Request for wide circulation

International and national conferences, symposia, seminars, workshops, training programmes, summer and winter schools in different areas of science, arts and technology are being organized by a number of universities and research institutes. Though a conference may be at a national level, the representation is not from all parts of the country. Most of the delegates are from the state in which the host institute is situated or from neighbouring states and only a few participants are from other places further away. This is mainly because of limited coverage of the conference/symposium. Usually circulars would have been sent to nearby research institutions and premier institutes of the country. Some of the circulars would have been sent to persons who have personal communication with the organizers. One of us (AM) had a chance to attend a National Seminar on Bioinformatics at Pondicherry University. Here there were a number of circulars of conferences and workshops related to Bioinformatics, not available in newly-formed institutions or young institutions. Very few announcements are published in high-circulation Indian journals like *Current Science*.

Though arguments may be put forth for and against the outcome of training courses and conferences, they are helpful to budding researchers who make use of the event to develop themselves and learn techniques. This is to request heads of the institutions and convenors of conferences and workshops to publish circulars in *Current Science* or similar journals which publish such information free of cost, affording wide publicity.

Another alternative is through the Department of Science and Technology, Government of India website which is totally free of cost. It is also easy to create a home page in the institution web site for the event. It is possible to update the proceedings of the event at any time and one can access the information from anywhere.

A. MUTHUSAMY†
P. MARIAPPAN*
N. JAYABALAN

Department of Plant Science,
**Department of Animal Science,*
Bharathidasan University,
Tiruchirapalli 620 024, India
†*For correspondence.*
e-mail: cottoncg18@rediffmail.com

IITs – Vision and Reality

Just prior to independence in 1947, the Sarkar Committee recommended the establishment of higher technology Institutes in four geographical zones of India. The objective was to be the education of science-based engineers and technologists of the highest calibre to meet the research and development challenges that India would face after attaining independence. The first such institute was set-up in Kharagpur in West Bengal in 1951. From 1958 to 1962, four similar institutes were established in Bombay (now Mumbai), Madras (now Chennai), Kanpur and Delhi with assistance from the USSR, the Federal Republic of Germany, the USA and the United Kingdom, respectively. Assistance provided by USSR was channeled through United Nations Educational, Scientific, and Cultural Organization (UNESCO). Remarkably, even a war-ravaged Germany willingly provided assistance for the Institute in Chennai. A residential campus, autonomous academic working, an insistence on committed and able faculty, and a properly selected student body from all parts of India were envisaged and ensured in the case of these institutes. A sixth institute came up in the eighties in Guwahati in partial fulfilment of the Assam accord. The University in Roorkee in Uttar Pradesh was reorganized as an IIT in 2002.

The IITs admit students from all parts of India for the B Tech and integrated M Sc programmes on the basis of a competitive Joint Entrance Examination (JEE). Recently, an ex-Director of one of the IITs reported that he was not approached even once for help (!) in securing admission for the ward of an influential person. It is also known that even Directors were not able to secure admission for their own children except on the basis of academic merit as judged through the JEE. It is worth noting that this phenomenal (!) achievement became possible only because of a deep and continuing commitment of all staff members to the maintenance of transparency, confidentiality, integrity and efficiency of the JEE. An indication of efficiency can be obtained from the fact that results of about two hundred thousand candidates from all over India are announced within six weeks of holding the JEE at numerous centres in the country.

Since the early seventies, up to about 22% of the admissions have been reserved for candidates belonging to scheduled castes and tribes (SC and ST). It was decided against considerable opposition that even SC and ST candidates must be selected only on the basis of JEE, although the cut-off marks could be slightly but not arbitrarily lower than those for candidates belonging to the general category. Some of the weakest students admitted with reduced cut-off marks were given remedial instruction for one year so that the quality of the degree programme was not allowed to suffer. In spite of considerable pressure from some influential quarters, the senates of IITs did not allow easier/softer options such as separate degrees for weaker students. This insistence on maintenance of standards became possible because the membership of the senate was available to all professors and was not decided on the basis of elections. It may be sometimes possible to persuade a few elected persons to make compromises with respect to quality. But it is very difficult, if not impossible, to coax the entire body of professors of an elite institution to accept a dilution of academic standards. For this very reason, some later attempts to introduce elections for senate membership on the specious grounds of ensuring compactness were also rejected.

