussage der Fischereierträge. Auf Grund einer sehr eingehenden Prüfung aller mit dieser Frage in Zusammenhang stehenden Umstände kommt Ford zu der Schlussfolgerung, dass eine regelmässige Beobachtung der Veränderungen in der Zusammensetzung und Grösse der Anlandungen gewisse Rückschlüsse auf Grösse und Beschaffenheit zukünftiger Fänge zulässt, dass aber die Fangergebnisse in erheblichem Masse von Umständen abhängig sind, die nicht vorausszusehen sind, und zur Klärung dieser Fragen hält Ford weitere Untersuchungen für besonders notwendig.

*Schmakenbeck.*

**D. E. Thursby-Pelham.** "Report on the English Plaice Investigations during the Years 1926 to 1930". Min. of Agric. and Fish., Fish. Invest. Ser. II, Vol. XII, No. 5, 1932. London, 1932.

This paper deals with the biological-statistical data of plaice collected from market measurements at Lowestoft, and from fishing experiments during the years 1926—30. The investigation falls into four sections. By means of tables and charts the development of the English plaice fishery in the North Sea during the years 1926—1930 is shown. Section I. The total landings have declined, and it appears that from 1929 to 1930 this decline — partially at least — is due to a smaller abundance of plaice, while the abundance during 1926—28 seems to have increased. A direct decision on the question is not possible on account of a change from the common otter-trawl to various forms of the V.-D. trawl. Besides this decline in the total landings the smallest and least valuable sizes have been steadily rising, while the more valuable fish have become increasingly more scarce.

Section II deals with the fluctuations in the strength of the year-classes and with the effect of this and of the varying fishing intensity on the landings at Lowestoft. The rich spawning years 1920—22 dominated the catch during 1926—28, and the effect of the poor spawning years 1923 and 1924 was felt in 1929; by 1930 the majority of the fish landed both by weight and number were below five years old. The effect of the natural fluctuations was increased by the rapidity with which the stock was removed by fishing. There are signs that the stock of mature fish is being reduced to a dangerously low level.

Moreover the investigations of the average size of fish of the same age have shown that there is no clear indication that the intensive fishing of recent years has accelerated growth. They have carried Miss Thursby-Pelham to the conclusion that "it is believed that this method of studying the rate of growth is not a reliable one; in consequence considerable doubts

are entertained as to the truth of the belief that the growth-rate of plaice was checked by the partial cessation of fishing during the war". Yet I think that the statement (on p. 56) that there may be "a connection between the average size of a very abundant year-class and those of a very sparse one" elucidated by the investigation is greatly in favour of the view that the average size of the age-groups found from the fishing experiments is a fairly good expression for the size of the age-groups. Naturally other factors than the density of the stock influence the size of the age-groups, e.g., the natural variations from year to year in the amount of plaice food, of the temperature and of the fishing. The question is a very complex one and not to be discussed in a short review. Here I shall only refer to the fact that the competition for food for a certain age-group is determined neither by the amount of plaice of this age-group alone, nor by the density found at the moment of the investigation only, and further that at a certain spot, there is, during spring and autumn, quite a different stock of plaice owing to the seasonal wanderings.

It is quite certain that Miss *Thursby-Pelham* is right in the view that the average size of an age-group gives no direct indication of the growth of the plaice, but that it is a compound product essentially of growth and fishing intensity. Only with equal fishing conditions a difference in the average size of a certain age-group in two years may indicate the difference in growth. It is to be hoped that the general use of the expression "growth" for difference in average size of a certain age-group and of the next one found by fishing experiments will now disappear.

In Section III the size composition of the stock is shown to be about the same from 1926 to 1930. The cause of the above-named alteration of the size composition of the landings is essentially to be sought for in a displacement of the fishing towards the young plaice grounds.

Section IV gives a survey of the North Sea plaice fishery showing that the fishes are taken as soon as they leave the young plaice grounds, and that a great many undersized plaice are destroyed. The development is to the disadvantage especially of the English fishermen, as the young plaice grounds are situated at some distance from their coasts.

The investigation, moreover, is made more valuable by the many interesting details in the text and in the extensive tables of data.

*Aage J. C. Jensen.*

**H. J. Buchanan-Wollaston.** "Inshore Trawl Fisheries of Dorset and Devon. Report on Researches carried out between 1924 and 1929 from Poole, Dorset, and Beer, Devon, with Recommendations bearing on Protective Legislation." Min. of Agric. and Fish., Fish. Invest. Series II, Vol. XIII, No. 1, 1933. London, 1933.

Questions of the regulation of sea fisheries present different aspects in regions physically and economically distinct. Investigations in each case must be planned and carried out in accordance with local needs and conditions. The southern coast of England, for instance, stands in striking contrast with the smooth, shallow and sandy shores of the Continent, from Calais to Skagen. The eastern coast of the North Sea appears as a vast nursery for annual broods of fish which withdraw progressively from the shore as they grow. The "harvest of the sea" in this coastal region is, there, a passing procession, out of which continental and British fishermen endeavour to snatch a profitable booty; but no part of the vagrant fish population of the sea may be considered as the property of any particular town or district of the coast.