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Letters

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The contents of G.C. can be viewed from the aspect of there is good news and there is bad news. First the bad news!

Readers of this volume will gain the impression that everything in our science is doom and gloom. Legget's article on the Challenge for the Future would almost suggest that the material needs of an overexpanding populace present an impossible hurdle. According to Kostiuk, the mining industry has a tarnished image created by its own neglect to inform the public. The production curves presented by Folinsbee and Leech, and North, are flattening or trending downward. The ominous threat of an oil spill in the Juan de Fuca Strait and environs by tankers coming from Alaska, is brought into sharp focus by Mary Barker. Carrigy reports that the quality of Athabaska tar sands oil is poor. The general feeling of participants on a Man and Resources Programme, according to Furlong is that "most of us would not be willing to do it again". And the last GAC special paper was described by the reviewer as a somewhat disappointing volume with an exceptional number of typographical errors.

Now the good news! *Geoscience Canada is a reality!* While other organizations are fussing and fuming about whether they should be formulating policy on national issues, the GAC has created a sounding board where competent and authoritative individuals can expand on issues which are in the public's mind. The articles do not deal specifically with earth science, but the issues have earth science as a fundamental premise. This in itself, completely counterbalances the "bad news". Of course we learn that Newfoundland has a high level of actual and potential energy. And two individuals, Church and Young, whose native tongue is English – (well, Welsh and Scottish) have published in French. Maybe this is an indication that the geoscientists will be in the vanguard toward bilingualism in Canada.

C. G. Winder
University of Western Ontario
London, Ontario

Thanks for the copy of *Geoscience Canada.* I was thrilled to read your editorial policy. I have always had a deep interest in Geology, but have recently found the technical publications beyond my grasp. I have sent in my $10.00 for a subscription, and I wish you every success.

George Grinnell
Department of History
McMaster University
Hamilton, Ontario

If any reader has friends who also have "deep interests in geology" and might be likely to subscribe to *Geoscience Canada,* the editor would be happy to have their names and addresses so that he can send them a sample copy.

Misleading Advertising

The advertisement, of Special Paper 12, that appeared in *Geoscience Canada* is, at best, misleading in the statement ". . . and the first detailed account of the Nipissing diabases". Vol. II, part 1 of the Canadian Mineralogist (1971) preceded and contains a more detailed account of the Nipissing diabase than does the paper by Card and Pattison.

J. L. Jambor
Geological Survey of Canada
Ottawa, Ontario

The advertisement copy was based on the Introduction to the volume (see following letter). It was corrected before the advertisement was run in the second issue of *Geoscience Canada.*

Editor

The *Geoscience Canada* (v. 1, p. 64) advertisement of G.A.C. Special Paper 12 is an example of one error breeding another. Dr. Jambor is of course correct in stating that v. 11, part 1 of the Canadian Mineralogist preceded the paper by Card and Pattison in the G.A.C. volume. However, the introduction to Special Paper 12, written by me, and on which, apparently, the advertising copy was based, was written in all good faith. The introduction also includes a statement that "publication was delayed because of reorganization of G.A.C. editorial procedures". Thus, all of the papers, and the introduction, were completed earlier than the dates shown in the volume. At the time of

submission of the introduction, v. 11, part 1 of the Canadian Mineralogist was not available to me. I note that it arrived in our library at the end of May (1972!) at which time I was in the throes of preparation for I.G.C. field trips and sabbatical leave abroad. I never did see Dr. Jambor's papers until my return to Canada in the fall of 1973. I hope that this letter will atone for the ommission of reference to his papers and will bring them to the notice of the geological community.

G. M. Young
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London, Ontario

Huronian Uranium Deposits

It was with anticipation that I read "Uranium Deposits of Canada" (Robertson and Lattanzi, May 1974). With current interest in energy and raw materials for energy, such a paper is timely and will be widely read. There are, however, a number of points pertaining to Huronian Geology and reserve data which require comment.

Huronian Stratigraphic Nomenclature. Robertson and Lattanzi's Figure 6 has been derived from the work of the Federal-Provincial Committee on Huronian Stratigraphy (Robertson *et al.*, 1969). The Lorrain Formation takes its name from the Lorrain area near Cobalt (Collins, 1925, p. 67) and should not be spelt with an "e".

The Gowganda Formation is not conglomeratic throughout and locally it is possible to recognise members; formal members – Firstbrook and Coleman, have only been designated in the Cobalt area.

The Espanola Formation as mapped by Collins (1925) comprised three lithologic members: the Espanola Limestone, the Espanola Greywacke, and the Bruce Limestone, all of which can be mapped on parts of the Blind River camp. However, recent mapping showed that these members could not be traced uniformly throughout the Huronian area and that in the type area there was a fourth member comprising sandstone at the top of the formation. Furthermore, it was clearly undesirable to have a Bruce Limestone member of the Espanola Formation and a Bruce Formation and indeed this is contrary to the principles of the Stratigraphic Code (American Commission on Stratigraphic Nomenclature 1961).

