

including the Rocky Mountain Foothills, the Deep Basin of Alberta, and the heavy oil deposits of the Cold Lake-Lloydminster area and the oil sands of northern Alberta.

O. L. Slind (Shell Canada Resources Ltd.) reviewed the long history of exploration in the Foothills, where 14 Tcf of gas are now proven reserves. To find the remaining estimated 20 Tcf will require very expensive wells (currently \$5 to 10 millions each), experienced exploration staffs and drilling teams, and operators who are not easily discouraged.

Continued advances in technology and high prices for natural gas will be needed in order to exploit the large gas resource locked in "tight", fine-grained sandstones of the Deep Basin, according to L. R. Flury (Amoco Canada).

R. D. Orr (Husky Oil) and Don Harrison (Esso Resources) noted that expensive tertiary recovery schemes will be needed to extract a reasonable portion of the 50 to 70 billion barrels of heavy oil contained in the Cretaceous sandstones of the Lloydminster region. Commercial ventures of this type require realistic taxation and fiscal policies, a co-operative political climate, and a large human resource base. Without this support the enlarging shortfall between demand and supply for oil in Canada will reach 700,000 barrels a day by 1985, according to Harrison. Orr claimed that \$19 billion of investment in heavy oil are needed by 1990 to get production rates of 850,000 barrels per day.

Interesting overviews on the potentials of and exploration activity in uranium, coal, hydro-electric power, solar energy, wind, geothermal energy, and biomass resources were also given at this conference.

Canada has pioneered the methodology for delineating uranium provinces, the first step in the resource identification process, according to A. G. Darnley (GSC). The resulting stepped up level of exploration for uranium ores in the Athabasca Basin of northern Saskatchewan has led to the discovery of seven large deposits, while a similar number of new discoveries can be expected through the 1980s, according to Lloyd Clark (Saskatchewan Mining Development Corp.).

Coal and hydro-electric power have considerable room for growth during the 1980s, while the diffuse natures of wind, solar, geothermal, and biomass energy sources will restrict them to specialized, localized, and experimental types of applications, according to the various people who discussed each energy source. However, as the cost of traditional sources of energy increases over the years, the more viable will the alter-

nate energy resources become. The impression left was that these renewable, mainly non-polluting sources of energy will attract an increasingly large following, and that their growth will be subtle and steady. Their future shares of the energy supply mix is unquestionably difficult to assess from the perspective of 1980, a time when our technological world is still dominated by the use of fossil fuels.

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**Geological Association of Canada
Association Géologique du Canada**

Late Silurian and Early Devonian Graptolite, Brachiopod and Coral Faunas From Northwestern and Arctic Canada

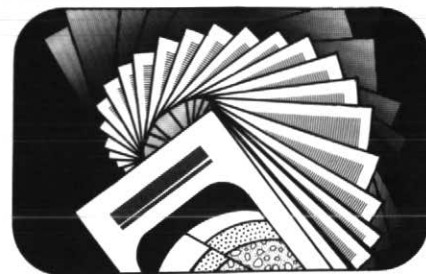
by D.E. Jackson, A.C. Lenz, and A.E.H. Pedder
Geological Association of Canada
Special Paper 17

The work integrates the author's separate and on-going studies of graptolites, brachiopods and corals from northern and Arctic Canada. Much of the importance of the rich faunas from these regions is due to interbedding of graptolite-bearing shales with limestones carrying shelly fossils and conodonts. This and paleoecological aspects of the faunas are stressed by the authors. The volume is 160 pages in length, with four graptolite, ten brachiopod and thirty coral plates. (August, 1978)

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Earth Science Publications - Into the Eighties

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The 14th annual meeting of the Association of Earth Science Editors (AESE) was held in Halifax, October 19-22, 1980 and was hosted by the Bedford Institute of Oceanography. The chairman for the meeting was Michael Latremouille. The AESE Meeting was held jointly with IAMSLIC - the International Association of Marine Science Libraries and Information Centers. In addition to the technical sessions, delegates were treated to a Halifax Harbour Cruise on a typical Maritime day (cold, wind, rain), enjoyed a terrific lobster supper at Hubbards on another typical Maritime day (cold, wind, sun), and enjoyed walking the streets of Halifax on yet another typical Maritime day (warm, no wind, sun). A reception for the delegates hosted by the Government of Nova Scotia was held in the Red Room of Province House.

