

The Canadian Field-Naturalist

VOL. L

OTTAWA, CANADA, NOVEMBER, 1936

No. 8

POST-PLEISTOCENE FOSSILS OF THE UPLIFTED BEACHES OF THE EASTERN ARCTIC REGIONS OF CANADA.*

By D. A. NICHOLS

Bureau of Economic Geology. Department of Mines, Ottawa, Canada



RAISED strand-lines as shown by terraces, beach ridges and other marine land forms are found in numerous places along the mainland of Canada and on the islands of the Arctic Archipelago.

The chief interest in the terraces and beaches lies in the information they may afford regarding the amount and character of the post-glacial movements of the land. It is often difficult to recognize some of the higher beaches in the Arctic regions, as they have been exposed to sub-aerial erosion for a long time. They are frequently disguised by solifluction, which is so active in the areas of permanently frozen ground.

Investigations made for the Department of Mines during the season 1935, while with the Eastern Arctic Expedition, sponsored by the Lands, Northwest Territories and Yukon Branch, Department of the Interior, Ottawa, Canada, indicate that foraminifera may be used to determine marine beaches and terraces when other criteria are obscure or lacking.

In the areas examined, foraminifera were found in indefinite beach-solifluction forms up to an elevation of 548 feet above mean sea-level, in many places where the macroscopic shells were not obtained. In every clay-sand sample collected, except two, foraminifera were present. Sufficient information has not been obtained to state how much higher, if any, these fossils may be found. Further investigation along these lines may extend their vertical range, and may also throw some light on the character of the obscure Pleistocene deposits reported in a few places on the coasts of the Western Arctic and on Baffin and Southampton Islands, where, apparently, Pleistocene material forms the summits of hills as high as 1300 feet above sea-level (1,2).

If these high deposits are marine, as suggested, the amount of post-glacial emergence is over 1300 feet, in places. Such obscure deposits as these mentioned, and small clay pockets on side hills and summits at elevations beyond the highest recognizable marine beach, might well be examined for these microscopic shells to afford a clue to determine the character of the deposits and provide further information regarding the highest recognizable stand of the water at the end of Pleistocene submergence.

The fact must not be overlooked, however, that some of the foraminiferal clays may have been glacially transported, but in most of the localities examined, their position and the direction of glacial movement made this appear improbable.

A list of the macro-fossils and of the foraminifera collected from the various localities and their elevations is annexed.

Macro-fossils identified by A. La Rocque, Palaeontological Division, Geological Survey, Ottawa, Canada.

SUGLUK, QUEBEC. — Elevation 224 feet.

Cardium ciliatum O. Fabr.

Mya arenaria (Linn.)

Mya truncata uddevalensis (Forbes)

Saxicava arctica (Linn.)

Macoma calcarea Gmelin

Pecten islandicus var.

Trichotropis borealis Brod. & Sowerby
Barnacle plates.

ERIC COVE, WOLSTENHOLME, QUE. — Elevation 345 feet.

Saxicava arctica (Linn.)

Mya truncata uddevalensis (Forbes)

Macoma calcarea Gmelin

Pecten islandicus fragment.

ERIC COVE, WOLSTENHOLME, QUE. — Elevation 233 feet.

Astarte cf. *banksii* (Leach) worn

Serripes groenlandicus (Brugière)

*Published with the permission of the Director, Bureau of Economic Geology, Department of Mines, Ottawa, Ontario.

Mya truncata uddevalensis (Forbes)
Macoma calcarea (Gmelin)
Saxicava arctica (Linn.).

BEAR COVE, WOLSTENHOLME, QUE. — Elevation 365 feet.

Mya truncata uddevalensis (Forbes)
Saxicava arctica (Linn.)
Macoma calcarea (Gmelin)
Pecten islandicus (Müller) fragment.

DUNDAS HARBOUR, DEVON ISLAND. — Elevation 145 feet.

Littorina sp. (young cf. *L. groenlandica* (Mencke).)

WAKEHAM BAY, QUEBEC. — Elevation 110 feet.

Mya arenaria (Linn.)
Cardium ciliatum (O. Fabr.).

PORT HARRISON, QUEBEC. — Elevation 10 to 94 feet.

