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Letters

GSC PC Subdivision Move to Thunder Bay

As you probably know, the Federal Government intends to relocate the Precambrian Subdivision and several smaller units of the Geological Survey of Canada to Thunder Bay, where an Institute of Precambrian Geology is to be created. We, the undersigned members of the professional staff of the Geological Survey, believe that further fragmentation of an already decentralized organization will be detrimental to the functioning of the Geological Survey and will seriously reduce its effectiveness. This concern prompts us to express our views, as a matter of record, to the Canadian Geoscience Council and, through it, to the geological community of Canada.

In a natural science like geology, we look for unifying features among diverse phenomena, for a common framework relating a multitude of facts. Some patterns may emerge only when sufficiently diverse phenomena are observed on a certain scale. The Geological Survey of Canada, in contrast to the provincial surveys, has the responsibility to study aspects of geology on a large scale and within a wide spectrum of geological sub-disciplines. The unique contributions of the Geological Survey, e.g., the publication of "Geology and Economic Minerals of Canada", stem from such broad scope of study.

In keeping with a continent-wide and comprehensive approach, we see the purpose of the Geological Survey of Canada as two-fold. On the one hand, it is a repository of the geological knowledge of Canada. In this sense, it is an archive and the material has to be curated and made available to the public in a suitable form. On the other hand, the Geological Survey is a research organi-

zation encompassing and integrating many fields of geology. In both functions, the Geological Survey of Canada, as the representative national body, plays a strong coordinating role.

Because of the emphasis on geological synthesis, regional and topical, the work of the Geological Survey of Canada is best performed in a central organization, encouraging interaction among geologists of diverse training and interest. For example, Precambrian geology has benefitted in large measure from the application of methods and concepts developed in the study of younger rocks (e.g. sedimentology, volcanology, and structural geology). Although the advantages of a multidisciplinary approach in science are now generally recognized, decentralization of the Geological Survey has tended to segregate some of the sub-disciplines in geology until the group remaining in Ottawa consists mainly of earth scientists working in the Canadian Shield. In effect, an "Institute of Precambrian Geology" already exists in Ottawa. The disadvantages of previous moves have been compensated to some extent by fostering interaction with industry (e.g. Institute of Sedimentary and Petroleum Geology in Calgary, Cordilleran and Pacific Margin Subdivision in Vancouver).

The potential calamity of the proposed move to Thunder Bay lies in the fact that it differs radically from earlier decentralization: 1) It breaks up the remaining parent organization of the Geological Survey of Canada, leading to a loss of identity and purpose; 2) It separates scientists with common or interrelated goals, in this case, the study of the geology and the evaluation of mineral resources of the Canadian Shield. Regional geologists and petrologists will be moved to Thunder Bay while economic geologists, geochemists and

geophysicists will remain in Ottawa. By stifling interaction, the work of both groups will suffer; 3) It isolates a part of the Geological Survey of Canada in a location far removed from industrial and academic centres; 4) It constitutes a great disservice to industry by requiring company geologists to travel to two widely separated cities in order to consult with geologists of the Geological Survey of Canada working in the Canadian Shield.

The enormous cost of the program in terms of duplication of facilities, moving expenses, productivity loss, and awkward field logistics, may entail subsequent budget restrictions affecting the work of the Precambrian Institute. The lack of direct involvement in economic geology may lessen the incentive to provide funding for the Institute. We wonder how long this group, overshadowed by growing provincial surveys and isolated from other Survey geologists and from industry, will be able to maintain high standards and leadership in its field.

Eighteen years ago, the move into a single well-equipped building was heralded as a major improvement in the effectiveness of the Geological Survey of Canada. We feel that the arguments advanced at that time in favour of centralization are still valid today, and we fear that the latest proposed dispersal may signal the end of the Geological Survey of Canada as a unifying national institution.

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Note: the letter printed above was submitted to the Canadian Geoscience Council, and is reproduced here at the request of the Council.

Freedom of Publication

Dickson and Neale curiously miss the central problem of editing: freedom of research and freedom of publication of ideas. We need the much-maligned commercial journals to ensure those two freedoms.

We are in the business of selling ideas and there must be competition in that market just as in any other. New ideas are not popular; they frighten; they disturb a world-picture that appeared so neatly settled; they break the established pecking order; textbooks have to be rewritten, courses to be re-organized, authority goes down the drain. Journals will not be open to new ideas unless editors and their helpers consciously strive to keep them so. Competition can force editors to open their pages to new ideas.

Dickson and Neale claim that the (non-existing) "second-rate" quality of commercial journals stems from a permissive review system. Here they are not consistent: *Geoscience Canada*, the one journal singled out for its high quality, is not refereed; in fact outside refereeing of a series like "facies models" is unthinkable because it would lead to outside interference. The best symposia have only an internal review system.