Reviewers and Reviewing

What is a good manuscript? Who makes a good reviewer? These and other questions were discussed during the first session of this editors' meeting. Vernon Swanson (GSA, Boulder, Colorado) suggested that editors should look for the following characteristics in reviewers: 1) he is willing to review quickly (two weeks is ideal!); 2) she is knowledgeable in her field; 3) he is relatively young (still a tiger!); 4) she knows the rules of grammar; 5) he is familiar with the journal format; 6) she checks all illustration, plates, tables, etc. carefully; and 7) he will reject a manuscript if necessary and give solid reasons why. The bane of all editors is the individual who agrees to review a manuscript, promptly loses it in a pile on his desk, finds it only after repeated reminders by the editor, and *then* sub-

mits a shoddy review ("this is a good paper and should be published").

Swanson also discussed the review system for *Geology*. Before an author submits a manuscript, he obtains two reviews. Hopefully this means that the paper has already undergone significant revision and is ready for publication. However, Swanson finds that two-thirds of these pre-reviews are useless, i.e., they are "buddy-buddy" type and self serving. He approves only five per cent of the manuscripts without additional review and he finds that about 80 per cent need a full review. The additional reviews (of those which are ultimately accepted) improve the quality of the manuscript, but publication can be delayed by four to six months.

Orrin Pilkey (*Journal of Sedimentary Petrology*, Duke University) agreed with Swanson that "young turks" are the best reviewers. He noted that too frequently, prominent senior geologists gave inadequate reviews. Pilkey likes the system of associate editors now used by many journals and by giving them the mandate to find reviewers, they see that all specialties are covered. However, an unreliable associate editor can ruin the process just as much as a lazy reviewer. Pilkey recommends that associate editors be replaced on a regular basis to avoid the creation of an "old boy network".

Two questions were raised during the discussion period that followed these speakers. One, should reviewers be allowed to remain anonymous, and two, do established scientists (the "big guns") and famous research institutions get soft reviews because of their reputations? The general feeling on the first question was that reviewers should identify themselves. The feeling on the second question was definitely yes! The discussion concluded with the thought - should editors remove the author's name and affiliation from the manuscript before sending it out for review? Something to think about.

The Informal Newsletter and Newsmagazine

The function of a newsletter was discussed by a number of editors. Peter Smith (*Open Earth*) began his magazine to combine reporting on a wide range of earth science topics with a concern for other fields such as history, education, poetry and even humour. He feels that the scientific literature today is very specialized and that there is a definite need for a magazine that reports on many aspects of the earth sciences. In a humorous address, he outlined the many problems he faced when he launched the journal including a somewhat less than

flattering comment on printer's unions in the United Kingdom.

Wendell Cochran reviewed the history of *Geotimes* since its inception as the AGI newsletter in 1949. He feels that the magazine took a definite turn in 1975 when they converted to paid subscriptions. It allowed them to identify the readers and serve them better. In 1977 he established an editorial board and feels that now *Geotimes* is a science-news magazine that falls in a third category between the formal technical journal and the breezy society newsletter. As he put it - *Geotimes* is "geology as journalism - easy-to-read, accurate views of geology and geologists".

Yet another version of this *genre* is *Episodes*. It is a publication of a society, the IUGC, and is now their prime vehicle of communication. Vera Lafferty pointed out that it combines scientific articles, reports, new items and also informs the membership of IUGS activities, plans and personnel. She emphasized that *Episodes* receives indirect financial backing from the GSC in Ottawa (i.e., it is housed at the GSC). Thus publication costs are reduced. How many journals and newsletters get the same type of subsidy thus cutting costs to the society members? Many we suspect. Certainly the GAC publications are supported by AGC in Dartmouth, and by the University of Waterloo and McMaster University.

