

SESSIONAL PAPER No 38a

reason for this isolation becomes apparent on examination of a bathymetric chart of the waters of the Maritime Provinces. The whole of Prince Edward island and Northumberland strait lie inside the 20-fathom line, and much of the broad strait has a depth of 10 fathoms or less. On the southeastern coast of Nova Scotia, however, the 20-fathom line frequently approaches to within one-half mile of the coast, and there is everywhere a narrow zone of shoal water inside the 100-fathom zone which renders it colder than the broad shallow warm waters of Northumberland strait. It illustrates well the fact that a zone of shallow water if sufficiently close to and unprotected from deep waters may serve as a faunal barrier as effectively as a land barrier. This example of an isolated colony of the northern New England shallow zone marine fauna surrounded by a sub-boreal fauna is worthy of the attention of paleontologists who are prone to predict land barriers as offering the only possible explanation of faunal differences similar to those described above.

FORMER DISTRIBUTION OF THE NORTHUMBERLAND FAUNA.

There are several bits of evidence which seem to indicate that the present isolation and limited distribution of the colony of comparatively warm-water molluscs now living in the Northumberland strait with which *T. naralis* is associated is of recent origin. *Ostrea virginica*, the most strikingly southern type of this assemblage, appears to have extended as far westward as Montreal at one time during the Pleistocene. Several years ago Sir William Dawson wrote: "I have picked up a loose specimen at Saco which has the appearance of being a fossil specimen from the Leda clay, and Mr. Paisley has sent me specimens from Chaleur bay which are said to have come from Pleistocene beds 18 feet from the surface."¹ More recently Edward Ardley² has reported finding *Ostrea* near Montreal, 9 feet below the surface, associated with *Mya truncata*, *Macoma calcarata*, *Antarctia Laurentiana*, and *Saxicava rugosa*. At Cole Harbour on the east coast of Nova Scotia the flukes of anchors bring up numerous dead oyster shells, where the living oyster is unknown.³

On the east coast of Nova Scotia, Mr. W. J. Wintenburg of the section of Archaeology of the Geological Survey, has found in an old Indian shell heap on Mahone bay, 40 miles southwest of Halifax, shells of *Ostrea virginica* and *Venus mercenaria*. Neither shell is known south-west of Halifax, on the east coast of Nova Scotia at present, but their discovery in the shell heap appears to indicate that they lived in the bay when the shell heap materials were accumulating.

It may be suggested tentatively that the beds containing *O. virginica* at Montreal are synchronous in time with the Don River interglacial beds at Toronto. It is probable that the milder climatic conditions which prevailed during the early part of the Don River interval⁴ rendered the temperature of the Atlantic coastal waters of the Maritime Provinces sufficiently mild to give the oyster and its congeners continuous distribution from southern New England to the gulf of St. Lawrence.

¹ Dawson, J. W. Ice Age in Canada, 1893, p. 243.

² Ardley, Edward. "The Occurrence of *Ostrea* in the Pleistocene Deposits of the Vicinity of Montreal." Ottawa Naturalist, Vol. 26, 1912, p. 87.

³ Proc. and Trans. N.S. Inst. Nat. Sci. Vol. I, 1843, p. 98.

⁴ A. P. Coleman, Int. Cong. Geol. Guide Book, No. 6, 1913, pp. 15-31.