

V.—MOVEMENTS OF THE MACKEREL COMPARED WITH THE MOVEMENTS OF OTHER FISH.

When successive appearances of Mackerel at different points of the coast are tabulated, the apparent movements afford some grounds for the popular belief in the migrations of these fish, but they are susceptible of a strictly philosophical explanation, in which temperature asserts its claim as a ruling cause. When the condition of the fish is recorded at the time, and their spawning habits considered, the fallacy of the popular belief becomes apparent. The following table affords a synoptical view of the facts recorded, with authorities given in the foot notes.

TABLE SHOWING THE GENERAL DATES OF APPEARANCE OF THE
MACKEREL, SHAD AND ALEWIFE OR GASPAREAU ON THE
COASTS OF THE UNITED STATES AND BRITISH AMERICA.

LOCALITY.	MACKEREL.	SHAD. (1)	ALEWIFE (2).
South Carolina.....	—	January.	—
Virginia and Rhode Island.....	Middle of Ap- ril.	February.	March.
New York and New Jersey.....	20th April.	End of March.	End of Mar.
Massachusetts.....	25th April to 10th May.	First week in April.	—
Nova Scotia.....	10th to 20th May.	May.	May.
Cape Breton.....	25th May.	—	—
Magdalen Islands...	2nd June.	—	—
Gulf of St. Lawrence Miramichi.....	First week in June.	End of May.	End of May.

(1) Charles Lanman *et Alena* in Report of the U. S. Commissioner of Fish and Fisheries. Also Perley; Fisheries of New Brunswick.

(2) *Ibid*; Perley; Dr. Storer; Fisheries of Massachusetts.

The first appearances of the Alewife and the Scup on the coast of Massachusetts resemble closely the relative times of appearance of the Herring and the Mackerel at the Magdalen Islands.

During the years 1859 to 1871 inclusive, the earliest and latest appearance of these fish at Waquoit Weir was as follows

Alewifes, { Earliest... March 24th, 1871. } Difference 14 days.
 { Latest..... April 7th, 1869. }

Scup... { Earliest... April 25th, 1871. } Difference 15 days.
 { Latest.... May 10th, 1862 & 68. }

Difference in the annual periods or dates of their appearance about one month.

With regard to the fish, whose movements were formerly supposed to be made simultaneously over the same ground with those of the Mackerel, the United States Commissioner of Fish and Fisheries says: "We now, however, have much reason to think that in the case of Herring, the Shad, the Alewife, and the Salmon, the journey is simply from the mouths of the rivers by the nearest deep gully or trough to the outer sea, and that the appearance of the fish in the mouths of rivers along the coast at successive intervals from early Spring in the South to near midsummer in the north, is simply due to their taking up their line of march at successive epochs from the open