

GUEST EDITORIAL

We publish below articles dealing with a proposal for a National Science University. We invite readers to send in their views on this important issue.

—Editor

Indian science

P. Balaram

It has never been easy to practise good science in India and no change appears to be in sight. Four and a half decades after Independence, we are now in the process of reexamining our economic policies and are counting the toll of years of profligate existence, by a succession of governments. With tightening budgets, eroding political support and mounting costs of research, the Indian scientific community is heading towards a state of siege. Indeed, the alarm signals have already sounded in the upper echelons of the country's science managers, who have for years been finely tuned to the varying nuances of political and bureaucratic patronage. For too long, Indian science has basked in the warm glow of Prime Ministerial approbation, most often based on personal equations with individual members of the scientific establishment, rather than on a critical and pragmatic assessment of the achievements and capabilities of our scientists and their institutions. All good things must come to an end so it appears that the honeymoon between the government and the scientific community is over. The immediate future may be characterized by 'benign indifference' (to quote C. N. R. Rao, *Curr. Sci.*, 1992, 505) although there is every possibility that this could degenerate into 'benign neglect' (to borrow a memorable phrase from Daniel Moynihan).

Ironically, even as Indian scientific institutions struggle hard to stay afloat, the most serious consideration is being given to a non-resident Indian proposal for a new National Science University, with a special status and an outright government grant of Rs 200 crores. *Current Science* reproduces in this issue sections of this proposal, a concept paper on the new University and commentaries on this idea. The fact that this extraordinarily naive proposal, completely divorced from ground realities in India has merited favourable attention is a telling commentary on our scientific and political judgement. Nevertheless, the Mahajan proposal is welcome in many ways. It focuses attention on the state of science in our own country. The *raison d'être* for the entry of the NRI white knights is the continuing 'low quality of research' in India.

The balance sheet of organized post-independence science makes mixed reading. The apparently con-

spicuous successes are oft cited – the atomic energy and space programs, the 'green revolution' in agriculture, areas which have been characterized by the adaptation and successful implementation of technologies already tested elsewhere. The failures have been emphasized less, at least publicly. The poor Indian presence in all areas of basic research and the limited, almost negligible impact of our basic science on a world wide level, is a matter of serious concern. Our reluctance to purposefully address pressing problems of biomedical research, which have a bearing on diseases specific to our country and to bring the full power of modern biology to bear on these problems are matters which merit concern. Our inability to clearly identify goals and pursue them single mindedly, and indeed, ruthlessly, has led to the widespread perception that the ship of Indian science is floundering and rudderless. Scientific research and even the teaching of science in our Universities is at a low ebb, for want of both financial and moral support. Indeed, nothing short of a 'Marshall Plan' will resurrect our higher education system from the years of havoc caused by unrestrained political interference. Our string of national laboratories appears to be strapped not only of financial resources but also of original ideas. In most institutions a holding action seems to be in progress to stem the pace of deterioration. Mindless construction of 'infrastructure' (most often, bricks and mortar) has now left us with more science mausoleums, than viable and active institutions. The time has come to put an end to the 'Shah Jehan syndrome' amongst our institution builders. Our collective reluctance to exercise rational judgement has proved as, if not more, costly in science as in other spheres of human activity. All of us would balk at the thought of a passenger being included in the Indian cricket team, although this has been known to happen. But how often has mediocrity been elevated and celebrated in our scientific establishment, a feature also seen in politics. Indian sports comes under public scrutiny at Olympics time. After a little wailing and breast beating we wait for the process to repeat itself on a quadrennial basis. We are more fortunate in science.

The present scenario is depressing not only because of governmental indifference to science, but as a consequence of the scientific community's inability to work collectively and purposefully towards common

P. Balaram is in the Molecular Biophysics Unit, Indian Institute of Science, Bangalore 560 012, India.

goals. The challenges of free markets, the growing cries for accountability and the breathtaking pace of advance in modern science, can hardly be met by trumpeting well-worn and often, bankrupt ideas or by philosophical resignation. It is clear that the basic structure of Indian science, built over several decades by many dedicated individuals must be preserved and protected against ill informed and short sighted attack by politicians and bureaucrats. However, the fat must be trimmed and the scientific enterprise in India must gear itself to meet an increasingly difficult future. While diminishing governmental support and the absence of any enthusiasm for research amongst the captains of industry are grim realities that must be addressed, the impending squeeze might afford a good opportunity for introspection. Has

Indian science lived up to our collective expectations in the last thirty years or so? Is there a sound case for major financial inputs into specific areas of science and do we have a realistic hope of achieving hard results of practical value, in a reasonable time frame? Will present management practices in Indian science prove productive in the future? Has the quality of our basic research shown a dramatic upturn during the boom days of the 1980s? In the weeks and months ahead it is hoped that answers to these questions will be forthcoming from a wide cross-section of the scientific community. An informed debate, ironically catalysed by the National Science University proposal, can prove valuable in setting an agenda for the future. The time is ripe for a close look at the conduct of science in India.

Dr Swadesh M. Mahajan of the University of Texas has submitted to the Government of India a proposal for establishing a National Science University. The salient features of this proposal are provided below. For reasons of space Current Science does not reproduce Mahajan's proposal in its entirety.

—Editor

Proposal for a National Science University

Swadesh M. Mahajan

Assessment

India's contribution to the science and technology of the modern era is disappointingly small; high quality research is almost non-existent, major discoveries and inventions have simply passed us by and even minor achievements have been few and far between. Moreover, the situation is not likely to improve in the near future and, in fact, the overall quality of research has actually been on the decline over the last decade. And this is particularly true of the research done by people who have come of age during this period, those very people who will control and shape the future of Indian science.

While the brain-drain may account for a part of the problem, *the primary reasons for this continuing low quality of research must be sought in the underlying structure and organization of the giant Indian scientific establishment which rules over a large number of universities and national institutes* and in the prevailing notions in India of how institutions should be run. *The scientific establishment is managed by a few extremely powerful*

people who:

- (a) control most of the money,
- (b) are on all important job, promotion, and national committees, and
- (c) decide what are the important scientific areas and directions to explore.

This coterie of science managers must travel ceaselessly to carry out its numerous commitments and, therefore, those who control science have neither the time to visit laboratories nor read scientific papers, not to speak, of course, of doing experiments or themselves writing papers. Yet it is essential for them to give the appearance of being India's leading scientists. They must, thus, go about creating myths to give substance to their pretensions. To do so, they engage in a very egregious form of gimmickry including.

- (a) distributing scientific honors and laurels amongst themselves, and
- (b) giving totally lopsided assessment of our current scientific state with, needless to say, all the exaggerations and untruths, giving a rather favourable impression of that state.

Swadesh M. Mahajan is at the Department of Physics, University of Texas at Austin, USA.