

## Current Research

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CURRENT RESEARCH
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### RECENT SEDIMENTS

#### Recent Beach and Offshore Sedimentation, Rustico Harbour, P.E.I.

JOHN W. ROWLING and DERYCK J.C. LAMING at the UNIVERSITY OF NEW BRUNSWICK are continuing work on Recent sediments of beach, bank, dune, channel and offshore environments at Rustico Harbour, on the north shore of Prince Edward Island. Rowling is completing a study of beach structures and grain size analysis of about 100 samples, collected in 1963 from about a half a square mile of beach and sea floor. Subsequent sampling in 1964 and late in 1965 will provide useful comparative data. The area is being surveyed in detail each summer by the Federal DEPARTMENT OF PUBLIC WORKS, Fredericton, and these surveys are supplying valuable comparative data about the beach, channel and bank movements between Rustico Harbour village and Rustico Island.

In addition to doing further grain size analyses, by sieve and settling tube methods, Laming is studying the surface texture, size and shape of the grains. He intends to use electronmicrography in addition to optical examination.

This work is being supported by grants from the GEOLOGICAL SURVEY OF CANADA and the NATIONAL RESEARCH COUNCIL.

### ANCIENT SEDIMENTS

#### Precambrian Structures, Somerset Island, N.W.T.

A study of the Precambrian structure of the Boothia Arch on Somerset Island, N.W.T., has been started by DR. R. L. BROWN of the UNIVERSITY OF NEW BRUNSWICK and DR. I. W. D. DALZIEL of the UNIVERSITY OF WISCONSIN. They were members of the UNIVERSITY OF OTTAWA expedition that visited the area during the summer of 1965, under the leadership of DR. D. L. DINELEY.

They found that the Precambrian metamorphic rocks of the arch have been subjected to at least three fold episodes prior to the deposition of overlying Proterozoic rocks. A number of major folds occur, all belonging to the second generation; they are tight, asymmetrical structures with near-horizontal axes and a well-developed axial plane cleavage. The minor first folds consist of relict isoclines, and the third structures are open (conjugate) warps in the regional foliation trend. Present evidence indicates that lower structural levels are exposed towards the centre of the arch than at the eastern margin. Fabric data indicate that the main metamorphism preceded the second folding.

A structural traverse was completed across about two-thirds of the width of the arch. It is hoped to complete this traverse in the coming summer by studying the western part of the arch on Prince of Wales Island.

### Structural Studies on the South Shore of New Brunswick

In the Department of Geology, UNIVERSITY OF NEW BRUNSWICK, a structural research group is working at various localities along the south shore from Saint John to St. Andrews under the direction of DR. RICHARD L. BROWN. In the Beaver Harbour region of Charlotte County, HERWART HELMSTAEDT is carrying out a structural and metamorphic analysis of the Coldbrook and Mascarene Groups. DAVID T.C. LEE is investigating the mechanics of limestone deformation in the Mascarene Group of the Letang Peninsula, Charlotte County, and ARTHUR DE CARLE is completing structural and stratigraphic mapping of the Mascarene Peninsula west of Letang. JOHN C. SMITH is commencing a structural analysis of the Carboniferous Mispec Group on the coast between Saint John and Black's Harbour.

### Silurian Stratigraphy, Nova Scotia and Newfoundland

W. S. MCKERROW has returned to the UNIVERSITY OF OXFORD after a year's stay with A.J. BOUCOT at the CALIFORNIA INSTITUTE OF TECHNOLOGY. They have completed their account of the Silurian and Lower Devonian rocks at Arisaig, Nova Scotia. McKerrow pursued his Silurian studies in Newfoundland during six weeks of the summer of 1965. He reports that most of the Silurian brachiopod faunas in the area between New World Island, the Bay of Exploits and Gander Lake are of Llandovery age. A few collections are possibly Wenlockian or later. The same brachiopod species are found in Britain, Nova Scotia, and Maine. As he plans to return to Newfoundland, McKerrow will be grateful for information about any new Silurian fossil occurrences, especially of brachiopods.

### Carboniferous Paleocurrents, Moncton Basin, N.B.

A lithofacies and paleocurrent analysis of the Upper Carboniferous in the Moncton Basin is currently being made by WALTER VAN DE POLL of the NEW BRUNSWICK MINES BRANCH, Fredericton. He spent the whole of the 1965 summer season in the field examining the basin from Penobscuis to Cape Tormentine, concentrating on the Boss Point Formation and the Pictou Group. Van de Poll is now evaluating the results of his work, and a report will be published shortly. He intends to continue this work in the coming summer, extending to the north and west of the Kingston Uplift and the area south of Fredericton.

### Carboniferous Ostracod Faunas

JOHN E. POLLARD of the UNIVERSITY OF MANCHESTER spent several weeks of the 1965 summer field season in New Brunswick and Nova Scotia examining Upper Carboniferous coast sections and collecting ostracods from the shales. Part of the time was spent on the Boss Point Formation north of Joggins, N.S., and on Cape Maringouin, N.B., and collections were made from as far east as Merigomish, N.S. He is engaged in a study of Carboniferous ostracod faunas of Britain and Eastern Canada, between which he finds some useful comparisons. While in the region he spend a few days at the UNIVERSITY OF NEW BRUNSWICK and MOUNT ALLISON

UNIVERSITY, and also visited DALHOUSIE UNIVERSITY; he spent some time conferring with co-workers including MURRAY J. COPELAND and D.G. BENSON of the GEOLOGICAL SURVEY OF CANADA, and WALTER VAN DE POLL of the NEW BRUNSWICK MINES BRANCH. His trip was partly arranged by DERYCK J.C. LAMING of the UNIVERSITY OF NEW BRUNSWICK, and partly financed from a Geological Survey of Canada grant held by Dr. Laming for Carboniferous studies.

Dr. Pollard spent four weeks examining ostracod collections in Ottawa and Montreal prior to visiting the Maritimes. He returned to Britain at the end of September after visiting Calgary and New York.

### PETROLEUM GEOLOGY

#### Core Hole Drilling, Grand Banks and Gulf of St. Lawrence Areas

During the summer of 1965, PAN AMERICAN PETROLEUM CORPORATION and IMPERIAL OIL LIMITED undertook a core-hole drilling project on their block of approximately 31 million acres on the Grand Banks in order to obtain geological information on the area. The drilling was done by the vessel Caldrill I, a centre-well drilling ship with automatic positioning equipment for holding location. During the three month operation, 47 attempts were made at drilling and 24 successful holes were completed. The maximum depth drilled was 1,500 feet below the sea floor. Ten holes reached sub-bottom depths of over 1,000 feet, five were between 500 and 1,000 feet and nine holes were less than 500 feet at T.D. Total depth drilled by the 24 successful locations was 19,170 feet and the total cored was 2,900 feet. Core recovery was 1,559 feet which is 54% of the cored interval and 8% of the total drilled section. Most of the holes were drilled on the continental shelf area in water depths of 200 to 300 feet but two of the locations were on the continental slope in water depths of 3,900 and 2,300 feet.

In addition to the core hole program, Pan American and Imperial Oil conducted conventional and gas-exploder seismic work over their acreage block. Both programs were three months in duration and continued both the reconnaissance pattern and detailing in selected areas.

A total of five ships were employed in the program last summer, the base of operations being St. Johns, Newfoundland.