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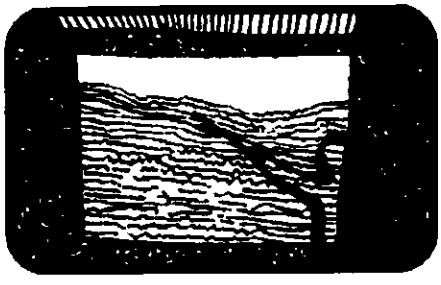
Conference Report



CANQUA – CGRG 1995

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The Canadian Quaternary Association and the Canadian Geomorphological Research Group held their first joint meeting in St. John's Newfoundland, 5-7 June 1995. The sixth biennial CANQUA meeting was attended by 110 "Quaternarists," a diverse group of archeologists, biologists, geographers, geologists, geomorphologists, paleontologists and palynologists from all over North America, including Alaska and New Mexico. Scientists from France and Sweden were also present, as were a good number of students.

A pre-conference field trip led by conference chairman Norm Catto, Charmaine Hamlyn and Gail Catto, provided about 50 participants with an overview of the glaciated landscape, sea-level history, urban geomorphology, and soil and vegetation development of the Avalon Peninsula. (The absence of soil in many places explains why they call this province "The Rock.") Development in this area, which has the highest population density of the island, is constrained by the natural environment. Both the technical and logistical aspects of this one-day trip were exceptional.

Monday began with a session on paleoenvironmental research, in honor of Joyce Macpherson who recently retired from full-time teaching. Tree ring data on the Little Ice Age (Luckman), palynology in the Arctic (Vardy), ice limit (Bunting), elevated (Richard) and marine (Chmura) environments, as well as paleontological studies (Harington, Whitney-Smith) shed light on paleoenvironmental changes since the last glaciation. Spooner and Davis showed that a more integrated approach can add substantially to the available information. The Canadian working group of the International Geological Correlation Programme (IGCP) project 374 sponsored a session on Paleoenvironmental assessment from the physical properties of lacustrine and marine sediments, which is also the title of this working group that deals with paleoenvironmental change. Bob Gilbert gave an introduction and overview, followed by a proposed hydroclimatic forcing model for laminated sediments (Desloges), and a detailed record from a varved lake in Alberta (Reasoner), saline lakes in the prairies (Lemmen), and present-day glacimarine environment (Cowan). John Andrews pulled the land and sea records together in his overview of correlation programs. The oral session ended early to allow plenty of time to view all 28 posters related to the day's sessions. The relation between Quaternary research and global and environmental change was obvious and well presented in many of the talks.

Tuesday morning's general session presented a wide variety of subjects. Olav Slaymaker led off with an overview of how geomorphology can influence the global sustainability debate. Glacial histories in the Arctic (Rod Smith), the Atlantic coast (Stea), and the Long Range Mountains (Gosse) were discussed in relation to ice dynamics, sea-level change, and cosmogenic "dating" constraints on weathering zones. Meyer elaborated on the use of ground-penetrating radar in detecting sea-level change, Dionne presented the glacial history of the Saguenay area, and Brooks discussed the origin of a tephra-like bed in the Rockies. Derald Smith gave a synopsis of 15 years of field observations, theories and implications of sedimentological and geomorphological evidence for great quantities of meltwater that drained through Glacial Lake McConnell.

John Andrews (INSTAAR, Boulder, Colorado) presented the keynote address, sponsored by Memorial University's Department of Geography, on ice sheet/ocean interactions at the margin of the North East Laurentide Ice Sheet and evidence for meltwater fluxes and their relationship to the North Atlantic "Heinrich events."

The afternoon session dealt with current themes in Arctic Quaternary research. John England gave a comprehensive overview of the glacial and sea-level history of the high arctic. This was followed by a variety of papers dealing with the history of the high arctic, including ground ice (Pollard), lake evidence (Douglas), vegetation history (Gajewski), archeology (McGhee), and contemporary climatology (Jacobs). Discussion focussed on specific challenges faced in working in the high arctic, as well as the sensitivity of the environment and how it reflects climatic and environmental changes. Following the oral session, 31 poster presentations generated much discussion.

During Tuesday evening's lobster banquet (with local band "Sweet Absalone," featuring Dave Liverman), CANQUA's Johnston Medal for excellence in Quaternary research was presented to Paul F. Karrow by its first recipient, Vic Prest. Also, the transition

of CANQUA's presidency from Bonnie Blackwell to Peter Bobrowsky was announced. Two other recent past presidents, Bruce Broster and Michel Bouchard, were in attendance.

Wednesday morning's session, "Geomorphological Tests and Constraints in Ice Sheet Modelling" was sponsored by the Canadian Geomorphological Research Group. Ice sheet modelling was discussed in relation to geologic outputs (Marshall), a high-resolution geophysical model (James), stream-lined subglacial bedforms (Sharp), and deglacial ice sheet dynamics (Clark). Johan Kleman presented an inversion model of the compatibility of glacial morphological data with a numerical ice sheet model, and Jim Teller reviewed the hydrological record and its implications. Regional reports on Wisconsin (Colgan), Labrador (Klassen), James Bay (Veillette), Hudson Bay (Parent), and southern Quebec (Bolduc) presented much of the field evidence and landforms the models will have to answer. The final set of papers dealt with wasting of the ice sheet and the related meltwater processes. Meltwater storage and outbursts floods (Shaw), its related landforms (Rains), regional scale erosion patterns and outburst floods (Sharpe), and the use of deglacial ice sheet hydrology in the interpretation of interlobate moraines (Brennand) were discussed.

