The greatest influence of these activities seems to have been in Manitoba where the EdGEO programs have been used and a Western workshop participant has played a role in developing a curriculum. In a recent science fair for high school students, 120 of 600 entries had a earth science theme - an indication of the degree of influence.

Some other factors which undoubtedly have and will have an influence are resources documents by the CGC and GAC, an earth science film catalogue from the Canadian Film Institute, and a continuous effort by the CIM over many years. The latest CIM program is described in a Pamphlet entitled *How Canadian School Children Can Identify with Mineral Resources.* A new text book for the high schools by Bob Janes entitled *Geology and the New Global Tectonics* has an appeal which attracts students. The faculty of UBC has a member who divides his time between geology and education along with a course designed for high schools.

This author has suggested on occasion a rather biased view (although it is received enthusiastically if the audience is equally biased) that science in high school should be taught as earth science supported by mathematics, physics, chemistry and biology. The continued fostering and improvement of earth science in Canada depends in large measure on a greater number of professionals being willing to become involved. Canada will remain a supplier of mineral commodities for many years. We need keen minds to continue the search for deposits that are increasingly more difficult and more expensive to find. But we also need keen minds to pursue pure research. If such individuals are identified early, guided by professionals and teachers, and channelled through earth science departments, we can be assured of a continuous flow of significant discoveries. If we overproduce students, then a greater proportion of the population will have a core of citizens who have an appreciation of the nature of the ground below their feet. Our country will maintain its high standard of living.

MS received December 1, 1977

Pyroclasts

Ward Neale

Controversial Volunteers Needed

In the first of these columns, published in November 1975, it was firmly stated that I would rely on contributions from geoscientists across the country, particularly those who would link their names to their views and opinions. The response has been virtually zilch with one notable exception: Jim Aitken took over the column in the June, 1977 issue and bravely wrote about the evils of publishing (and talking) too much. That column has elicited scholarly letters from critical readers and vice versa and Jim has been properly ostracized by old friends and kicked and beaten in bars by new enemies. A terrific response. We need more such fresh, vital controversial approaches to the issues of our times and they have to come from you out there. How about a page or two of typescript for the next issue - before these cooling pyroclasts run completely out of fire. We don't want to end with a whimper.

Prejudice - No Not Here!

There has been for over 20 years now a sprinkling of non-whites in government geoscience at both provincial and federal levels. Proportionally there have been many less in industry and the universities. In fact, non-whites are as poorly represented as women on geoscience faculties. This is in contrast to physics, chemistry, maths and engineering where there is a much broader spectrum. I hadn't thought about it much until a few months ago when talking with a couple of non-white graduates of Canadian universities who are now gainfully and productively employed in the U. S. A. They told me disconcerting stories of rank discrimination, of being refused interviews because "the position was now filled" whereas their white classmates would receive invitations to be interviewed or even to apply from the same employer in the days that followed. Maybe it is time to expand our modestly successful Status of Women Committee into a broader Equal Opportunities group.

Another Infringement of Human Rights?

The Canadian Human Rights Act (Bill C-25) has an initial strong appeal to many of the more liberal among us. Part IV of the Act states that the privacy of individuals and their right to access of government records containing information concerning them should be protected. This means that if you suspect that the Mounties have a secret file on you which is preventing your advancement, you can demand to see that file in person and deny its implications if you can. All very fair.

However, justice can sometimes be carried too far and there are some fears at time of writing that this Act could impinge on the refereeing records of the Canadian Journals of Research and the granting records of the NRC Awards Office and its successor granting councils. Where, then, would be the rights of volunteer referees to the anonymity that protects them from personal hassles with disgruntled authors and disappointed grant applicants? It probably won't be too difficult for the Journals of Research to circumvent the Act - after all, they are run by volunteer editors out of offices donated by universities and companies. Surely their files of assessments by volunteer editors cannot ultimately be considered government data banks. It could be more serious for research grant referees who provide in-depth reviews of applicants' published work. One way to preserve the anonymity of reviewers is to eliminate government-solicited written reviews and to rely on poor, overworked volunteer selection committee members phoning poor, overworked volunteer reviewers. Alternatively, we may have to work for changes - one good act deserves another!

