

## **Sixth Annual Meeting of Canadian Geophysical Union**

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[See table of contents](#)

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general) intercalated between volcanic sequences. They are carbonate rocks partly preserved, but largely replaced by silica or by silica and barite (Don Lowe, Paul Knauth and John Dunlop). Lowe and Knauth classified Archean carbonate rocks and presented sedimentological and chemical criteria permitting one to differentiate primary carbonate sediments from carbonate veins and replacement carbonates. Both Lowe and Dunlop stressed that most Archean charts are derived from carbonate rocks and from tuffs and are the product of silicification.

The most significant aspect of the symposium was, perhaps the strong evidence for diagenetic oxidation on land and under the sea. Dimroth presented relict textures of Archean sea-floor metamorphism: palagonitization and carbonization. Palagonitization took place under strongly oxidizing conditions, and oxide crusts probably formed where pillows were exposed to sea water for prolonged periods. The textures produced by Archean sea-floor metamorphism correspond exactly to the petrography of the sea-floor alteration of Cenozoic ocean basalts described by Paul Robinson.

Roy Shegelski documented in detail the petrography and chemistry of Archean red beds. Dave Grandstaff described the soils below the Huronian: the reduced soils are podzols (as has originally been predicted by J. F. Pettijohn) and formed in poorly drained depressions; oxidized podzols formed on well drained slopes but, of course have a lower preservation potential since they are more easily eroded. Mike Kimberley pointed out the similarities of alteration patterns associated with the Huronian uranium deposits at Blind River and with the Mesozoic Uranium deposits of the Colorado Plateau. Silicified sulphate evaporites (John Dunlop) are present in the Archean. This evidence suggests that concentrations of reactive components (oxygen, carbon dioxide, sulphate) in ocean and atmosphere did not change drastically during the last 3000 millions years.

On the whole, speakers refrained from geotectonic speculation. The symposium documented a trend away from "Archean megathink" toward a re-

examination of the evidence preserved in the rock record. This is a healthy trend since a geotectonic interpretation of Archean volcano-sedimentary belts must be based on a synthesis of their paleovolcanic and paleogeographic evolution, structure, metamorphism and geochemistry. The first major synthesis based on all these features should not be too far off.

The symposium was preceded and was followed by a five-day field trip to the classical Archean area at Rouyn-Noranda, Québec, led by E. Dimroth and five of his students. The outcrops shown (and many more) are extensively described in a 200-page guidebook. The symposium and field trip were a great success. Speakers represented nine countries, and seven nationalities were represented at the field trips. The proceedings of the symposium will be published as a special volume of the journal "Precambrian Research".

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## Sixth Annual Meeting of Canadian Geophysical Union

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During its brief history, the Canadian Geophysical Union (CGU), has held its annual meetings all across Canada. After the inaugural meeting in St. John's in 1974, when CGU was launched as the joint division of the GAC and the Canadian Association of Physicists (CAP), it went all the way to Vancouver (1977) only to find itself back east; this time in the picturesque setting of U.N.B. in Fredericton. The early June weather was cooperative and thus contributed to the natural suitability of the U.N.B. campus to make for an enjoyable conference.

Last year, the CGU had its first solo meeting in London, Ont., held in conjunction with neither of its parent organizations. It was an unqualified success with an unexpectedly high number of participants. With Fredericton being "much less centrally located", there had been some concern if viable attendance would materialize. Once more, the CGU has shown signs of maturity and close to 150 geoscientists turned up including a significant number of participants from the U.S., Mexico and other countries.

The meeting that took place on June 4-6, served several functions: (1) There were the business-like get-together of some of the informal groups that make the CGU; (2) there was the annual plenary session of CGU, with all the usual trimmings of a business gathering of this kind; (3) there were social events - as ever the most popular part of the meeting - featuring Dr. Allan V. Cox, the

outgoing president of the American Geophysical Union (AGU), as the formal annual luncheon speaker and Dr. Leo Ferrari, the president of the Fredericton located Flat Earth Society, as an informal lobster boil speaker. While Dr. Cox has given the participants much food for thought by his articulate and well thought out comparison of the AGU with CGU, Dr. Ferrari has won many new converts for his "Planoterrestrial" cause; (4) there was the annual award of the Tuzo J. Wilson medal for outstanding achievement in geophysics to the renown Alberta's exploration geophysicist, Roy O. Lindseth. This event constituted the climax of the CGU luncheons; (5) last but not least, there were technical sessions.

There were eight half-day technical sessions running concurrently in twos. These were: Plate tectonics in eastern North America, General geophysics, Paleomagnetism in eastern North America, Gravity field and positioning, Geophysical methods in off-shore exploration, Toxic waste disposal in the earth's crust, Mathematical geophysics, and Seismicity and earthquake hazard in eastern North America, in that order. In addition, there were two general review sessions, the aim of which was to review the state of the art in all of the disciplines (except General geophysics) covered in the technical sessions, and thus set the stage for the individual topical sessions. The listing of all the abstracts of both the review and the contributed papers can be found in EOS (Transactions of the AGU).

Of the eight topical sessions, the toxic waste disposal and the seismicity and earthquake hazard were predictably the most popular among the media. Several press conferences and interviews were conducted with speakers and chairpersons of these two sessions.

During the session on Toxic waste disposal it became evident that disposal is a problem that calls for a complex management using approaches ranging from pure science and technology on one hand, to sociology and economics on the other. Although most of the media - and thus even the public - are at present preoccupied, perhaps a little

irrationally, with nuclear wastes, these represent only a small fraction of the toxic wastes produced by modern society. The discussion during the session focused naturally on the geophysical side of the disposal problem. In particular, strain caused by the rebound of the earth crust that is still going on after the melting of the ice sheet accumulated in the last ice age, was discussed in depth. The conclusion that has emerged is that because of the recurrence of ice ages, it is useless to make predictions for hydro geological flow for thousands of years into the future. Present information on this (as well as similar critical problems) is somewhat sketchy.

The session on Seismicity and earthquake hazard was blessed with the most papers. The emphasis was on two geographical areas: La Malbaie, P.Q. and Baffin Island and Bay, N.W.T., where the Canadian Government seismic research is the most active. It appears that a narrow aseismic slab, running along the length of the La Malbaie seismic zone, can be clearly identified by careful monitoring of microseismic events. Similar monitoring in the Arctic led also to a reduction of the extent of the highest seismic risk zone on Baffin Island. Somewhat surprisingly, the New England earthquake that had preceded the meeting by some weeks did not become an important issue during the session.

The two akin topical sessions on Plate tectonics and Paleomagnetism revolved around eastern North America. The hottest topic of the former was the Paleozoic reconstructions. The most discussed geographical region of the latter session, which also had many contributed papers - was the Appalachian Mountains. The two identifiable tenors of this session have been: magnetic overprinting in eastern Appalachia, and the increasing availability of new data on Middle Paleozoic and younger rock formations.

The remaining four sessions "suffered" from a certain incoherence of the subjects presented, which must be expected at any annual meeting of this kind. The session on Off-Shore Exploration was co-sponsored by the Canadian Society of Exploration Geophysicists (CSEG). The variety of

papers defies any summary here, as does the diversity of papers in sessions of General and Mathematical geophysics. To a certain degree, however, the General geophysics session was dominated by contributions dealing with seismology. The Geodesy and gravity session was also co-sponsored but by a different society: the Canadian Institute of Surveying (CIS). Although it too consisted of papers treating very diversified topics, there was at least a partial focusing on inertial positioning, underlined somewhat by Honeywell's exhibits showing their inertial positioning system.

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