Buccinum sp. worn
Mya arenaria (Linn.)
Astarte elliptica Brown
Mya truncata uddevalensis (Forbes)
Astarte borealis Schumacher
Serripes groenlandicus (Bruguière)
Saxicava arctica (Linn.)
Pecten islandicus islandicus (Müller)
Pecten islandicus insculptus Verrill
Pecten islandicus worn valves
Cardium ciliatum (O. Fabr.) smooth-ribbed form.

PORT HARRISON, QUEBEC. Locality No. 2. — Elevation 20 to 42 feet.

Pecten islandicus insculptus Verrill
Cardium ciliatum (O. Fabr.)
Serripes groenlandicus (Bruguière)
Mya arenaria (Linn.)
Mya truncata uddevalensis (Forbes)
Saxicava arctica (Linn.)
Astarte ?borealis worn specimen.

PORT HARRISON, QUEBEC. — Elevation 124 feet.

Cardium ciliatum (O. Fabr.)
Serripes groenlandicus (Bruguière)
Pecten islandicus (Müller) worn
Pecten islandicus insculptus Verrill
Mya arenaria (Linn.).

PORT HARRISON, QUEBEC. About one mile south. — Elevation 162 feet.

Cardium ciliatum (O. Fabr.) smooth-ribbed form
Mya truncata uddevalensis (Forbes)
Mytilus edulis (Linn.)
Saxicava arctica (Linn.)
Buccinum sp. fragments
 Barnacle plates.

CHURCHILL, MANITOBA. Sand pit, five miles south on railway spur. — Elevation near B.M. 79 feet.

Mya truncata uddevalensis (Forbes)
Cardium ciliatum (O. Fabr.)
Saxicava arctica (Linn.)
Astarte borealis Schumacher
Astarte banksii (Leach)
Macoma balthica (Linn.)
Macoma calcarea (Gmelin)
Nuculana pernula (Müller)
Hemithyris psittacea (Gmelin)
Mytilus edulis (Linn.)
Pecten islandicus insculptus Verrill
Lepeta caeca (Müller)
Pecten islandicus islandicus (Müller)
 Barnacle plates.

CHURCHILL, MANITOBA. About fifty miles inland. H. B. Ry. Miles 350, 396. — Elevation 450 feet.

Saxicava arctica (Linn.)
 Collected by Major J. L. Charles. Two Walrus skulls were found here also.

CORAL HARBOUR, SOUTHAMPTON IS. About three miles inland. — Elevation 134 feet.

Lepeta caeca (Müller)
Astarte banksii (Leach)
Saxicava arctica (Linn.).

CRAIG HARBOUR, ELLESMERE ISLAND. — Elevation about 10 feet.

Astarte borealis Schumacher
Astarte banksii (Leach)
Saxicava arctica (Linn.)

FOND'S INLET, BAFFIN ISLAND. — Elevation 65 to 120 feet.

Astarte borealis Schumacher
Saxicava arctica (Linn.)
Mya truncata uddevalensis (Forbes)
Buccinum sp.
Mytilus edulis (Linn.) shore form.

PANGNIRTUNG, BAFFIN ISLAND. — Elevation sea level to about 10 feet.

Astarte borealis Schumacher
Astarte cf. *crenata* (Gray) worn
Astarte sp. much worn
Mya truncata uddevalensis (Forbes)
Saxicava arctica (Linn.).

Foraminifera collected from the raised beaches of the Eastern Arctic and Hudson Bay region. (Identified by R. T. D. Wickenden, Geological Survey, Ottawa, Canada).

The clay and sand samples were washed and dried, then passed through 100 and 150 mesh sieves and the fines and intermediates treated

with carbon tetrachloride on which the foraminifera floated. These were filtered off and examined under the microscope.

PORT BURWELL, QUEBEC. — Elevation, 252 feet.

Nonion orbicularis (Brady)
Nonion stelligera (d'Orbigny)
Cassidulina crassa d'Orbigny
Cassidulina laevigata d'Orbigny
Globigerina?

SUGLUK, QUEBEC. — Elevation 224 feet.

Nonion orbicularis (Brady)
Nonion sp.
Cassidulina crassa d'Orbigny
Cassidulina crassa d'Orbigny
Guttulina sp? One specimen

WOLSTENHOLME, QUEBEC. — Elevation 548 feet.

Nonion depressula? (Walker and Jacobs.)
Cassidulina crassa d'Orbigny
Virgulina sp?
 Fragment of arenaceous species.

