

2. Fall Herring 1914—

- (a) West coast of Newfoundland.
- (b) Atlantic coast of Nova Scotia.
- (c) Bay of Fundy.
- (d) Gloucester, Mass.

During my journey along the Atlantic coast I had many opportunities of conversations with business people and fishermen interested in the herring fisheries, and at some places I had the opportunity of seeing the fishing gear and how it was used. The fishermen use, almost without an exception, gill-nets with a certain fixed size of mesh ($2\frac{1}{2}$ to $2\frac{3}{4}$ inches). The nets are placed along the sea-bottom on the coast or in the bays or inlets along the shore. At no point is fishing carried on far out from the coast in deep water, or on the surface (by drift-nets or by purse-seines).

This particular method of fishing has, of course, great disadvantages for the study of the life-history of the herring. The big meshes of the fishermen's nets can procure samples of the large, mature herring only, and it is further quite uncertain whether the samples are in any way representative of even the mature shoals or not. It may be that the fishermen, through a long experience of fishing in these waters, have been able to adopt a size of mesh which takes practically all the sizes of mature herring visiting the coast, but only by means of experiments carried out with gear taking all the sizes probably occurring, can this question be satisfactorily answered. The study of the composition of the stock of herring with regard to age (year classes) will therefore be of a superficial character so long as systematic fishing experiments have not been made.

The methods adopted in the fishing industry at present are further inadequate, for a study of the life-history of the herring, for the reason that the fishing is carried on only along the coast. According to the experience of the fishermen the herring come into the bays or to the coast at a certain time of the year. In Newfoundland (the west coast) for example, in the spring and in the fall the herring appear. When I visited the bays of the west coast of Newfoundland at the beginning of November the fishermen had just begun to catch the herring in the southern bays, while they were still waiting for them in the northern bays (Bonne bay). In conversation with the fishermen I obtained the information that shoals of herring were often seen off the coasts of Nova Scotia, Cape Breton, and Newfoundland, at certain seasons of the year (e.g., in summer) when no herring struck into the shore. A satisfactory study of the life-history of the herring must therefore be based upon material collected by systematic fishing experiments, carried on along the coast and off the coast in the open sea, with such gear that all sizes of herring can be captured. From a perusal of my paper, mentioned above, especially page 59, fig. 34, it will be seen that investigations of the European herring in the North Sea have had to be carried out in this way. Only through an expedition, equipped with gear for the catching of all sizes of herring, and with a sea-going vessel available, will a satisfactory scientific study of the herring be possible.

From the experience which I have obtained during my recent tour, it seems to me quite evident that a thorough scientific investigation of the life-history of the herring must necessarily be of the greatest immediate practical importance. To prove this, I think it sufficient to draw attention to the following circumstances:—

(1) Only large mature herring are taken in the big mesh of the fishermen's nets, whereas in Norway hundreds of thousands of barrels of younger herring ("fat-herring") have been caught every year for centuries.

(2) No Canadian herring fishing is carried on off the coast in the open sea far from land. In the North Sea millions of barrels are caught far from land every year. The coast fishing is comparatively insignificant. In Norway all fishing was coast