

## **Canadian Sedimentology Research Group: First Regional Meeting, London, Ontario**

Andrew D. Mail

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# Conference Reports



## Canadian Sedimentology Research Group: First Regional Meeting, London, Ontario

Andrew D. Miall  
*Department of Geology  
 University of Toronto  
 Toronto, Ontario M5S 1A1*

When the Canadian Sedimentology Research Group (CSRG) was born several years ago, mainly at the instigation of Maritimes-based sedimentologists, one of the objectives was to imitate the success of the British Sedimentology Research Group, which has now thrived for more than 25 years. The main activity of the BSRG has been to hold an informal research meeting once a year, at which anyone with anything of interest to say is invited to present a short, informal talk. By keeping the meeting cheap it is possible to generate considerable participation by graduate students, and by keeping it informal these same students are encouraged to present unfinished thesis research in a public forum without the long lead times and deadlines imposed by a formal national meeting.

However, while Canada has a large and lively sedimentological community, it is much more geographically spread out than that in Britain. Could we expect large numbers of students, or even established academics and scientists with industry or government, to travel across the country for a meeting from which no formal published abstract would emerge to adorn their curricula vitae? Personally, I was dubious. Others, however,

demonstrated more courage. CSRG Chairman Carolyn Eyles and Convenor Guy Plint worked hard to bring about the first regional meeting of the CSRG at the University of Western Ontario on 15-17 May 1987.

The meeting was certainly informal. Pre-meeting publicity and registration forms took the form of typed and photocopied sheets, and no formal abstracts were required. Accommodation on campus was pleasant, low-key, and cheap. I even found myself testing the flexibility of the new executive by requesting a change in the title of my talk a week before the event, and having the pleasure of seeing it listed correctly in the final, photocopied, program.

About sixty sedimentologists showed up — a very healthy number for the first meeting of its kind. But my predictions were right in one respect, all but five of the participants came from southern Ontario. The largest group, of twelve students and three faculty members, drove in from McMaster University, next door. UWO, not surprisingly, was also well represented (11), as was Queen's (7), and smaller groups came from the Universities of Waterloo, Toronto, and Ottawa-Carleton, the Ontario Geological Survey, the Provincial Petroleum Research Laboratory in London, and the National Water Research Institute at Burlington. The five from outside Ontario were a group from INRS-Rimouski. We were disappointed by a lack of representation from Quebec universities and some of the other Ontario universities, but were not too surprised that the registrants were all from central Canada. Guy Plint had, after all, entitled this the first Regional Meeting of the group.

The meeting began with a one-day field trip to the Pleistocene glacial and related deposits of the cliffs along the north shore of Lake Erie, led by Nick and Carolyn Eyles, Peter Barnett and Steve Hicock. I did not attend this part of the program, but gather from those who did that it was an interesting visit, sparking much argument about the genesis of glacially related sediments, particularly the difficulty in recognizing ice-contact deposits.

Saturday morning was devoted to invited presentations by five academics, whom Guy had invited to help "set the tone" of the occasion, or something equally suspicious-

sounding. Roger Walker (McMaster) led off with a summary of on-going research in the Cardium Formation, which is currently focussing on the documentation of the newly discovered intra-formational erosion surfaces and the fascinating things these seem to be trying to tell us about wave-cut erosion, sea level change, and possible basin tilting. Brian Rust (Ottawa) then changed the scale, with a lecture on the formation of mud pellets by desiccation in arid fluvial environments, and their possible preservation in the geological record. I came next with an examination of the methods for subdividing the various scales and shapes of the three-dimensional depositional ("architectural") elements in fluvial systems, the importance of these to reservoir studies, and the ways they can be mapped in the subsurface. Mario Coniglio showed us the results of some research on a Miocene shelf carbonate succession in Egypt which, though entirely dolomitized, shows remarkable preservation of textures and fabrics. Careful work on stable isotopes shows how variable their composition is, and how very complex and localized diagenetic realms can be. Alan Kendall discussed some of the physical and chemical constraints on the formation of evaporites, and showed how new work on saline Lake Macleod in Western Australia could be applied to a better understanding of the evaporites of the Paradox Basin in Utah.

The remaining one and one half days were given over to volunteered papers, most of them from students. Clastic topics were predominant. In fact, of all 38 oral papers and posters, only four dealt with chemical sediments. This is an unfortunate imbalance, but one that will probably correct itself in the coming years, now that three sedimentologists specializing in this area have been newly appointed to southern Ontario universities: Noel James (Queen's), Mario Coniglio (Waterloo) and Alan Kendall (Toronto).

Saturday afternoon began with a mini-symposium on shelf sands. Roger Walker's Cardium thesis factory is in full swing, and we were treated to a series of detailed subsurface studies of the Cardium and Viking Formations in several parts of Alberta, by Bruce Power, Dave McLean, Simon Pattison, and Jennifer Wadsworth. Roger and his team

now claim that the results emerging from their massive documentation of the subsurface stratigraphy require a major revision and refinement of the geophysical basin model for foreland basins. Some, at least, of the seven erosion surfaces cutting the Cardium formation show wave-cut bevels, for which the only explanation currently available requires very rapid uplift and tilting of the foreland basin, on a scale and rapidly not previously documented. Guy Plint closed this session with a thoughtful enunciation of the many remaining problems with current hypotheses, making an interesting contrast to the preceding slick and persuasive presentations.