Yes, You Can Tell Them Apart

Geoscientists seem to move around much more easily than they once did between industry, government and the universities. This leads one to wonder if the differences between employees in

these various spheres have blurred. I think that the differing demands and restraints in each realm of employment tends to attract different personalities and if you discount mobile youth searching for their niches you actually do end up with stereotypes. Here are some personal observations to irritate you.

Academics are generally brash and overconfident and tend to follow the advice of mathematician G. H. Hardy who stated: "It is one of a professor's first duties . . . to exaggerate a little both the importance of his subject and his own importance in it". Government geoscientists are much more cautious and exact, they pay much more attention to details (sometimes missing the view of the mountain because of the rocks) and are restrained in their communications to the public. Industrial geoscientists are pragmatic, rather conservative and suspicious of new approaches (particularly by university and government geoscientists), slow to leap on scientific bandwagons but difficult to dislodge once they are aboard.

Academics revel in the peer review system and they will lavishly praise or fearlessly condemn a colleague's life work without even flinching. Government geoscientists and consultants are much more reserved, they don't identify heroes so readily and will point out faults in the work of reigning giants, also many of them are loath to kick the weaklings too hard. Academic and government geoscientists and some consultants will usually have the same views on who is near the top or the bottom of the scientific ladder, most industrial scientists would disagree with them.

Academics state their points concisely and well in reports (even when they don't have points!) but their manuscripts are often sloppily prepared. Government workers submit meticulously prepared and carefully edited manuscripts which are usually too long, too detailed and profusely over-illustrated. Industrial scientists, especially those in metallic mineral exploration, submit the worst manuscripts of all once their university theses are out of the way.

Academics tend to quick assessments of other peoples' reports and terse evaluation of their messages. Government geoscientists are careful, conscientious reviewers with a slight tendency to pick nits, but they are softhearted when it comes to the final crunch and they seldom reject reports outright. When Canadian academics have manuscripts rejected, they are almost always certain that government people are responsible (and they are almost always wrong). Scientists from industry are often surprisingly tough when assessing reports in their spheres of competence - surprising to the other two groups who never suspect they have been "done-in" by a mere industrial scientist.

Academics work in an amazingly free environment, administrators are truly their servants and they can take a very cavalier attitude to rules and regulations. Government scientists get used to spending a sizeable part of their time quenching political bonfires and placidly circumventing administrative roadblocks in order to accomplish a bit of worthwhile work. Company people, who scoff loudest at government red tape, are probably subject to almost as many barriers to creativity.

Both academic and government geoscientists work much harder at their science than most company people realize. Much of the research of most academics and some government scientists is accomplished after the standard 9 to 5 shift (check the lights in their labs sometime). Academics pay a price for their freedom because even the laziest has to prepare to face classes a couple of times per day and college kids become smarter every year. In contrast, a lazy government scientist might hide under a blanket of paper. Presumably a slacker with a company is pushed towards unemployment insurance? Academic and government scientists may work longer hours but company scientists worry more.

You probably think that exalted senior scientists could move with ease from oil companies to universities to government because a scientist is a scientist is a scientist. Wrong. After they've spent many years doing their very particular thing in their very particular environment, most of them just couldn't hack an alien surrounding and the aliens would probably feel the same way about them. Strangely enough, senior research managers such as deans, chief geologists and directors could move much more easily from one sphere to another. A few do and it's a pity that more don't.

There are just enough exceptions to each of these generalizations to prove that each is a rule.

Any last comments, Doc? Yes, I like Calgary because I like the stuff oil geologists drink and the places where they drink it.

Blindfold please.

BANG.

MS received December 2, 1977