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Observations made during May 1951
in the Newfoundland Region
aboard the oceanographic ship "President Theodore Tissier".

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The French Oceanographic Vessel "President Theodore Tissier" worked west of 40° W.L. between Halifax, St. Pierre et Miquelon, St. John's Newfoundland, Flemish Cap and the south of the Grand Bank of Newfoundland from April 30 to May 28, 1951.

Hydrographic stations were made every 30 miles on the vast continental shelf in order to take temperature and water samples at different depths and some plankton tows (with silk nets of 33 cm. diameter and Grand Schmidt nets of 1 m. and 2 m. diameter).

Dragging, trawling and line fishing were carried out.

Many hundreds of drift bottles were released to study the currents.

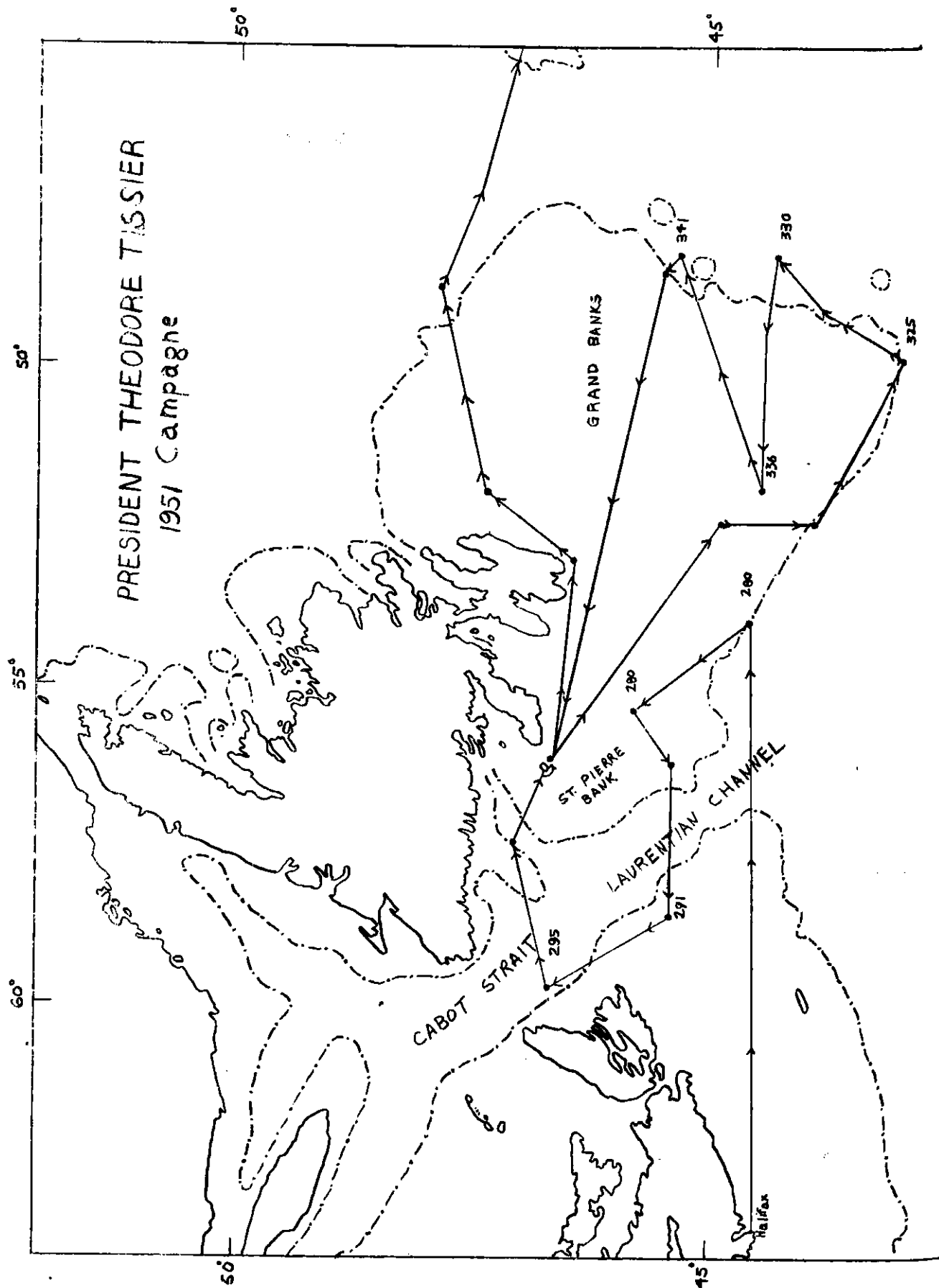
3,000 cod and haddock were measured; 700 otoliths were taken; invertebrate fauna were collected. All this material is under study at the present time.

Temperature Conditions

1. The "President Theodore Tissier", sailing from Halifax to the East along 44° 34' and 44° 40' N.L. travelled through waters of 3° and 4°C up to the Laurentian Channel. In the Laurentian Channel an indentation of warm water of 8°C originating in the South, shows at 200 meters; with a temperature of 6°C at the surface.

Heading N.W., up to 45° 50' N.L., the "Tissier" met, at the opening of the Eglefin and Fletan channels, cold waters from -0.6° to +0.9°C on the bottom.

Coming back West from St. Pierre Bank to Misaine Bank, we found again the same 3 and 4°C temperatures. The second cross-section of the Laurentian Channel, at 45° 25' N.L. showed that the indentation of Atlantic warm waters did not reach this latitude. On both sides at the edges of the Laurentian Channel were bodies of cold water from 1.8 to 2°C.



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The "President Theodore Tissier" headed N.- N.W. and crossed the Cabot Strait as far as Burgeo Bank and then crossed the channel between Burgeo and St. Pierre. The Cabot Strait and the last mentioned channel contained at the bottom waters of 3.9° to 4.9°C; while some Laurentian water of 0° to 0.7°C hugged the slope at the western side of Cabot Strait.

- II. On May 10, the ship headed from St. Pierre to the South-East as far as 45° N.L. and then to the South along the 52° 30' W.L., exploring the South-West and South-East edges of the tip of the Grand Bank, then turned back to the West, exploring the region between 44° 20' and the 45° 20' N.L. From the Eastern edge (45° 22' N.L. and 48° 17' W.L.) she sailed toward St. Pierre.

Warm waters of 6 to 8°C. existed up to the surface at the S.W. edge of the Grand Bank.

Cold Polar water, below 0°C., existed at the bottom of the channels opening on the west of the Grand Bank (channels: Avalon, Eglefin, Placentia Bay). The body of cold water at the Eastern edge is not important and manifests itself only up to the North of 45° N.L.

From these observations we are able to describe the year 1951 in Newfoundland waters as a warm year as compared to the years 1925 and 1930. (See LE DANOIS et BEAUGE. Rev. des Trav. de l'Office des Peches, 1931 - T. IV f. 2. pp. 145-147).

- III. From Cape Race across the normal path of icebergs, polar waters of 0° to 1.2°C occurred on the bottom from 50 to 200 meters. They formed a body of cold water at the North-East edge of the Grand Bank, between bottom and surface waters of 3°C.

Over the Flemish Cap the surface waters down to 50 meters were relatively warm (7 to 8°C.).

To the South-East of the Flemish Cap, at 46° 28' N.L. and 43° 05' W.L. the temperatures were raised suddenly at 100 meters, from 4° to 14° C. and at 200 meters, from 3° to 12°C. The hydrographic conditions were completely different.