Peer review works reasonably well (not very well) when we deal with *established* concepts. It does not work well at all when we deal with *new* concepts, *new* models, *new* ideas. I can quote number of papers (two of them authored or co-authored by me) which have been rejected as worthless by one journal, and accepted enthusiastically by another. All of them are now widely quoted: chapters of textbooks have been rewritten because they exist; they would not have been published if there were no competition.

I cheer journals which do not enforce strict page limits. Some subjects (for example petrography, paleontology) require lengthy treatment. Strict page limits discriminate against and discourage work on these subjects which is not in the interest of science. A few (far too few) scientists patiently work on one subject for years and, finally, end up with a major piece of work. Then, they find out that there is no place where it can be printed. Kees Schrijver's path-breaking work on the Lac Croche pluton had, finally, to be published in Germany, because nobody in this country will accept a monograph. This is a disgrace.

Dickson and Neale also attack commercial journals on lack of editing. True enough a few of us cannot write. But must all geological writing be in GSA uniformity? Must it all be grey in grey? Is there not personality, no character, no freedom permitted? Moreover, most authors will submit a sloppy manuscript to an edited journal because they know it will be rewritten twice: once at revision, a second time during technical editing. Some European journals accept or reject papers as they are; they do not give you a second chance. You have to submit a first-class manuscript if you do not want it rejected; but they let you do your job as you see fit.

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Anonymity Revisited

"... it is a custom
More honor'd in the breach than in the
observance."
Shakespeare, Hamlet

There was a concern expressed recently (Neale, 1978) that the Canadian Human Rights Act may lead to the abolition of the anonymous referee system used by scientific journals and NRC granting committees. This situation was termed, perhaps half jokingly, as an infringement on the rights of referees. I, on the contrary, look with eager anticipation toward such long overdue but, alas, unlikely extension of human rights so that it will embrace authors.

I ask the readers' leniency on two counts. Anonymous refereeing is a worldwide system with different content from place-to-place and some of the features I will discuss are of small importance in Canada. Also, the debate over anonymity is an old pleasure of the scientific community with few (if any) new arguments left under the Earth's crust, for that matter. Consequently, part of this letter is cannibalized from a former contribution of mine (Ozoray, 1974).

I am convinced of the necessity and usefulness of the referee system. I personally owe much to referees who sacrificed unpaid time and effort on my papers due to my awkward English. I oppose, however, the anonymity of refereeing on both moral and practical grounds.

First, fundamental fairness requires that everyone accused has the right (not denied even to the common criminal) to face the accuser.

Second, the main difference between criticism and slander is, of course, the truth of the involved statement. However, as F. Molnár has so aptly remarked in one of his witty comedies, people are less inclined to lie if first they introduce themselves. Human responses, however, can be quite different to the same challenge and are sometimes unpredictable. Under the inhibition-quenching cover of anonymity, a shy and reserved character may even loosen up to praise and enthusiasm.

Third, anonymity conceals the referee's knowledge of the subject matter, although the lack of topical knowledge may become evident from an unfounded criticism. (A Hungarian proverb states that coughing, love and poverty cannot be concealed – hopefully not mental poverty either.) Editors of general journals, however, cannot be expert enough in all the special niches of science to realize that one of the two experts he asked to scrutinize a paper on geomorphology happens to be a mineralogist and the other a population geographer.

This danger is less, of course, in more specialized journals. Also, such a Scylla of referee incompetence is avoided by those periodicals (e.g., the *Canadian Journal of Earth Sciences*) which send all papers to appropriate specialists. They, however, cruise near the Charybdis of territoriality. If the referee knows a lot about the topic, there is a temptation to regard the subject as his own fiefdom,

to resent the author as a trespasser, and to abhor every unconventional or innovative interpretation as sinful geoheresy (even if only subconsciously).

Fourth, anonymity reduces the feeling of responsibility. Even a factory worker is more careful if his name is listed together with the product – out of both material interest and pride. One who signs his opinion tends to spend a little more time, effort and care.

Together these dangers enhance tendencies toward counterselection. It is easy to keep new competitors away from publication by unfavourable anonymous refereeing – a case of unfairness. Moreover, the papers new in concept or methodology, the evaluation of which requires detailed study, may be refused while well polished conventionalities are accepted – a case of either laziness or incompetence.

These bad effects are, of course, merely undesirable possibilities, not certainties. I was assured, for instance, by an experienced editor that my misgivings about anonymity breeding sloppiness was groundless. The heart of the editorial problem is what I call honesty and which Jones (1974) has somewhat fancifully called "consistently high moral fibre". An open referee system needs strong moral fibre as much as an anonymous one. Fortunately, this moral fibre is usually available in the scientific community (even when and where scientific honesty is overtly persecuted).