CANQUA awarded student prizes for best oral and poster presentation to Rod Smith (Geography, U. of Alberta) for his paper on "The Late Quaternary glaciation and ice dynamics on the Hazen Plateau, northern Ellesmere Island" and to Bianca Frechette (Geology, U. of Montreal) for her poster on "Pollen-rich inorganic sediments in the Cratere du Nouveau-Québec area, Ungava: An attempt to assess primary and secondary pollen grains."

Fifty lucky conference attendants travelled to Stephenville for a four-day field excursion led by Martin Batterson and Dave Liverman and their "support team" of Trevor Bell, Lloyd St. Croix, Dave Taylor, Chris Pereira and Jerry Ricketts. Ian Brookes, a Newfoundland "veteran," was an informal co-leader. On the first day we were treated to a discussion concerning the deglacial history of the Stephenville–Deer Lake–Corner Brook area. Prograding barrier ridges in relation to rising sea level and beach monitoring at St. George's Bay were appropriately visited in the rain. Till overlain by glacio-fluvial deltaic sediments, dating of shells in a kame terrace, a local readvance at Robinson Head, and inland deltas possibly related to a large inland glacial lake, generated much discussion. The presence/absence of this lake is considered by many to be crucial for the deglaciation history of this region. Stops at the Humber Gorge and Wild Cove revealed the power of both glacial and fluvial erosion. At Wild Cove many industrial materials are present; the site is presently being used for the manufacturing of a mixture of bark and fish waste. A series of subaqueous fans dated using Mya shells was also visible. Several large landslide scars were seen en route.

Day two started with an overview of Corner Brook, Humber Arm, and the Blow-Me-Down highlands. Depth of the Bay of Islands is more than 300 m in places, while plateaus rise to more than 500 m. Shells date the retreat from the head of the Bay before 12.7 ka. Radiocarbon dates within a short time range seem to cause problems in relation to developing a deglaciation history of the area; the discussion is ongoing. Subsequently, the trip proceeded to Gros Morne National Park. At Winterhouse Gulch we had a spectacular view of the table lands, with large lithological contrast and glacial features. Cirque moraines were visible along the road to Trout River where participants were treated to a fabulous boat tour up Lower and Upper Trout River Ponds. Apart from the cross-section through the Bay of Islands ophiolite complex, sheeted gabbros, the Moho discontinuity, *etc.*, many glacial and slope processes and landforms were visible during the trip. The trip to Rocky Harbour was highlighted by spectacular scenery, hanging valleys, deltas, alluvial fans, deltas and the famous Bonne Bay "sackung," a gigantic slump block on the south shore of Bonne Bay, north of Woody Point.

Day three started off at Western Brook dunes and beach where modern eolian and fluvial processes interact with beach processes. Western Brook Pond lookout gave us a view of the so-called erosion zones and valley head moraines deposited by the valley glacier in the lowland in front of the Long Range Mountains. The fjord is now separated from the sea by till ridges of submarine origin. The local relief between the top of the fjord wall and the pond bottom is more than 700 m, attesting to the intense erosion of the outlet ice streams. A stop at Hawkes Bay revealed the largest striated platform most have ever seen, on flat-lying Ordovician limestone. A sequence of two striae directions incised by sichelwannen made by high-pressure subglacial sheet flow is overprinted by another set of glacial striae. Next stop was the National Historic Site Port au Choix (Portuchoa, "little port" in Basque), where archeological and recent history indicate almost continuous habitation of the area. We drove along the northern extension of the Long Range Mountains where some beautiful mesa-like landforms were visible, as well as some de Geer moraines and felsenmeer.

Day four started with an extensive visit to L'Anse aux Meadows, the only definite Norse site in North America. An interpretation centre displays many Norse artifacts, reconstructions and copies of artifacts from elsewhere. Signs of many other cultural groups are present at the site. The presence of butternut and eastern cedar, the mention of grapes, and other clues in the Vinland sagas have led many to hypothesize about settlements as far south as New Brunswick or the New England states. The site was discovered by retracing the sagas, and is assumed to have been a trading outpost from which exploration expeditions could take place. Glacial and sea-level history at the site were discussed. (Continued rising sea level may have buried signs of occupation elsewhere on the island.) The return trip to Deer Lake was interrupted for a couple of short stops to observe geomorphological features.

Compliments and thanks go to the local organizing committee consisting of Norm Catto, Martin Batterson, Dave Liverman, Trevor Bell, Ralph House, Dave Taylor, Lloyd St. Croix, and Chris Pereira, and the many helpers, students and spouses who made up the support staff. We will not soon forget this conference. CANQUA's next meeting will be held in Montreal in 1997 and we hope it will be as successful. For more information about CANQUA, contact Secretary/Treasurer Toon Pronk (address above) or President Peter Bobrowsky at the British Columbia Geological Survey (e-mail: pbobrowsky@galaxy.gov.bc.ca).