

## **Geological Survey of Canada Report of Activities Part C, 1976**

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favouring broader interpretations are outlined alongside the main decisions. In the background of the decisions certainly lie the opinions of Hollis Hedberg's 1972 International Stratigraphic Guide, which were used as a basis for settling the stratotype boundary. Although many others do not favour the 'golden spike' routine for fixing boundaries, and for very cogent reasons, the method employed by this commission probably will be used in most subsequent cases because it is the simplest way of solving the issue.

McLaren (p. 27-29) comments personally on his reasons for favouring boundary stratotypes as the most practical solution to such difficult and vexing problems. These relate to stratigraphic position, the subjectivity of defining species and range zones of species, and the need for accurate definition of boundary stratotypes. Many paleontologists and stratigraphers have pointed out that settling the fossil species problem by means of a holotype and type locality, is no different than settling a major boundary by means of a specific level in type locality. Although the stratotype boundary is technically accurate to within a centimetre, correlating this fixed boundary even in a section a kilometre away can be as much of a major problem as comparing two specimens of fossils a kilometre apart. The problems of correlation by no means disappear magically with boundary stratotypes. McLaren recognizes this fact by stating that boundary stratotypes are not necessarily sacrosanct.

The remainder of the book is divided into two sections, regional reviews of the boundary problem, and fossil occurrences within the range of the boundaries. There are contributions from around the globe, with the exception of representation from the People's Republic of China. The geologist 'China watcher' anxiously awaits fresh data from this unknown part of our planet. Contrary to the nearly unanimous decisions on the boundary, the remaining contributors offer a host of stratigraphic and paleontological opinions, some not much in agreement even on a national level. For example, Soviet authors differ on their interpretation of the brachiopod genera *Lissatrypa* and *Atrypella*, with Biske *et al.* (p. 233) stipulating that the Silurian

genus *Atrypella* occurs in the Lower Devonian in Tien-Shan. As the 1967 Calgary Symposium did for the Devonian in general, this book summarizes the critical boundary sections in a clear, consistent manner for the best available transitional sections.

Paleontological summaries of the fossil groups crossing or stopping above or below the boundary are started with acritarchs (Cramer and Diez), ending with the vertebrates (Turner). Nearly all fossil groups contain at least a selection of species that can be used for boundary definition. Groups unfortunately omitted in the summaries are the stromatoporoids, tabulate and rugose corals, nautiloids, gastropods and tentaculitids. Illustrations of boundary fossil species and subspecies, which would be very useful to a broad range of stratigraphers were only provided by Ormiston (trilobites - *Warburgella rugulosa*) and Jaeger (graptolites). Jaeger's contribution is especially appreciated in its clear definition of the subtle morphological differences in species and subspecies of *Monograptus*. With a hand lens, identification may be carried out in the field.

In general, all those interested in geological boundary problems of the Paleozoic probably should acquire this volume, and those teaching senior courses in stratigraphy could well use it as a guideline for principles and practice of the fine art of correlation.

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334p., 1976.  
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It is my opinion that less than a half of the 57 articles in this volume warrants publication. The few good papers are hidden between contributions that are mere catalogues of problem logistics, methodology, and instrumentation with few if any results and little interpretation. Comments such as "the results . . . are not yet available" (p. 266) or "at the time of writing, compilation of the survey results is incomplete" (p. 271) prompt the question: then why publish at this time? There appears to be no minimum requirement for acceptability; the result is an unfortunate mélange. This issue of *Report of Activities* provides no solace for those concerned with the "alarming inflation of geological literature" (see *Geosci. Can.*, v. 4, p. 100-101 and p. 114-115, 1977), or, as David Suzuki recently put it, the growing deflation of the value of words (*Sci. Forum*, v. 10, no. 2, p. 13, 1977).

The editorial performance leaves much to be desired. Many papers are marred by numerous typographical and/or printing errors; all references cited in the text do not appear in the reference lists (e.g., Article 47); one paper entitled, "Distribution of foraminifera . . ." is concerned solely with sediments (p. 19) - a mistake that is repeated in the "Table of Contents" as well as the Chief Editor's "Introduction"; and the rationale for separate categories on "Marine Geoscience" and "Quaternary Marine Geology", when all but one of the papers in the former are concerned with Quaternary phenomena, escapes me. Surely, a GSC publication with such an international exposure merits more efficient workmanship than this.

We are told that the Survey's program is concerned with communicating the results of its work effectively (p. vii). Could not this be accomplished better by separating mere reports of activities from short research communications - the former being published informally by title and the latter in a format comparable to the present *Report of Activities*, but more rigorously refereed and carefully edited?

Many of the contributions to this volume relate to the Quaternary Earth Sciences; the bulk of the remainder is concerned with geochemical reconnaissance surveys for uranium in western Canada and geophysical techniques that are suitable for remote-sensing of permafrost and sea-ice.

