

letters

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Development" held in Baddeck, Nova Scotia, addressed many of the problems that Arunachala Viswanathan mentions.

Everyone attending the workshop agreed that all students from foreign countries attending universities in North America should follow exactly the same scientific curriculum as our own students. In this way we help identify and prepare excellent scientists. However, it was felt that some special attention must be given to the students from developing countries to properly advise them regarding choice of courses available and thesis topics. Already a small brochure addressing this subject has been prepared through the American Association for the Advancement of Science and is available to university administrators and foreign student advisors through the Office of International Science of the AAAS.

It is equally important to advise the students from developing countries (as well as our own) about the special problems associated with establishing small machine shops, libraries, the training of technicians, the writing of proposals and reports, communicating with government and so on. One would hope that in some universities, such specialized training can be organized. But more broadly it was proposed in Baddeck that special summer seminars might be established that would deal with this range of topics, along with discussions of science policy, the management of small research groups and the development of multidisciplinary groups so the students trained here might better practice physics once they return home. Many of the instructors for the summer schools would be brought from the developing countries since they can best relate to problems there. We hope that this program can be tried in the very near future.

After completing their thesis work in North America, so many of the students returning to developing countries find themselves in a situation where they are not part of a community of scientists working on somewhat related topics but rather alone, continuing work that in no way relates to their homeland. For them it becomes virtually impossible for local governments to support continuing research. In many cases it is difficult for them to change fields or even associate themselves with other physicists, chemists and engineers in potentially exciting and productive multidisciplinary community of scientists working on the fundamental and applied aspects of a program that can be funded by their govern-

ments. Recognizing this, it was requested by the physicists attending the workshop that some assistance be made available so that those who choose to change fields might establish themselves in new areas. An effort is now being made to set up special mechanisms to assist in this area.

There is no question in my mind that we can help our friends from abroad. But this will best happen if we take the time to understand their special needs within cultural situations unique to each country or part of a country from which the visiting scientist comes. Personally, I find that any effort spent along this line is most rewarding.

J. WILLIAM MCGOWAN

Chairman

2/81

APS-POPA Committee on
International Scientific Affairs

February editorial

One might indeed ask who this man of arrogance is that wrote the February editorial? From what collections of facts does he deduce that there is one ambitious tyranny against which we scientists should muster our collective technical ingenuities?

When Pogo said the enemy was us, he wasn't exempting physicists.

Our contributions have been good and bad, as with any group. Some of us may even have different perceptions about where ambitious tyrannies reside. Not all of us may agree that dedication to missile defense or any other military application of the beauty and spontaneous dedication of our science is satisfying, humane, or advances any cause except the continuation of world tensions, economic dislocation, and the continuing impoverishment of people.

How much more in the tradition of concern for humanity would have been a more modest assessment of the role of science—one that shows a modicum of humility and resonates with the need to dedicate oneself, not to military machines, but to a science that liberates the soul in human pursuits of reason, understanding, equality and brotherhood.

HARRY SHAIKH

University of Oregon
Portland, Oregon

3/81

THE AUTHOR COMMENTS: In answer to Harry Shaikh's first question, I am a 73-year-old American physicist of Hungarian origin who has learned:

►That discussions, even controversies, are enjoyable when conducted in polite and informative language;

►That science is not only a liberation of the soul but is also an activity as badly needed for the survival of our society as our daily bread;

►That peace is achieved not by abandoning arms but by persistent efforts to create common goals and common understandings;

►That an editorial can be better understood if its criticism is read, and that the criticism can be better understood if the editorial is reread;

And, finally, that Pogo, Teller, Shaikh, and even individuals with a touch of greatness such as Bohr, Einstein, Heisenberg, Oppenheimer or Sakharov, are partly right and partly wrong.

EDWARD TELLER

Hoover Institution

Stanford, California

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Indirect cost strategy

The discussion on the legitimacy and desirability of indirect costs charged to research grants by academic institutions has been going on in this journal for many months but still seems to suffer from a lack of knowledge about the real cost of operating a university, college or non-profit organization. Unlike the federal government, academic institutions cannot print their own money, which simply means that their revenues must match their expenditures, at least in the long term. Revenues come from tuition (about 20% of the total in public institutions, 40% in private institutions, on the average nationally), state allocations (primarily for public institutions), capital investment (interest, dividends, capital gains, rental; primarily for private institutions), gifts, grants, contracts and sometimes, in addition, revenues from auxiliary enterprises—bookstores, university presses, and so on. The total expenditures of the institution will always include indirect costs such as costs of general administration, physical plant, library, and depreciation of facilities. A prudent administration will try to keep indirect costs ("overhead costs") as low as possible because there is no way to recover all indirect costs, and the difference between total and recoverable indirect costs has to come from unrestricted funds. These unrestricted funds (gifts, capital investment income, and so on) are thus not just the whipping cream on top of the money from external sources; they are absolutely necessary for the survival of any institution. It should also be mentioned that the farming out of work reduces indirect costs generally in those cases only where the work is of a non-recurring and extraordinary nature since contractors have an overhead too and they want to make a profit.

The sad fact of life is that academic