A few years ago, grants to IITs from the Central Government were nearly frozen at the then-prevailing levels. Fortunately, at the same time, bureaucratic difficulties in encouraging, generating and accepting donations for IITs were removed. Thus, it became possible to secure substantial donations from alumni, some of whom have prospered particularly in the fields of finance, information technology (IT) and biotechnology.

The Prime Minister recently stressed the need for doubling the allocation for research and development to 2% of Gross Domestic Product (GDP), for giving adequate recognition to active scientists and technologists, and for motivating them to give their best to their country. Hopefully, these ideas will be implemented soon in spite of claims of financial stringency. In addition, some serious problems on the ground need to be addressed. Important decisions are taken by a small number of influential scientists and/or their protégés who continuously dominate the committees deciding research grants and awards. Reasons for non-approval/rejection of a research proposal are rarely, if at all, given and large projects are not always decided on the basis of transparent and objective criteria.

The IIT brand has by now acquired tremendous 'market' value. Students educated at great expense by the Indian taxpayers settle abroad and contribute only to the 'brain bank', as evocatively described by some influential policy makers. In a sense, the IITs succeeded so well in one of the originally allotted tasks that this very success has perhaps given rise to some major problems, at least in the short term.

Sometimes one hears a criticism to the effect that the IITs have not contributed adequately to research and development efforts judged as outstanding and relevant by national/international standards. Perhaps it is not realized that research funding is not adequate by international norms, generally less than a few thousand dollars on the average per institute faculty member per year. Thus the research students and staff members are not able to show major breakthroughs and lose motivation at least to some extent. There is no strong tradition of support from industry and/or large government-funded laboratories for research work in universities or institutes. Active steps from the Prime Minister will be helpful in correcting some of these deficiencies and the nation will then also be able to demand accountability from the IITs on the research front as well. Of course, adequate funding is only one of the prerequisites for a successful research programme. Imaginative formulation and execution of the research effort by dedicated workers is equally necessary for competitive output. Indeed, we have a long way to go before actual results will be visible even after improvements in the research environment.

PRABHAKAR P. KANE

Indian Institute of Technology,
Mumbai 400 076, India
e-mail: ppkane@phy.iitb.ac.in

Jagadish Chandra Bose: The first modern scientist

In his otherwise engaging review of the book *Jagadish Chandra Bose: The First Modern Scientist* written by Dilip M. Salwi, the reviewer has questioned Salwi's calling J. C. Bose the first modern scientist[1]. He adds 'P. C. Ray and young Ramanujan are other equally familiar names'.

Though Salwi has said nothing[2] about the subtitle of the book, one can assume that he (Salwi) has rightly labelled Jagadish Chandra Bose as the first modern scientist, considering the period of the important research work carried out by these three scientists, keeping aside their dates of birth, period of their foreign recognition, etc.

Though Jagadish Chandra Bose (born in 1858) was elder to both P. C. Ray (born in 1861) and S. Ramanujan (born in 1887) age alone should not be considered while labelling someone first in any field.

As far as foreign recognitions are considered P. C. Ray was not elected as Fellow of the Royal Society. He had gone abroad in the pursuit of higher study in the year 1882 and returned in 1888, while J. C. Bose journeyed for the same purpose in 1879 and returned in 1885. The major contribution of P. C. Ray[3] to chemistry is the discovery of mercurous nitrite in 1896, while J. C. Bose demonstrated his world-famous experiment on wireless communication (which was also the first in the world) in 1895.

Although S. Ramanujan was elected Fellow of the Royal Society, London, earlier to J. C. Bose, it must be remembered that S. Ramanujan was not even born when J. C. Bose was appointed as a professor in 1885. J. C. Bose demonstrated his experiment in 1895 when S. Ramanujan was a mere 7–8 year-old.

The first Indian FRS was Ardaseer Cursetjee[4] (elected in 1841). So the honour of being the first modern scientist should perhaps go to Cursetjee. But he was a shipbuilder and an engineer. Why, then, should we deny the honour to J. C. Bose?

1. Bhattacharjee, S. K., *Curr. Sci.*, 2002, **82**, 1492–1493.
2. Salwi, Dilip M., *Jagadish Chandra Bose: The First Modern Scientist*, Rupa and Co, New Delhi, 2002.
3. Ray, P. C., *Life and Experiences of a Bengali Chemist*, Chakrawarti and Chatterjee and Co, Calcutta, 1932.
4. Kochhar, R., *Curr. Sci.*, 2001, **80**, 721–722.

SHAHAJI B. MORE

Department of Chemistry,
S.S.G.M. College,
Kopargaon 423 601, India