PORT HARRISON, QUEBEC. — Elevation 200 feet.

Nonion orbicularis (Brady)
Elphidium incertum (Williamson).

CHURCHILL, MANITOBA. — Elevation, 80 feet.

Lenticulina sp?
Lagena sp.
Guttulina dawsoni Cushman and Ozawa.
Nonion orbicularis (Brady)
Nonion depressula (Walker and Jacobs)
Elphidium bartleti Cushman.
Elphidium sp?
Cassidulina crassa d'Orbigny
Cassidulina laevigata d'Orbigny
Cibicides lobatulus (Walker and Jacobs).

SOUTHAMPTON ISLAND. — Elevation, 134 feet.

Nonion orbicularis (Brady)
Nonion labradoricum (Dawson)
Elphidium arcticum Parker and Jones.
Cassidulina laevigata d'Orbigny
Cibicides lobatulus (Walker and Jacobs).

SOUTHAMPTON ISLAND. — Elevation 37 feet.

Nonion orbicularis (Brady)
Nonion depressula (Walker and Jacobs)
Buliminella elegantissima? (d'Orbigny)
Cassidulina crassa d'Orbigny
Cibicides lobatulus (Walker and Jacobs).

LAKE HARBOUR, BAFFIN IS.—Elevation 449? feet.

Nonion orbicularis (Brady)
Nonion labradoricum (Dawson)
Elphidium sp?
Cassidulina laevigata d'Orbigny.

POND'S INLET, BAFFIN IS. — Elevation 157 feet.

Nonion orbicularis (Brady)
Nonion sp?
Nonion labradoricum (Dawson)
Cassidulina crassa d'Orbigny
Cassidulina laevigata d'Orbigny
Lagena sp. One specimen
Guttulina sp. One specimen.

REFERENCES

- (1) *Report of the Canadian Arctic Expedition, 1913-18, Vol. XI, Geology and Geography, p. 29a. J. J. O'Neil.*
- (2) *Contributions to the Geography of Baffin Land and Melville Peninsula. Report of the Fifth Thule Expedition, 1921-24. Vol 1, No. 3, pp. 47, 96. Therkel Mathiassen.*

THE LATE NORMAN CRIDDLE'S RECORD OF THE SNOWSHOE RABBIT (*Lepus americanus*) AT AWEME, MANITOBA

By HOYES LLOYD



AT THE REQUEST of the writer the late Norman Criddle prepared from his note-books a table of abundance and scarcity of the snowshoe rabbit at Aweme, Manitoba. At this date it is not known that the late Mr. Criddle considered these data sufficiently accurate for publication, but the author takes the responsibility of adding this to Mr. Criddle's published data on this subject.

Following the receipt of the bare record itself he was asked to prepare a curve showing these data, and this he did and wrote on it, "This is about how I would interpret the notes".

Mr. Stuart Criddle tells me that evidently his brother, the late Norman Criddle, because of poor health kept no record of the fluctuation in the snowshoe rabbit during the years 1913 and 1914. The rabbits reached the peak of their abundance during those years, it is stated by Mr. Stuart Criddle, and if the graph showed this fluctuation, it would have followed closely the dotted line.

Mr. Norman Criddle's notes run from 1895 to 1929 inclusive, but at the suggestion of Mr. Stuart Criddle, the notes of the late Norman Criddle are given to 1923 only. Mr. Stuart



Nichols, D. A. 1936. "Post-Pleistocene Fossils of the Uplifted Beaches of the Eastern Arctic Regions of Canada." *The Canadian field-naturalist* 50(8), 127–129.
<https://doi.org/10.5962/p.339925>.

View This Item Online: <https://www.biodiversitylibrary.org/item/89296>

DOI: <https://doi.org/10.5962/p.339925>

Permalink: <https://www.biodiversitylibrary.org/partpdf/339925>

Holding Institution

Harvard University, Museum of Comparative Zoology, Ernst Mayr Library

Sponsored by

Harvard University, Museum of Comparative Zoology, Ernst Mayr Library

Copyright & Reuse

Copyright Status: In copyright. Digitized with the permission of the rights holder.

Rights Holder: Ottawa Field-Naturalists' Club

License: <http://creativecommons.org/licenses/by-nc-sa/3.0/>

Rights: <https://biodiversitylibrary.org/permissions>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.