Several of the Quaternary themes deserve further comment. Extensive multidisciplinary environmental investigations are now underway at Miramichi estuary in New Brunswick, but all five reports on this work are skimpy. Another coastal region receiving close attention is the Fraser River Delta tidal flat where aerial photography is being successfully used to map surficial sediments and identify historical changes in morphology. Characterisation of Quaternary terrestrial sediments by means of their magnetic properties is now a common practice that is producing important stratigraphic advances. Thus, tills in SE Alberta are readily differentiated by their respective magnetic susceptibility; late Quaternary sediments in Lake Ontario and Lake Erie can be broadly correlated by patterns of temporal variation in declination, inclination, and intensity, with the Erieau Excursion, which ended about 12,500 years ago, providing an extremely valuable marker; polarity measurements and faunal content of sediments in SW Saskatchewan suggest a timing of about two m.y.B.P. for inception of Laurentide glaciation there. Another significant development relevant to glaciation is the discovery that ice flow during the late Wisconsin was centripetal to the Gulf of St. Lawrence and that grounded glaciers did not fill it. The Magdalen Islands, therefore, probably escaped glaciation at this time.

The Best Paper Award goes to T. J. Day and S. Beltaos for their comprehensive documentation of the dispersion of tracer mass in Lesser Slave River, Alberta.

MS received June 21, 1977.

#### Note

Dr. D. J. McLaren, Director General, Geological Survey of Canada recently announced several changes in the branch's publication policy which are of interest to the Canadian geoscience community.

Beginning with Paper 78-1A the "Report of Activities" series will appear under the title "Current Research" to better reflect the nature of the papers that comprise the series. Papers will be separated into scientific and technical papers and scientific and technical notes. A discussion and communications section will also be added.

The addition of a "Discussion" section is especially welcome. The Geological Survey has always welcomed comments on the scientific content of its publication and this new section will make public discussion possible. There may also be those who wish to communicate new data or interpretations that would supplement the information released in GSC reports. Discussions will be limited to recent reports (not more than 2 years old). The section is designed to be a Forum For Discussion of scientific content of specific reports and general discussions on policy will not be accepted. Submissions may be made in either English or French and are not to exceed 1500 words. Only in exceptional cases will illustrations be accepted. Every effort will be made to publish both "Discussion" and "Reply" in the same issue. Submissions should be made to the Chief Scientific Editor, Geological Survey of Canada, 601 Booth St., Ottawa K1A 0E8.

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## North American Oil and Gas Fields

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Edited by Jules Braunstein  
*American Association of Petroleum Geologists Memoir 24, 360 p., 1976*  
 AAPG and SEPM Members: \$18.00  
 All Others: \$22.00

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This is the latest volume of papers about oil and gas fields to be published by the American Association of Petroleum Geologists. It contains descriptions of seventeen fields in the United States and Canada, written by a total of twenty-nine authors. Although field descriptions of this type have long proved to be invaluable references for oil industry personnel, they have been largely ignored by many other earth scientists and teachers. This is unfortunate, because data from closely spaced wells in a developed field can give a level of stratigraphic and structural control rarely obtained from fieldwork in sedimentary rock successions.

This volume contains detailed reconstructions of paleodrainage systems, and the resulting sand dispersal patterns, in the Mitsue (Alberta), Piney-La Barge (Wyoming), East Cameron Block 270 (Offshore Louisiana) and Citronelle (Alabama) fields. The meandering channels containing the reservoir sandstones at Citronelle have been mapped in the kind of detail usually associated with fluvial geomorphology studies. Carbonate reservoirs are less well represented, although the successive stages in the growth of reef and off-reef facies at Fairway (Texas) are excellently documented. Many of the studies involved use mechanical log responses to augment paleofacies interpretations, and there are clear expositions of the approaches used at Mitsue, Wattenberg (Colorado) and Citronelle.

Much of the structural information given for the various fields is extremely valuable, based as it is on considerable well seismic data. Again, the three-dimensional structural control obtainable in heavily drilled subsurface situations will usually far exceed what can be inferred from surface outcrops. Confused fieldworkers can take heart from the 'illogical' opposed thrust sheets in the La Barge area of Wyoming, while the discussion of the origin of the Prudhoe Bay oilfield in Alaska shows how constructing fluid migration paths can aid in unravelling structural history. A paper on the Taglu gas field contains seismic reflection profiles and summary structural cross sections through surrounding areas of the Beaufort Basin. Together, they illustrate how mobile geopressed shales can deform an area, and the disconcertingly subtle interplay which exists in such provinces between subsidence, uplift and sediment loading.

In the Forward, Jules Braunstein indicates that the selection of fields discussed was based on their relative importance and the lack of adequate, readily available, descriptions. Also included is an index to those North American oil and gas fields which have been described in publications of the American Association of Petroleum Geologists. In other words, Memoir 24 is written primarily for the oil industry. Nevertheless, most earth scientists, and particularly those who teach, will find this type of compilation well worth