

## VI.—INTERPRETATION OF THE MOVEMENTS OF THE MACKEREL.

What then is the proper interpretation of the movements of the mackerel from its first appearance in the Spring to its disappearance in the fall? These movements vary with the geographical position of local schools of this fish. On the coasts of the United States and Nova Scotia, its annual movements resemble in all particulars those of the same species in European seas where the schools have a free and unobstructed ocean in which to seek their prey.

In the spring, at the end of April and May, the Atlantic schools of this fish which have wintered off the coasts approach the land in separate bodies, full of spawn and poor, coming direct from winter homes where they have remained in a torpid condition, partially buried in sand or mud. After spawning, the different schools feed for a short time on the fry of fish, and as the temperature rises they go out to sea in search of free swimming crustaceans and larval forms of food according as they are distributed by wind and tide.

They pursue this food against the current or tide. They often feed during the night because at that period great numbers of free swimming larval forms approach the surface. This is one reason why mackerel schools are frequently missed by fishermen, and areas supposed to be deserted, may really abound with this fish, which would be discovered by sink-net fishing. The currents are constantly changing with the seasons under the influence of temperature and prevailing winds, hence the course or direction and depth of the food is constantly changing also.

Sometimes it is carried far off from the land, at other times towards it, and the mackerel schools following the food move first in one direction, then in another, and range from close inshore to fifty miles and more seawards, and often, doubtless, at a considerable depth below the surface.

The general direction of these movements, when plotted on paper, would be a series of irregular circles or elongated ellipses, the range of each school or group of schools being opposite and often adjacent to that part of the coast where they spawn.

As the Fall approaches, owing to the diminution in the supply of their floating food out at sea, they come more inland.

All the free swimming larval forms of most species of Shrimps, Crabs, Lobsters, Sea Urchins, Starfish, Sea Worms, &c., &c., have disappeared in the open sea, after passing through their final transformation. But near the shore there are great numbers of other forms of life, which are developed later in the year. Coming in shore to feed on these on the Atlantic Coast, the Mackerel are found by American fishermen later and later on their return voyage to the south-west, which gives rise to the impression that they are following the schools, when they are only meeting with fresh schools approaching the shore from their feeding grounds. Similar movements occur on the Atlantic coast of Nova Scotia and Cape Breton. As winter approaches, beginning at Cape Breton in November, the different schools retire to their winter homes off the coast in deep water, later and later from North to South.

In the Gulf of St. Lawrence, where land is, as it were on all sides, the local schools come from their winter haunts to the banks and beaches of the Magdalens, of Prince Edward Island, in the Bay Chaleur, &c., &c., to spawn about the first week in June. They retire after spawning to deep water, and meet the incoming Sand Lance. They follow the Sand Lance in shore