guest comment

Physicists and developing countries

J. William McGowan

"Isolated"
"Discouraged"
"In desperate need of equipment and journals"
"Work often judged as irrelevant by our governments"
"Under-utilized but over-worked"
"Research poorly supported"
"Desperately in need of community support"
"Misunderstood and often oppressed"

The dedicated and imaginative group of physicists from Africa, Asia and Latin America who have shared these thoughts in letters and conversations were at one time enthusiastic scientists. Their assessment reflects their present intolerable and unfortunate prognosis for young physicists returning to developing countries. Can the world community of physicists do something to help? Yes!

Many of our colleagues, among them Michael Moravcsik (May 1979, page 9), Robert Marshak (November 1979, page 9), Frederick Seitz (*Bulletin of the Atomic Scientists*, May 1980), Victor Weisskopf (*Bulletin of the Atomic Scientists, April 1980*) Lewis Branscomb (April 1980, page 42) among others have recognized this situation and have individually responded. But only last year has the APS begun corporate activity through POPA, its Panel on Public Affairs.

In late February, POPA established a Committee on International Scientific Affairs. This committee's first project was to contact physicists in developing countries soliciting their comments and suggestions.

Its second project, a workshop "The Focus of Physics on Science and Technology for Development," has grown out of this exchange. It is being held in September at the Alexander Graham Bell Museum in Baddeck, Nova Scotia. The majority of participants are

from developing countries, some from the APS and a few from learned societies. This latter group of concerned scientists has already begun to come to grips with the problem of arousing the interest of their fellow scientists from the developed countries concerning the problems being faced by those in the less developed scientific communities scattered around the globe. The workshop will seek to establish concrete plans of action that can be immediately acted upon by interested agencies. The workshop report will be made available to the entire physics community and to the agencies in the US and abroad that might support such cooperative action.

The situation that elicited the comments above is very complicated. Part of the problem appears to have grown out of the fact that many of those who have been educated in the US, Canada and Europe often have been invited to join large, well-financed groups that stress forefront research in areas demanding the highest of technologies. Their principal contacts have been with physicists from the West, and their attention, more often then not, has been focused upon fundamental research problems. Some of these physicists, originally from less developed countries, have remained in North America and are now leaders and active members of research groups here. Quite frankly I find it difficult to imagine our research community without them. It must be realized, however, that our gain is a significant loss to the developing countries and institutions that have supported their study in our laboratories and education centers.

Those who return home often do so at the risk of breaking or at least weakening the close scientific and personal ties that have been nurtured while on leave in their host countries. Few return to prestigious research dedicated to nuclear or reactor technology.

Many who return to indigenous universities meet with frustration and isolation. There is often minimal contact with other scientists. Journals either arrive months late, not at all or are unaffordable. Necessary equipment and computers are usually not available. Since much of their research is directly related to priorities established by the scientific and political agencies from developed countries, their indigenous governments show little concern for their research.

What can we do? First of all, we should become sensitive to the plight of fellow scientists in developing countries. We may have to rethink those education policies that are relevant to students from these areas. For many it would be unfair to involve them in projects utilizing esoteric and expensive equipment unrelated to problems of concern to their home governments.

Second, while they are here we can encourage dialogue between these students in an attempt to help them establish a network of relationships that will, we hope, endure beyond their stay. Over the last three years, AAAS has invited a limited number of graduate students from developing countries to their annual meeting for just this purpose. Also, there is now a proposal to the NSF requesting support for a summer seminar to assist this group. This is a good beginning.

Third, our universities might consider establishing relevant courses in economics, anthropology, law, environmental studies and energy that would focus upon problems in developing countries. These should not only be available to the foreign students but also to anyone who may be sensitive to

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developmental issues. Quite frankly I feel that we should encourage our own students to participate, for many of the inequalities we identify with developing countries are found in different parts of North America. Furthermore, though it is not generally perceived, the principal socio-political focus through the 1980's will certainly be on the interface between developed and underdeveloped nations.

At a time when world tensions mount, the need for the exchange of scientists increases. The science community should act as a unifying force. Although last year's UN conferences on science and technology for development were to a large extent a failure—due to the fact that the scientific and technical community had little direct input into what became political deliberations—the exchange of new ideas and contacts made during the preparatory workshops in Singapore, Mexico City, Tallinn and Kuala Lumpur was encouraging and perhaps saved the exercise from complete disaster. The physics community can certainly build upon these experiences. In the very near future, we hope, an Institute for Scientific and Technological Cooperation will become a reality as a complement to Canada's International Development Research Centre, which has been effective in assisting students in developing countries to work on problems at home.

Fourth, it is exciting to envisage the development in Africa, Asia and Latin America of multidisciplinary institutes dedicated to studies that are of international stature and which encourage and support the exchange of scientists between developing countries as well as with developed countries. Lewis Branscomb has called them "islands of excellence." The support of the APS can do much to make this dream a reality. Your participation would do much to minimize the feeling of isolation within a developing country and to remove the label of irrelevance stamped on their work by governments who are insensitive to the cultural interests of physicists—in fact all scientists. An example of an already existing "island of excellence" is the Asian Institute of Technology, Bangkok, Thailand, which services much of South-East Asia.

There is no doubt in my mind that multinational corporations can and will eventually play a positive role in the growth of science and technology in the developing countries. But it will only happen on terms set by the scientists and engineers in these countries. With our encouragement and, we hope, through pressures developed through the activities of physicists in concert with other scientists and engineers, things can change. Perhaps, it will be easier for multinational research groups to work through or in conjunction with scientists coordinated through multidisciplinary, perhaps multinational "islands of excellence."

The formation of the POPA Committee on International Scientific Affairs is an exhilarating APS experiment. Without a doubt, its success depends upon the full support of the physics community in the US and abroad. We trust that the Baddeck workshop will initiate constructive dialogue between physicists concerned with wide scientific and technical problems. To those who have already communicated their thoughts to Michael Moravcsik or me as members of the committee or to Harvey Brooks, past chairman of POPA and Louis Rosen, the new chairman, we express our deep appreciation. We will do what we can to keep you informed of our activities, successes and disappointments. In time we may find a need to formalize CISA notes. Please feel free to write me:

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