Robert Dietrich (Central Michigan University) wrapped up the session with his view on the purpose of a newsletter. First and foremost, it must be "newsy" and be reported in a journalistic style. Leave the science to the research journals! It is important that they appear at regular intervals, particularly if they carry notices of job opportunities, meetings, etc. - "better never than late". This type of publication is not meant to have a shelf life, so design it as a "throwaway". His final comment was that the editorial column should be used for guests - not to boost the editor's own ego.

Into the Eighties - Costs! Costs! Costs!

The increasing costs of producing the printed word was certainly the theme of this session and indeed was the focus of the whole meeting. Journals are a medium of communication among scientists while textbooks are for teaching and communications. What does the future hold for both? Donald Deneck (John Wiley and Sons, N.Y.) predicts that there will be more books published in the 80s and that books will be used more and more. While the costs will continue to rise, so will the number of publishers and the number of bookstores. On the other hand, there will be a decrease in suppli-

ers, printers and binders - a good business to get into? He feels that books will continue to be published in their present physical state - "try reading microfiche by the fire!"

In a poll of 30 state surveys, Robert Kelley (New Mexico Bureau of Mines and Mineral Resources) found that the majority agreed that the big problem in the future will be costs. As there seems to be no answer to the long delay in publishing final reports, open file reports are on the increase. If authors could learn to write properly and therefore submit well written manuscripts, time and money would be saved in the editing process.

John Shea (Journal of Geological Education) outlined his journal's use of word processing. To date, the switch from a commercial printer has not achieved any savings in cost, but he is certain that this will come. The change-over was not without technical problems and some difficulties in operator training, but he has succeeded in cutting the production period from 50-55 days to 20-25 days. *Episodes* uses a similar in-house system at the GSC with a two week production period. There is no doubt that as the word processing system continues to improve, it will become more and more attractive to many societies and editors.

The main sources of revenue for a society journal are membership subscriptions and page charges. Raising the membership fees usually causes a drop in membership and those who continue with the society have to make up the difference in costs. Therefore to minimize increases in society membership dues, some have to consider page charges. What are the advantages and/or disadvantages? Fred Spilhaus (AGU, Washington) argues for them because he sees them as a subsidy to the individual subscriber and institutions (such as libraries), not a subsidy to the publisher. Page charges defray the "first copy costs" (salaries, typesetting, editing, etc.). Such costs account for 75 per cent of the total for AGU journals. On the negative side, they can lead to the loss of a manuscript even though it belongs to that particular journal. Spilhaus feels that journal subscriptions will continue to rise *faster* than the inflation rate because of the increasing number of pages printed per volume. He stressed that journals could not survive without the revenue from library subscriptions. Will some journals perish now that most libraries are working with "frozen" or reduced budgets?

Marilyn Guin (Marine Science Library, Oregon State University, Newport) confirmed Spilhaus' point on the page/volume issue, but she questioned why. It is her contention that 80 per cent of

scientific communication is outside the printed word (personal communication, conferences, etc.). Therefore, why the paper? She pleaded for quality control by editors. Improve or replace the review process. She feels that a rejected manuscript should stay rejected but most are resubmitted, unrevised, to another journal and accepted, and end up on the library shelf anyway. She noted that libraries have, so far, cut back on textbook purchases to preserve the journal subscriptions, but this will stop soon - libraries have an obligation to serve the student as well as the researcher.

C. T. Bishop (National Research Council, Ottawa) gave the background and present state of the NRC journals. The first of these journals, the *Canadian Journal of Research*, began in 1929 and has expanded to 11 journals in 1980. He says that the NRC will continue to publish these journals (hear! hear!) at a cost to the taxpayer, but feels it is a worthwhile and legitimate cost of research. (The net cost, after subscriptions is \$75-\$100 per page.)

