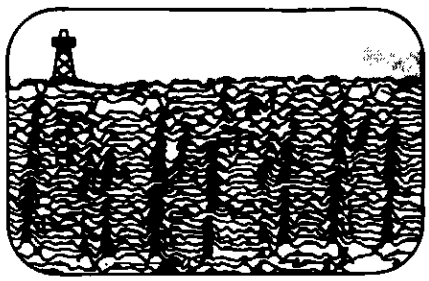

Exploration Update '75

P. R. Brown
Hudson's Bay Oil and Gas Co. Ltd.
320 - 7th Ave. S.W.
Calgary, Alberta
T2P 0X5

Advances in Exploration Technology was the theme that attracted some 1500 people to Exploration Update '75, the first joint conference of the Canadian Society of Petroleum Geologists and the Canadian Society of Exploration Geophysicists, held in Calgary May 20-23, 1975.

While nominally of 2½ days duration, technical sessions did not begin until the second day, as the morning of the first day was devoted to four invited keynote speakers who presented surveys of different fields of activity in the search for hydrocarbons, and the first afternoon was reserved for a panel discussion.

T. L. Thompson (Amoco) discussed the plate tectonics theory and its application to the search for oil and gas accumulations under the continental margins. In a well illustrated talk he clearly presented current ideas on the development of continental shelves and margins, and predicted that hydrocarbon reserves found there would equal or exceed those found to date under the land.

N. C. Steenland (G.E.C.) reviewed non-seismic geophysical exploration, particularly the gravity and magnetic methods. The use of colour intensity instead of conventional contours for delineating maps of gravity data was instructive to see, following as it does the similar colour enhancement techniques now used in some seismic data displays.

The field of organic geochemistry has expanded rapidly over the past few years, particularly as a result of the development of sophisticated new analytical instruments and methods. Some of these were reviewed by B. M. Van Der Weide (Aquitaine), who also discussed possible mechanisms of oil and gas migration and their subsequent alteration within the reservoir.

Recent advances in seismic exploration have been spectacular, and as shown by subsequent papers in the technical sessions, have led to increased ability in defining subsurface geology from surface geophysical measurements. B. S. Flowers (Shell) commented on some of these advances, and discussed their significance to exploration, but he also cautioned that each advance opens up additional problems as well as new opportunities.

Featured speaker at the noon luncheon was Don Getty, the new Alberta Minister of Energy and Natural Resources. In a well-received talk he reviewed the energy policy of the provincial government and indicated four main objectives: to ensure an adequate supply of energy for the province, to see resources at fair market value, to upgrade resources within the province, and to maintian a balance of fair royalties between the public and industry.

The entire afternoon of the first day was devoted to a panel discussion on "The Government Oil Company and Future Relations between Government and Industry". The panel consisted of the Federal Energy Minister Hon. Donald Macdonald, John Stoik, Senior Vice-President of Gulf Oil Canada, and Jack Pierce, President of Ranger Oil Canada Limited. After each panelist gave a short prepared presentation of their views the meeting was opened for questions and discussion. Not unnaturally, most questions were directed at Mr. Macdonald, but little occurred to raise the audience out of a relative lethargy. Either the intense feelings of a year ago have subsided, or perhaps explorationists have tired of trying to provide meaningful input to governments.

While interesting, the day can hardly be said to have contributed very much towards the conference theme.

Technical meetings finally started on the morning of the 22nd with a general session and a special geological session run concurrently. The geophysical papers presented at the general session reflected the dominance of the seismic tool in the search for hydrocarbons. The continued change in emphasis in onshore exploration in North America away from structural to stratigraphic-type traps, has led to increasingly sophisticated attempts at utilizing seismic information to aid in the search, and many of the papers were devoted to examples of this. Others considered the problems of data manipulation and enhancement, the so-called 'data massaging'. Some of the papers had been previously presented at the April AAPG meeting in Dallas, but for most delegates they were new.

Researchers from Exxon described how seismic stratigraphic analysis was able to provide a stratigraphic framework for regional facies and structural analysis, and has also led to the recognition of eustatic cycles on a global scale. Seismic reflection patterns - seismic facies units - can be used to recognize some depositional environments provided other information is also available.

