

## Mission-Oriented Research

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refusing to enter the golden age. We are doing what works for ourselves the best. Perhaps the paleontologists and mining companies could use more limited services, tailor made to their specific needs. These already are being developed for micropaleontologists. Note that this narrowly-defined type of computer application would accord rather well with the three criteria of good computer use, as set out in my original article.

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Miall will get no argument from me on the undesirability of building "unuseable data files"! However, criticism for such wasteful activity must be directed at people and management, not at computer technology or at the concept of data management. Even so, it is difficult to discuss the utility or value of computer-based data files on a generalized basis. One must ask with respect to a particular file: unuseable to whom? and: unuseable in what context? Having satisfied the immediate and narrow need, too many geologists effectively discard their expensively acquired data on the arrogant assumption that no other geologists - much less non-geologists - could understand or use them.

My comments on the general lack of objective data in geology and on the attitude of many (most?) geologists that only their "own" data are trustworthy (i.e., the data are not considered reproducible) do not represent quibbling on the definition of "science". This is a serious indictment, and I'm not reassured by Miall's failure to recognize it as such or by his evident faith in scientific progress through "... guesswork, intuition, interpolation and extrapolation ...".

Miall's attitude on geological data carries over to the literature where he considers only papers known to him through an informal personal network to be worthy of consideration. Data and ideas generated outside this network are evidently not relevant simply because they are outside. He contradicts himself on his contention that "nobody" wants to

search the literature systematically, since elsewhere he acknowledges that 10 per cent of scientists at his institution use the CAN/SDI service offered by the Canada Institute for Scientific and Technical Information (CISTI). Complaints about "half-inch thick printouts", "guarantees of relevance", six-month turnaround times for GEO-REF citations, etc., may or may not be resolvable, but the main question is: What is the alternative? For most, it's an intellectual ghetto.

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### Mission-Oriented Research

I am writing to suggest that the geoscientific community (that means you) should establish a central organization to coordinate and fund mission-oriented research.

A few years ago, mission-oriented research was a dirty word among many academics but two series of events of the early seventies should make us change our minds. One has been the progressive drying up of research funds, accompanied by the apparent inability of federal ministers to understand the potential of pure research, and by the refusal of the federal government to give any priority to science programmes. The other has been the demonstration that political decisions are continuously being taken on the basis of inadequate and incomplete scientific data because the necessary (mission-oriented) research has not been done on time. Variations of estimates of the oil potential of the Arctic are only one case in point.

If academics are hard-pressed for research support and if the government badly needs specific work to be done, surely the two should meet.

I would envisage a three-tiered structure, with a policy-making body, a coordination office and potential grantees.

*Policy-making should be handled by a small joint committee of universities, governments and industries. Its members would be respected experts who would consult others formally and informally and would establish a priority list of problems that need to be solved. They would not deal with details but identify specific questions that must be answered. Their fundamental criterion should be to promote what will be most beneficial to the country as a whole.*

Once the goals are set, a coordination office is necessary, that would receive proposals, act in effect as a granting agency, and distribute funds according to policies and guidelines established by the joint committee discussed above. Mission-oriented research is evidently funded by those who want it done. Such funds would be put at the disposal of the coordination office by various government agencies or departments, and oil or mining companies for instance. The office should presumably be integrated to the Geoscience Council.


Realisation of the actual projects would mainly be the task of university groups or individuals. "Quality-control" could be assured by peer review through people in industry, government or university, but maybe more particularly through scientists in EMR. It would be up to the coordination office to ensure that reviewing is up to standards required.

In the proposed system, EMR research agreements which are notoriously insufficient at present and IREM grants of NRC would become just two aspects of a larger structure.

The suggested approach is only one of many possibilities, but in the earth sciences time has now come to organize ourselves and to think of what is in store for the 1980s. The simple fact of agreeing upon a limited number of priorities could serve as a solid base on which to build a national earth science policy.

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