The second half of the afternoon covered a variety of topics in the area of ancient clastic deposits. Janok Bhattacharya talked about a different kind of Cretaceous sand in Alberta, the Dunvegan Delta, and Murray D'Orsay gave us a preliminary stratigraphic description of the Pictou Group of Nova Scotia. Randy Rice then presented the results of an ongoing study he is carrying out for the OGS on the Lorraine Formation (Huronian) of the Cobalt Embayment. The massive nature of the sandstones and the ice-smoothed character of many outcrops make it very difficult to observe diagnostic facies characteristics, which led Randy to offer a thoughtful and cautious presentation. Margaret Rutka discussed the latest reinterpretation of the well known Whirlpool Sandstone — this time it is divided into a lower braided stream deposit and an upper shallow marine unit — and Peter Mustard showed us pictures of the spectacular rift basin conglomerates that he is encountering as part of his thesis mapping project in the Proterozoic of the Yukon.

On Saturday evening we gathered for UWO Cafeteria pizza (much better than it sounds!) and beer, in a corner of the residence eatery.

Sunday morning was given over to studies of modern clastic settings. Bob Dalrymple woke us all up with his presentation of an elegant model of estuarine dynamics, showing how tidal-fluvial interaction leads to a zonation of depositional realms within estuaries. The model could readily be applied to an interpretation of the ancient estuarine sedimentary record. This may turn out to be the first really new facies model in several years. Bruce Hart showed some of the results of his research on the sediments deposited in a Quebec river mouth following the installation of a series of dams upstream. Two of Bob's students, Eric LeGresley (in a paper presented by Bob) and Eric Hoogendoorn, then discussed their thesis work, which has involved the investigation of parts of the east coast continental shelf by detailed geophysical and coring studies. The value of side-scan sonar data, when coupled with coring and careful laboratory studies of grain size and sedimentary structures, is beginning to show up in studies of this type. A remarkable variety of large bedforms can be seen on sonar records of the continental shelf, and we are

barely beginning to analyze their internal structure and reconstruct their dynamics. Canadian contributions to this research may turn out to be highly significant if only by their survival in the public domain, as the US Navy proceeds with its plan to impound the records of US sonar surveys over the "Exclusive Economic Zone" because of their presumed military significance — they can be used to make extremely detailed maps for submarine navigation.

Phil Matsushita showed us his work on a tidal inlet on the coast of Prince Edward Island, and the remainder of the morning was given over to presentations by the Rimouski group (Bernard Long, Andre Reid, Natalie Ross and Monique Sala-Long), dealing with their studies of the geomorphology, composition and transport dynamics of various shelf sand bodies. Some valuable, detailed work is accumulating here, but the presentations by this group could have been improved with some photographs of sea-bottom bedforms or facies in core.

The afternoon began with a lengthy business meeting, the main point of which was to discuss the time and place for the next meeting. The decision was taken to hold the next meeting at Queen's University, in May 1988.

There was time after this, and before the coffee break, for three glacial papers. Carolyn Eyles gave an excellent summary of her work on the late Cenozoic Yakataga Formation of Alaska, which is probably the world's thickest glaciomarine deposit. George Gorrell described the development of a subaqueous outwash fan complex, and Peter Barnett discussed two types of ice-marginal facies sequences based on data collected along the shores of Lake Erie.

At this point about fifteen of the clastic registrants slipped away. This was too bad, as they missed four superbly illustrated talks, most of them dealing with chemical sedimentation. Sarmistha Day showed us her work on algal rhodolith nodules, which pack a great deal of depositional and diagenetic information into their small spherical shapes. Derek Armstrong discussed the work of the OGS on the Kettle Point black shale, a unit rich in organic carbon. Kieran O'Shea showed us a series of excellent SEM photographs of authigenic illite, and discussed its derivation from feldspar by the leaching of aluminum and its formation into organic complexes. Finally, Andre Desrochers illustrated paleokarst surfaces in Ordovician limestones exposed in Quebec.

There were also half a dozen poster displays, which we examined during much needed breaks for coffee and cookies, organized by the convenor's wife, Annemarie. John Coakley and Norm Rukavina illustrated some of the work at the National Water Research Institute, Ian Spooner showed outcrops photos of an esker, Kathy Bergman gave her piece of the Cardium story, and Guy Plint illustrated a

re-examination of his Ph.D. thesis work on the Eocene of southern Britain, which shows how the Exxon sea-level curve can be fitted to the stratigraphy. Two speakers also had posters displays to illustrate their oral presentations.

In conclusion, it was clearly a very successful meeting. There was plenty of good science, and a fair amount of uninhibited discussion from the floor. The length of the meeting was right, and the arrangements quite appropriate. Congratulations, Guy, for getting it exactly right. Perhaps the British model will work, after all, though CSRG may remain a regional group. There is no reason, however, why it should remain a southern Ontario group. We agreed unanimously to accept Bob Dalrymple's invitation to hold the next regional meeting in May 1988 at Queen's, but subsequent meetings could, and perhaps should, be held in different parts of the country. However, other centres do have active societies of their own (some of them being GAC sections), whereas this was the first time sedimentologists from Central Canada have organized themselves for such an occasion, and it is obvious that there is a need for such gatherings in this area. CSRG may sponsor more formal events in the future. In fact, the Oil Sands and Shales symposium at the Annual Meeting of GAC in Saskatoon was in effect a CSRG affair. However, it was agreed at London that the main purpose of the group will be to convene these annual meetings.

Accepted 20 May 1987.