Bishop presented some interesting statistics during his talk. After consulting the citations index, he found that only 10 per cent of all journals published are cited even once! Fifty per cent of all citations come from 152 of them and just over 2000 journals account for 80 per cent of the citations. The *Canadian Journal of Earth Science* ranks 594 overall, and 941st on impact factor (citations/paper). He maintains that the rankings of journals have varied little over the years, so it is possible for a library to have a stable subscription list. Canadian scientists publish about one-third of their papers in Canadian journals, but he wishes it would increase. It is the famous Canadian inferiority complex at work (it's Canadian, it can't be that good), or are our world class scientists publishing where they feel they will get the best audience?

Robert Miranda (Pergamon Press, Elmsford, N.Y.) reiterated the point that libraries are essential to the financial survival of research journals. The main thrust of his talk was the emergence of the electronic journal. With the increased use of computer systems and particularly the development of the microprocessor with the floppy disks, it seems inevitable. He predicts that eventually some journals will cease to produce "hard copy" and go to electronic systems. Therefore, if you want to know what is in the latest issue of the *Journal of Knowledge*, talk to your microprocessor. Marilyn Guin was of the opinion that if not watched, the electronic journal will produce more marginal material, faster.

Finally, Gary Howell (Erico, Tulsa, Oklahoma) proposed that companies should look at the use of editorial consultants. He wondered why they maintain full time editorial staff that are not utilized year round? To save money, perhaps a consultant should be employed for periods when needed. Howell admitted, however, that the consultant editor would not be familiar with the company style of writing, but given proper guidelines by company personnel, the system could work.

Facts and Figures

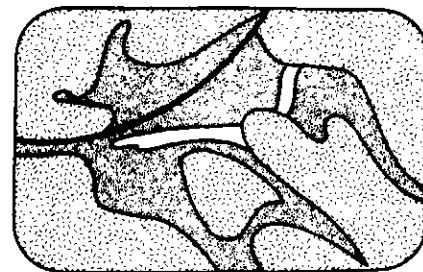
1) There are over 9000 scientific-technical journals published in the USA, and by 1985 there will be 68,000 world wide (Milo Dowden, Dowden, Inc., Stroudsburg, Pa.). Couple this with Claude Bishop's comments on the 10 per cent rate for single citations, one must wonder if there are really that many ignored journals in the world or is the citation index of limited use in describing the full value of a journal to scientists.

2) Journal titles were increasing at the rate of two per cent per year from 1960-1974. For certain "in fields" of research the growth rate was faster (Marilyn Guin).

An Active Session on the Passive Voice

The conference concluded with a workshop, directed by Thomas Warren (Oklahoma State University, Stillwater), on the use of the "blessed/accursed passive voice". He led a lively discussion on its pros and cons and had all participants analyze some scientific prose. Was there a verdict on this topic? It was concluded that in order to maintain objectivity, the passive voice will continue to be used in scientific literature.

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Second International Archaean Symposium

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The Second International Archaean Symposium to take place in Australia, held in conjunction with the Third Annual Field Symposium of the IGCP Project on Archaean Geochemistry, was held in Perth, Australia, May 12-16, 1980. Among the 400 attendees were representatives from at least twelve countries. The First Symposium, held in Perth ten years earlier, heralded major advances in understanding of Archaean sequences. At that time, new emphasis was placed on stratigraphic evolution and chemical characterization of supracrustal sequences. The 1980 conference was held to review advances in our understanding of Archaean tectonic history, and to report advances made in such diverse areas as paleobiology, chemical studies of virtually all Archaean rock types, geochronology, and metallogeny. The application of relatively new analytical techniques such as those used in Nd-Sm isotopic determinations, REE analyses and minor element determinations by neutron activation and isotope dilution, have resulted in a flood of chemical and age data for some Shield areas. Greenland and Minnesota no longer are the sole known areas of very old crust; most Shield areas contain some rocks older than 3400 Ma. Fortunately, structural and stratigraphic investigations seem to be keeping pace with chemical studies, providing a framework for the latter data.

The papers may be divided conveniently into three principal groups. The majority dealt with crustal processes and tectonic syntheses. Contributions to mineral deposits research formed a second significant group, and reviews of many of the recently discovered Archaean stromatolitic sites constituted a third group. Each session was organized about a specific subject matter (e.g., crustal evolution of granitoid gneiss terrains, geoch-