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Pyroclasts:
Interim Report of an Ad-Hoc, Self-Appointed Commission on Commissions

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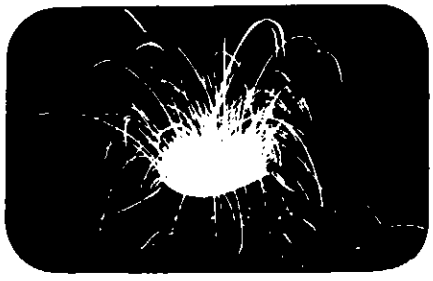

Pyroclasts

Interim Report of an Ad-Hoc, Self-Appointed Commission on Commissions

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It would be interesting to know what clever, ancient Phonecian or Sumerian bureaucrat first dreamed up the idea of the commission. The concept was a very simple one: a group of internationally known experts was appointed to study a particular problem such as the appropriate thickness of papyrus sheets or the confusing variations in the shapes of hieroglyphics. While working on their recommendations, the participants got to enjoy first class travel to all the better oases in the Fertile Crescent in order to consult with colleagues and carry out necessary field work.

Commissions are a thriving industry in the second half of the twentieth century. Politicians use Royal Commissions to bury controversial subjects and, in the earth sciences, we have plagues of commissions, subcommissions and working groups beavering away under the prestigious auspices of IUGS and UNESCO. However, I suggest that commissions are a dead end, and that the establishment of a commission is the first sign of incipient decay in the evolution of the given subject area. The commissioners set themselves the task of codifying, systematizing, quantifying or calibrating something, but this commonly cannot be done while a science is actively being developed. It must wait until all the excitement has been squeezed from the topic, and the really active, talented researchers have moved on to something else. To the commissioners is left the mundane task of clearing up the debris and reaching the lowest common denominator of international agreement about something that no longer fires anyone's imagination. All the really interesting and exciting developments in science are made by individuals or by small, closely knit research teams. New methods of observation or measurement or new research standards typically emerge from excellent research, not from committee deliberation.

For example, the IUGS Commission on Stratigraphy includes under its aegis numerous subcommissions and working groups concerned with refining the chronostratigraphy of particular intervals of geologic time. These groups have been working away for many years, but there still is no internationally agreed-upon geologic time scale. The task is, admittedly, immense, and the work of the commission may never be truly finished. More detailed field work in poorly studied areas, the development of new radiometric dating techniques, or the discovery of a valuable new group of age-sensitive taxa, will always be capable of creating the need for refinements to the global scale. In the interim, however, working scales are necessary for everyday use, and here the IUGS has not been particularly helpful. Working scales in current use have been developed by various national groups (Geological Society of London; Geological Society of America for the Decade of North American Geology project), commercial enterprise (the Elsevier chart) or individual research teams. In the latter category falls the most thorough recent compilation, that by W.B. Harland and his coworkers, published in 1982 as *A geologic time scale* (Cambridge University Press). This group recognized the need for an up to date compilation, and simply got down to work and erected one, bypassing the "official" channels altogether. The book therefore has no official status, but promises to become the standard work because of the thoroughness of the research.

Stratigraphic nomenclature is another responsibility of the IUGS Commission on Stratigraphy. Their publication of the International Stratigraphic Guide in 1976 was a major achievement, but the success of the book and a certain controversy that has surrounded it since, both owe their origins mainly to the energy and dedication of one person: Hollis Hedberg. A new North American Stratigraphic Code has recently been published. However, the rules of stratigraphic nomenclature and procedure are in danger of being relegated to the sidelines by exciting developments in seismic stratigraphy. There will always be the need for formally defined formations, but their establishment and definition have long since ceased to be a primary objective of stratigraphic work. Peter Vail, at Exxon, has suggested an entirely new method of regional correlation and stratigraphic documentation based on the recognition of unconformity-bounded sequences. Not all geologists agree with the methods or the results (I have offered several criticisms myself), but there is no questioning the new vitality this research concept has brought to the science of stratigraphy. I predict the establishment of a subcommission on the chronology of unconformity-bounded sequences within about the next five years!

Another commission with a long history of international deliberation is the INQUA Commission on the Genesis and Lithology of Quaternary Deposits, under the leadership of Alexis Dreimanis. This group has devoted a great deal of effort to the classification of till, based on observations and assumptions about sediment transport in modern glaciers. Such till classifications may or may not be applicable to modern deposits, where the processes of deposition may actually be observable, but they are of questionable use in a study of the ancient record. Curiously, the entire sedimentological revolution in facies analysis methods seems to have passed this commission by,

and it has been left to other workers, carrying out research on their own, to apply these techniques and modernize our understanding of till and till-like sediment bodies. It has turned out that many Quaternary and older "tills" are not directly ice-laid at all, but owe their origin to sediment gravity flows, slumps or rain-out from floating ice. The effort at till classification has yielded virtually no useful observational methods or data for the interpretation of these rocks. One of the other principal preoccupations of the INQUA Commission has been with grain size analysis data as a tool for correlation and environmental interpretation. This, too, now seems misplaced. More on this below.

Currently, Keith Crook of Australian National University is exploring the possibility of establishing an IUGS Commission on Sedimentology. Preliminary meetings of an ad hoc organizing committee were held at the IGC in Moscow in 1984. Among the many laudable objectives of this Commission is the aim to improve communication with, and participation by, scientists from Third World countries. This parallels efforts made by most other commissions, including those discussed above, and is probably the most worthwhile work done by any of these international bodies.

Another of the stated aims of the Commission on Sedimentology is a "comparison of explication of differences in sedimentological terminology and concepts used by Russian- and English-language sedimentologists: a Working Group with Russian- and English-speaking co-convenors is being formed". This, of course, is all a polite fiction, because Sedimentology does not really exist in the Soviet Union. Are serious, well-meaning western sedimentologists actually going to fly to Tashkent, or Warsaw, or wherever, and plod through "GEOL 201: Introductory stratigraphy and sedimentology" in order to convince them that facies models are not some kind of bourgeois plot?

The ad hoc committee has also formed a Working Group on Grain Size Analysis, under the leadership of Jim Syvitski. The aim is to examine the theories and methods of grain size analysis and devise ways of calibrating various instruments against each other. This is all very commendable because sedimentologists, Quaternary geologists and others have been collecting immense volumes of grain size data for years, using a variety of different techniques. However, it ignores the fact that there is no agreement as to what all the data mean. As a facies analysis tool it is cumbersome and has been demonstrated on innumerable occasions to be quite unreliable. Students of ancient sediments have all but given up using the data in favour of simpler, field-based observations that can be collected more quickly and are much more reliable. So it is difficult to see at this point what scientific (as opposed to technical) accomplishments the working group can be striving for.

If you are invited to sit on a commission, by all means be flattered; you may enjoy the travel and the meeting of like-minded colleagues from other countries. But do not expect your deliberations to be written up in *Science News* (however, you may make it into *Geoscience Canada*!) and your work will not win you the Steacie Award.