Anonymity is entirely dispensable. The *Canadian Journal of Earth Sciences*, for instance, gives anonymity as an option to the referees but, I am told, three referees out of four do not select it. Even personally sensitive problems can be discussed face-to-face, perhaps better than under a mask. For example: a Ph.D. examiner of mine accepted my thesis as a possible alternative interpretation, even though I refuted his entire system about a wider topic.

How well (or otherwise) does the present system function? When science starts to evaluate itself (a sociological enterprise), it seems to be infected by anecdotal evidences, elastic use of statistics and ideological bias. For instance, an extensive study upon the sociology of refereeing was carried out by Zuckerman and Merton and was published in *Minerva* (Jan. 1971, p. 66-100). This study served as source of materials for two further papers. The

authors themselves published a condensed version of it in *Physics Today* (Zuckerman and Merton, 1971) suggesting a high degree of referee objectivity and efficiency. Gordon (1977), however, selecting some other statistical data from the same *Minerva* study, concluded that there is a strong referee bias and functional inefficiency. (Although it should be noted that Gordon's paper did not take into consideration the smoothing effect of the editorial decision which made direct comparison of the two papers difficult.) It seems that the referees may be quite objective but the evaluation of their work is subjective enough.

It is to be expected that there is no perfect system and there never will be. Good human qualities ease the drawbacks, while human weaknesses corrupt even the best system. After all, the present referee system works tolerably well, partly because editors and referees (who, of course, are scientific authors themselves) are usually honest and knowledgeable enough persons. Still, I feel that abandoning the anonymous referee system would narrow the gap between "usually" and "always".

I thank Dr. D. Hackbarth for scrutinizing this letter and Prof. W. Neale for remarks and information relevant to the topic.

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Subsidizing Extravagance

In the course of reviewing books recently, I came across a handsomely bound hard-back volume costing \$40.00. It contained the proceedings of a symposium held three years previously. There were about 50 papers spread over 700 pages, and the book was divided into four sections on a subject matter basis. Print was photo-offset typescript and, for the most part, all the figures were clear and concise. So far, so good, although it seemed a pity that the price would discourage most private purchasers and almost all students. I then discovered that the publication of the volume had been subsidized by no less than four organizations, two of which were federal government agencies. What appears to have happened, is that external funding agencies have supported the publication of information in a format which may give an element of prestige to the sponsoring society, but which will certainly make the volume inaccessible to most of the foot-soldiers of science. Had the information been published as four paper-back volumes, the total cost would have been much cheaper, and members of the scholastic infantry would have been assisted in purchasing only what they needed. As it happens, the papers in this volume had an elderly ring to them, but generally lacked an equivalently appetising bouquet. In other words, a commercial publishing house would have been somewhat reluctant to wrap these old potatoes in a fancy binding before unloading them on the public. However, I am not planning to launch anew that old cliché about delays in publication outstripping the natural aging process of the material. This is a trial we have been forced to learn to live with. My letter has to deal with those organizations, particularly governmental agencies, which support the publication of scientific information, but make no serious efforts to insure that the material becomes easily accessible. Surely this is not an unreasonable string to attach, for, if you give a society money to publish something, presumably you hope it will reach a wide audience. For years, the Canadian Geological Survey, and its U.S. counterpart, have produced 'government-subsidized' reports at bar-

gain basement prices in economical yet practical formats. And for years, sister agencies have funded publications from scientific societies, which were published far more extravagantly and with little thought to either the pockets or convenience of potential readers (? purchasers). At this very moment, a well-known Canadian geological society is planning to print 3,000 copies of a prestigious hard-cover memoir for \$40,000.00 or more, part of which will be supplied by governmental grants. They could publish all the papers in three soft-cover volumes similar to their house journal for half the cost. There would be no loss in quality of reproduction, and I cannot believe that the public would not be better served by such a move. Besides, it is easier to xerox pages from a thin paperback than through distending the creaking binding of hard-cover volume!

Seriously, though, in these days when information gets out of date almost as fast as costs rise, granting agencies have no business subsidising unnecessarily expensive and flamboyantly produced books. The packing should not be out of step with the value of the contents and nor should it embalm them in an inaccessible sarcophagus.

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Geological Endangered Species?

Is there such a thing as an "endangered species" in geology?