Some of the pitfalls in applying methods proved in one area to the problems of other areas were described by Klose and Holland of Imperial Oil. The seismic techniques used so successfully in the Rainbow-Zama area of N. Alberta for the detection of small pinnacle reefs did not prove to be applicable in the adjacent La Crete basin. Each area requires that its own criteria be developed in order that success can be achieved.

There is no doubt that the conference theme was far more applicable to geophysics than to geology where advances tend to be in new ideas or concepts rather than in technology. This difference was brought out in the geological sessions, where many of the papers were either on regional stratigraphic-structural geology, or on specific areas or fields. One relatively recent technological advance, use of the scanning electron microscope, was discussed by D. J. Hartmann of Amoco, who illustrated the variations that can occur in pore geometry with changes in rock type, and showed what effect these changes had in determining the productivity of a given reservoir. As demonstrated, the SEM can be an invaluable tool in geological and petrophysical investigations and warrants more use in the petroleum industry than it has so far received.

Thursday afternoon a special geophysical session was again dominated by discussions of seismic technology, with only one talk on another topic, that of gravity. The talks covered various aspects of the use of reflection seismic wave forms, particularly their attenuation and amplitude, in determining subsurface lithology. Two papers, however, had special reference to the investigation of permafrost.

Friday morning was devoted to sessions on Mining and on Environment. The mining session, held with the cooperation of the CIMM, commenced with two keynote papers, one on Geochemical Exploration '75 by R. W. Boyle, and the other on the Current State of Mining Geophysics by R. H. Pemberton. These papers reviewed the present "state of the art" in the two fields and were followed by four papers on specific Canadian mineral deposits. These were for the most part interesting and instructive, but apart from the keynote papers there was again a lack of relevance to the conference theme.

Of even less relevance to the theme, though certainly of great importance, was the session on environment. This got off to a good start with an excellent presentation on Industry-Environment Trade-Offs by R. R. Logie, who pointed out that both industry and government had a responsibility to cooperate in the adoption of acceptable compromises in the development of environmental constraints.

Subsequent papers dealt with such aspects as environmental regulations controlling short term exploration activities in the North, the role of the petroleum industry in the development of environmental studies in Northern Canada, and the effects of regulation on the mining industry in Northern America.

The quality of the talks throughout the meeting was varied. Some were well prepared and delivered with good illustrations; others seemingly were put together at the last minute and frankly were a waste of everyone's time. The promise of the conference theme was, for the most part, not attained; perhaps it was too ambitious in the first place and only some of the geophysical papers could be said to describe any recent advances in exploration technology. It is significant that many of the displays in the excellent exhibit section were of geophysical equipment.

Nevertheless, as a geologist, I welcomed the opportunity to hear from geophysicists some account of their work, and to gain an appreciation of some of the more recent ideas and techniques that have been developed. In this sense the conference was a success. I am not so sure that a geophysicist aware of developments in his own field would have gained an equal appreciation of geological advances.

MS received August 13, 1975.

18th Conference on Great Lakes Research

C. I. Dell
Canada Centre for Inland Waters
P.O. Box 5050
Burlington, Ontario L7R 4A6

Introduction

The Great Lakes Conference is held annually and deals with all aspects of Great Lakes research, including geologically-oriented studies. Because of the complexity of the Great Lakes system, geoscientists working in this area must retain a broad interdisciplinary approach. This conference provides a unique opportunity not only to exchange ideas with scientists involved in geological problems but also to gain insight into other fields of research on the Great Lakes. For these reasons, one generally looks forward to this meeting.

The 1975 conference was held from May 20 to 23, at the State University of New York at Albany and was co-hosted by the University and the New York Sea Grant Institute under the general direction of the International Association for Great Lakes Research. Unfortunately, this was not a good conference. Local facilities and organization were poor. Particularly distressing was the unprecedented number of cancelled papers, leaving many sessions disjointed and poorly attended. We sincerely hope that this year's conference will prove to be an unfortunate exception to the previous high quality of these meetings.