

letters

Even without going into the question of whether the Schlumberger Corporation's fears are indeed justified, it is unthinkable that a scientist's basic rights should be so easily surrendered to the whims of blackmailers. I am afraid this incident may set a dangerous precedent in undermining the integrity of the research as well as the publication process, and therefore I urge scientists everywhere to take note and let the Schlumberger Corporation know that they disapprove of its behavior in this matter.

YUVAL NE'EMAN
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3/81

More on lifetime

To provide a finite lifetime to the correspondence (R. B. Firestone, December, page 72; F. B. Boynton, September, page 98) sparked by my note (June, page 78) on the W/H^2 parameter, and to reply to the phone calls and letters I've received:

► The range of ratios of human mass (W) to height (H) for maximum longevity is

$19 < W/H^2 < 24$ (women) and
 $20 < W/H^2 < 25$ (men) in kg/m^2

—note misprint in PHYSICS TODAY which alarmed some people.

► Note that a plot of longevity versus W/H^2 is fairly flat—the curve is not critical.

► To change W/H^2 rapidly was early remarked upon by 50% of our children, who grew about 6" (0.15 m) in a year. Familiarly, we refer to this as the Procrustean solution, in honor of a gentleman who recognized its efficacy in changing W/H^2 on travelers, some 3000 years ago.

► Since I've been asked many times: My opinion about effort of exercise, low fat intake and so forth on health is that they are quite unproven either way by any rigorous (that is, controlled or matched) experimental criterion, and promise to stay unproven for a while, but it is prudent to consider them. Hence the British statement of "sweating and getting out of breath a little every day" is to be recommended (I personally find both all too easy to do). To support R. B. Firestone's comment, the longest-living cells in culture have indeed frequently been derived from embryonic tissue. Against his comment that "unborn children have longer life expectancies than most physicists" is the statistic that 70% of us die (probably less for women) *in utero* between conception and birth, possibly as a result of an error-correcting process. Finally, do physicists really want to maximize longevity? Consider the fol-

lowing quotation:
*It is not growing like a tree
In bulk, doth make man better be;
Or standing long an oak, three hundred year,
To fall a log at last, dry, bald, and sere:
A lily of a day
Is fairer far in May,
Although it fall and die that night;
It was the plant and flower of light.
In small proportions we just beauties see;
And in short measures life may perfect be.*
—Ben Jonson: To the Immortal Memory of Sir H. Morison

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3/81

Students from abroad

The Guest Comment in August (page 9) made interesting reading, bringing to sharp focus the handicaps experienced by young scientists returning home (if they do). I am happy to know of the efforts of the Committee on International Scientific Affairs set up by POPA and the AAAS to remedy the situation. William McGowan's suggestion to establish meaningful courses at the American universities, which will benefit not only those students coming from the developing countries but also from the different parts of the US, richly deserves immediate action.

Speaking from a personal angle, nearly 25 years ago when my Professor at the Sorbonne (Paris) asked me whether I would move on to the then rapidly developing field of ion emission microscopy or I would stick with the more prosaic area of x-ray diffraction, I did not hesitate to opt for the latter. I have had no regrets since then, for I could easily adapt myself to local conditions regarding availability of equipment, funds and needs. Such a choice as I had is often lacking in the highly sophisticated laboratories of the Western world. McGowan's proposal is bound to benefit the scientific community at large in the long run and also possibly once again establish that "small is beautiful."

At this point, please permit me also to emphasize that science policy of many a developing nation needs reorientation to enable a harmonious synthesis of what is best in the two seemingly different cultures of the East and the West as well as between the cultures of the educated and the rural folk who may be illiterate, but who have rich traditions.

ARUNACHALA VISWANATHAN
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1/81

THE AUTHOR COMMENTS: As reported in the January issue (page 82), the APS-sponsored workshop "The Focus of Physics on Science and Technology for

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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

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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

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3/81

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