The Oriskany Sandstone in Southern Ontario is exposed in an outcrop near Nelles Corners, about 25 miles south of Hamilton, shown on G.S.C. map 1263A (1969) in an area about one mile in diameter. International Geological Congress Guidebook A45 (1972) p. 66 gives a description. One or two other outcrops are known but each is a vertical section in operating or abandoned quarries. There has been some problem with distinguishing the Oriskany and the sandy Springvale Member of the overlying Bois Blanc but petrographic parameters for each have now been established. At the Nelles Corners site, as much as 50% of the outcrop on the 1263A map is covered by Bois Blanc. The extent of exposure is in seven abandoned quarries scattered through the bush along with a couple of rock surfaces covered with glacial striae. Generally the very coarse sandstone is unfossiliferous but in one area is a concentration of large brachiopods which are characteristic of the Oriskany.

Considering this outcrop in the three dimensional aspect, the mass is an ellipse in plan view and lens-shaped in section with the wedging visible in the west wall of the Cayuga Materials quarry along a distance of about 800 feet. The upper surface is an erosional unconformity as the age of the Oriskany is middle Lower Devonian and the Bois Blanc is uppermost Lower Devonian. The irregular upper surface is reflected in the surface topography. The irregularity of the lower surface can be visualized in two ways. 1) In the Cayuga Quarry, the Oriskany fills a depression 20 feet across in the upper surface of the underlying Bass Islands formation such that the Oriskany is three times its normal thickness at that location. 2) In the middle of the lenticular mass exposed in two old quarries, the thickness changes from 10 feet to less than three feet with the lower surface rising in a distance of about 200 feet.

The main area of the sandstone has been optioned by a company to extract 20,000,000 tons of aggregate from the underlying Bass Islands Formation. About 48 acres would be left on as

"environmental protection area" constituting the fossil locality. The walls would be backfilled with the exception of a very short exposure near the EPA. The unconformities with the Bass Islands and Bois Blanc Formations could only be seen along a short distance and at the top of a 55(?) foot vertical face. The final disposition of the extracted sandstone is unknown. This would not seem to be an unreasonable proposition as much aggregate will be required along the north shore of Lake Erie as industrial development progresses. The published statement by a company official that "all the available limestone west of the Niagara escarpment is at our site" causes me to gasp in disbelief!

But there is another aspect!

About three years ago, a university botanist asked about "limestone" at Nelles Corners which was supporting a moss which normally grows only on acid soils. The "limestone" was the Oriskany. Then the proposal for the quarry came to light. Subsequently, Dr. Paul Maycock, botanist at Erindale and expert on Ontario floral communities, determined that this white oak-history forest and associated plants is unique for Ontario. (Did you know there are six species of oaks along with a hybrid which Paul had never seen before?) The individual plants are not unique although there may be some new species but the combination is representative of an acidic, dry soil niche which is the end member in the botanical spectrum in Southern Ontario. The dryness is caused by rain quickly running through wide joints in the sandstone and the soil over bedrock is very thin. Paul mapped and counted by quadrants and admitted he had not discovered this small niche at the time of the original mapping. He maintains the quarry would remove the "heart" from the community and the whole as a community would disappear.

The area is also one of the few remaining habitats of the black rat snake which grows up to six feet in length. This reptile was once widespread in Ontario but is now restricted to the Pelee and Kingston areas. At Nelles Corners, the abandoned shallow quarries, with expanded joints make an ideal habitat. They would not survive a quarry operation.

The establishment of this quarry has now passed the Ontario Municipal Board and awaits a final decision by a

minister of the provincial government. (By the time you read this the bulldozers may be moving!) However I believe recording this event with the geological profession is necessary and wish to provide reasons for my stand against the development. Some of the Oriskany Sandstone will remain along with the fossil locality. But I have come to realize that in its present state, this outcrop is an ideal situation to train neophytes to map a flat-lying, isolated sandstone lens, lying unconformably within a carbonate sequence, exposed in separated abandoned quarries, all in a "wilderness" setting, - and the possibility of encountering a black rat snake. (At one point I was asked why had I suddenly become concerned, after being unconcerned for so many years. The answer came later - this outcrop had never been threatened before). When I first became interested, I assumed a neutral attitude because I had some appreciation of the company's position. But when the botanist and a herpetologist pointed out the biological aspects, I recognized I had to get off the fence. That community of plants exists because of the outcrop and no amount of rehabilitation will ever revive it.

Thus I leave you with a couple of questions - is a unique floral community worth anything to a geologist? Is this geological specimen of greater value in its present state, or its proposed modification for the sake of aggregate which could be obtained elsewhere?

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A copy of the Guide to Authors may be obtained from the Editor or from one of the Associate Editors.

Note

Please note that the titles of the book reviews on page 95, Volume 5, No. 2 were inadvertently reversed. Our apologies to the reviewers involved.

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