

Science management in the Third World

J. William McGowan

After he received the Nobel prize in physics, Abdus Salam wrote in the *Bulletin of the Atomic Scientists* (September 1980) about the Scotsman Michael who in 1217 traveled as a natural philosopher, first to Toledo, Spain, and later to the medical school in Salerno, Sicily. There he met the Danish physician Henrik Harpestraeng, who later returned to his homeland to become court physician. Though both men studied science abroad, neither returned home to found great schools of science—I suspect that neither of them was able to bring back the necessary know-how either to create an environment where science could flourish, or to develop an organization necessary to support their laboratories. The situation then may not have been much different from what our colleagues from developing countries find now as they study in North America and Europe.

Although the creation of a scientific infrastructure is a task to be performed primarily by each country's own scientists, experience dating back to the time of Michael has shown that it is very difficult or even impossible for such an infrastructure to be formed without cooperation from the worldwide scientific community.

Recognizing this problem, members of The American Physical Society, through the Panel on Public Affairs and its newly founded Subcommittee on International Scientific Affairs, began in October 1980 to work with colleagues from developing countries to determine what special things they needed as practicing physicists in their home institutions (August 1980, page 9). At the Baddeck, Nova Scotia, workshop organized by SISA on "The Focus of Physics on Science and Technology for Development," nearly thirty physicists from developing countries put forward specific requests for assistance. One request was "that summer seminars be established which would deal

Physics lab, Institute of Optics, Shanghai. (Photograph courtesy Gloria B. Lubkin.)



with a range of topics from mundane matters... to broader subjects like science policy and management."

Last July The American Physical Society, in conjunction with the Commission on Physics for Development for the International Union of Pure and Applied Physics and the Canadian Association of Physicists, sponsored the first of a series of seminars responding to the Baddeck request.

The Asian Summer Seminar, which was held at St. Francis Xavier University in Antigonish, Nova Scotia, was designed to strengthen organizational skills of physicists and a few other scientists returning to developing Asian countries. APS chose to work first with Asian graduate students and postdoctoral fellows committed to returning home and with visiting scholars, for two reasons: because of the large number of Asians now studying in the US and Canada, and because there already exists within Asia considerable support for the growth of science there. Nearly fifty participants from Bangladesh, India, Malaysia, Pakistan, the People's Republic of China, Sri Lanka and Thailand attended.

The workshop coordinators were selected from Asia, the US and Canada for their acquaintance with and in-

volvement in science and management, especially in the Third World.

The program of the workshop encompassed a broad range of topics. Conceptual subjects—like the relationship between science and technology, for example—alternated with practical skills—how to write proposals, how to strengthen the communication system among scientists, how to act as a manager for a multidisciplinary project, how to create libraries and information systems, how to bring science to the public, how to talk with government and with the press, how to strengthen the Asian Physical Society and so on. Considerable emphasis was given to the role scientists might play in the economic and social development of a country.

Participants were introduced to the Harvard Business School case-study method as a technique to help scientists analyze their home situations and plan their careers. The workshop also considered science management, the development of applied programs—as in the Asian Institute of Technology—as well as Institutions of Chemical Research in India and even a regional effort around New York City to create biotechnologies in the region.

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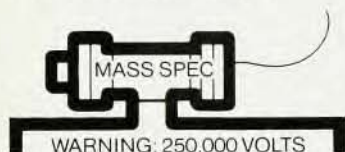
J. William McGowan was director of the Asian Summer Seminar held in July 1983 at Antigonish, Nova Scotia. He is professor of physics at the University of Western Ontario, London, Ontario.

SCIENTISTS:

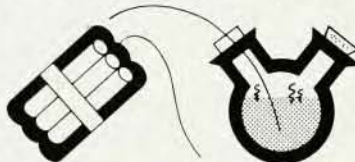
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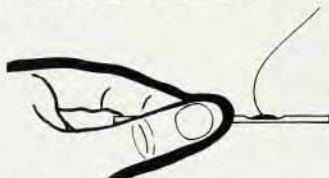
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In addition to the more formal program, the workshop provided ample opportunity for informal interaction between the participants and their colleagues, the coordinators. No doubt these personal ties will be invaluable for the young physicists as they return to their countries and try to operate in an isolated environment.

A survey at the end of the seminar revealed that the participants found the workshop eye-opening and useful not only as a source of factual information but also as a guide for operation in the future. The participants felt particularly strongly that some of their remaining time in North America might be devoted beneficially to prepare them further in these ways for doing physics when they return home.

Although the workshop was designed to help people from developing countries, its effectiveness leads us to question whether such seminars should not be made part of the general graduate physics education in North America. In the past we have passively assumed that young scientists emerging from North American graduate schools at the beginning of their careers will be absorbed into organizations such as universities, national laboratories or industrial research organizations that are well developed and where science management is well taken care of by established members of the community. The assumption is that the young scientists need not worry about such things as management and the maintenance of the infrastructure of physics, for it will come to them through some sort of osmotic process.

These assumptions have become increasingly dubious. Science has become very conspicuous, and, increasingly, it has come under public scrutiny. All scientists—physicists in particular—have branched out, even at the beginning of their careers, into fields that go beyond, or even outside, the confines of the technical aspects of the physics training. Public issues increasingly contain scientific ingredients. In the areas of big science, where large sums of money are needed and huge teams work together, the sociological, philosophical and economic problems arise constantly.

For these and many other reasons, it becomes increasingly evident that the type of seminars that our colleagues from the Third World have asked us to organize for them are equally important for young scientists working in countries where modern science has a long tradition. Thus the workshop we held this year in Antigonish may serve as a prototype in a much broader context. □