The Federal-Provincial Committee (*op cit*) therefore, dropped the formal naming of the members but at no time has the committee, its members, or the government agencies working in the area advocated placing the "Bruce Limestone" with the Bruce Conglomerate. The boundary between the Bruce and Espanola Formations is drawn at the base of the limestone member – where it always has been.

The committee noted the presence of volcanic assemblages in the Elliot Lake Group and this subject has been elaborated on by Roscoe (1969); Bottrill (1971); and Robertson (1971). Their presence should have been indicated on the stratigraphic Table

Structural Geology Nomenclature. In Figure 4 the syncline is named Elliot Syncline – the normal Canadian usage is Quirke Syncline (e.g., Robertson, 1968, 1969; Roscoe, 1969) although the usage of Elliot Syncline has crept into resource orientated literature, e.g., Hardin (1973, p. 172). Proliferation of names for the same structure is not desirable especially when the existing name has wide acceptance.

Huronian Stratigraphy. Some aspects of Huronian Stratigraphy are worthy of comment. Collins (1917) maped all the sedimentary rocks of Turner Township as Cobalt Series. However, the uranium discoveries and subsequent exploration and regional mapping indicated the presence of Mississagi, Bruce, Espanola and Serpent Formations in Turner Township (Thomson, 1960, p. 28-29; Card *et al.*, 1973, p. 16).

The literature abounds in discussion of the origin of the uranium deposits. It has been generally recognized that the conglomerate beds have been laid down as sheets controlled by basement topography and drainage patterns. The presence of the Huronian volcanic piles (see above) would suggest that they, like basement ridges, would control drainage pattern and areas between piles would be suitable sites for exploration for deltaic deposits.

Of further interest is the presence of radioactive conglomeratic red-beds in the middle part of the Lorrain Formation. These beds contain thorium-bearing residual heavy minerals such as zircon and monazite and iron oxides rather than the uraniferous heavy minerals and sulphide assemblage characteristic of the Lower Huronian. They are evidence of evolution in oxidation potential throughout the Huronian deposition period. The reducing conditions appear to have terminated during deposition of the Gowganda

Formation (Robertson, 1971; Roscoe and Steacy, 1958; Roscoe, 1969).

Reserves. Williams and Little (1973), in a study forming Canada's contribution to the O.E.C.D. 1973, review of "Uranium Resources Production and Demand" placed Canada's reasonably assured reserves exploitable at $10 per pound U_3O_8 at 241,000 Tons, recoverable U_3O_8 of which about 80 per cent are located at Elliot Lake and perhaps one per cent at Bancroft. Thus Robertson and Lattanzi's figure would lie within the 10 per cent range of that given by Williams and Little.

Williams and Little also indicate that this reserve at Elliot Lake has a grade of about two lbs. U_3O_8 short ton.

During recent years production of Denison Mines Limited and Rio Algom Mines Limited (New Quirke Mine) has been in higher grade material, the latest figure (1973 Annual reports) being Denison Mine – 2.57 lbs U_3O_8/Ton; New Quirke – 3.40 lbs U_3O_8/Ton.

It is of interest to compare the O.E.C.D. tabulation of results of the world with that given by Robertson and Lattanzi, the former figures being summed where necessary to give the same regional breakdown as the latter (O.E.C.D. figures are tons U_3O_8 at $10.00 U.S., 1973).

Area	Reserves (Robertson & Lattanzi)	Reserves (O.E.C.D. 1973)
Australia	210,000	92,000
Canada	220,000	241,000
France (including Niger, Gabon, and Central African Republic)	120,000	136,000
South Africa (incl. S.W.A.)	300,000	263,000
U.S.A.	280,000	337,000
Other	50,000	47,000
TOTAL	1,180,000	1,126,000

In general the figures lie within accepted limits for independent reserve calculation with the exception of those for Australia. Whilst Australia has a high uranium potential and some additional reserves have been announced since preparation of the O.E.C.D. report a further discussion of these would be of interest. Certainly comparison of the studies quoted with earlier similar studies points up the need for exploration in Canada to create new reserves to meet the foreseeable demand particularly in North America and indeed to maintain our reserves in the face of extraction.

In reviewing both the economic and geological environments of the uranium industry Robertson and Lattanzi have done exploration personnel a service. By and large the comments, which the writer has felt it necessary to make, are of the type which would normally have been made during critical reading or review – processes which are not undertaken with respect to submission for *Geoscience Canada.* It may be that such review does provide authors and readers alike with improved material.

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