

Scientific misconduct – Role of Academies

'You know the worst thing one could do to science? Use it for self promotion . . . It is sad that people think I cannot see what is happening'

– S. Chandrasekhar
(C. V. Vishveshwara, *Curr. Sci.*,
2000, 78, 1025–1031)

In the practice of their profession, scientists in our country broadly agree that as a body they have not been necessarily honest, when nobody is looking at them. But they are not willing to face the issue squarely and do something about it. It should not perhaps come as a surprise that the head of a scientific institution stated to the new entrants that it would be necessary for the seniors to add their names as co-authors of the papers by their juniors to make journal publications possible. This is as much a comment on the referee system of our journals, as it is on the ethical standards of our scientific community. If the paper is good, the seniors could communicate it to the journals for publication (e.g. Royal Society practice) without taking unfair credit for the contents. Scientists who indulge in unethical practices may lose but science will flourish when ethical practices become a way of life to them.

Scientists think it is a hallmark of achievement if they are elected as fellows of our Academies. But this honour imposes some responsibilities also. If they do not face this issue, our Academies will not command much respect. They will be treated as self-serving bodies and not trustees for public good. The founder of the Indian Academy of Sciences included in its objectives, that one of the purposes of the Academy is, 'to promote the progress and uphold the cause of science both

in pure and applied branches'. It is all encompassing and without qualifications. It is hardly likely that the other Academies in the country would disagree with this objective.

To uphold the cause of science (and in a sense be the keepers of the conscience of the scientific community), necessarily implies that the code of ethics that guides the pursuit of science in all its aspects, should be of serious concern to the fellows of the Academies. Their Councils should be even more concerned about the unhealthy practices that adversely affect the cause of science.

Regrettably, no institution, research or academic, and no Academy, has so far taken a formal stand on what should constitute such a code and what they should do if it is violated. It is time that these bodies face the issue squarely if our scientific community is to be respected, and our work is to be taken seriously. If not, even the good work from the Indian scientific community would tend to be ignored, with even the good scientists getting tarred by the same brush.

Examples of unethical practices are too many to be enumerated here. One instance may be noted for illustrative purposes. Twenty-five years ago, this writer was the convenor of the committee for engineering sciences to screen nominations for election of fellows to the Indian Academy of Sciences. The nomination of a particular scientist highlighted the dilemma. In his own right this scientist had many excellent publications to his credit and deserved to be elected. He did not need to take credit for others' work. However, it was also known that no paper went out from his institution without his name being included as a co-

author. It would be a serious mistake to assume that it is an isolated instance. The Council decided that it was difficult to establish such facts at its level and that if the scientist did good work, he should be elected as a fellow of the Academy. This writer confirmed it and the Council elected him as a fellow. The Council was not willing to face the question: 'Does promoting the cause of science include assurance that the scientists who are elected as fellows have not violated the ethics of their profession?'

The Council has not been in a position to take a stand at its level, as it has not defined what constitutes a code of ethics for science which the fellows are obliged to observe. It is time for the Academies to define a code which the fellows would be obliged to follow and require that the fellows who propose and second the nominations certify that the nominated scientists have not violated such a code. The nomination forms will have to state what this code is. If they certify falsely, a transparent censure, if not a more serious action by the Council may be called for as a self-regulating deterrent. It is really at the nomination level, the screening has to assure compliance with the code. It is time that the Academies formally take a stand on what constitutes a code of ethics, if the Indian scientific community is to be respected and its research taken seriously here and elsewhere in the world.

S. R. VALLURI

659, 'Prashanti',
100 Feet Road,
Indiranagar,
Bangalore 560 038, India
(e-mail: valluri@css.cmmacs.ernet.in)

The 'golden era' of Indian science was due to acceptance of relevant western values, not despite it

It is frequently suggested that the job situation in India must improve for younger talents to be drawn to a career in science¹, ignoring the obvious catch that unless there are scientists who inspire

students as role models, they are unlikely to be attracted to it. Indeed post-independence growth of establishments and universities gave enough 'jobs' to produce dozens of such role models if

one went simply by the rule of three. It is unlikely that increasing the number of jobs indiscriminately will automatically ensure the quality of science that will attract bright students, not unless we

succeed in improving the quality in existing institutions and universities.

It is also incorrect to infer that the global trend is responsible for the present disenchantment with science¹, since our 'golden era' ended long before independence, and in spite of increased opportunities following implementation of the Science Policy Resolution when others continued to excel. The two facts I mention below would perhaps help explain how the decline may have come about and dispel the misconception regarding the role of western culture in Indian science.

Firstly, most of the eminent scientists were taught by European teachers or found their mentors in them. Thus the shine was certainly aided by the western intellectual tradition in the profession which disappeared before we could internalize those values presumably due to heightened reassertion of our cultural unity and heritage to consolidate mass support for political independence. Our oft glorified *chalta hai* culture successfully swept away the scientific ideals from our minds as evident from Haldane's alarm² within two decades of our independence.

Secondly, Indian educationists then, to whom we attribute foresight today, thought it necessary to promote the cause of science and liberal education in the western pattern. They did not hesitate extolling the western tradition in the same vein as the west's appreciation of Greek tradition for the emergence of modern science. For instance, Asutosh Mookerjee believed in imbibing the western scholastic traditions

without aping them, and brought to lime-light personalities like Raman, Radhakrishnan and Ganesh Prasad amongst several others of international eminence. In his address at Mysore, that *visualized India's role in eventual globalization*, he said³:

'We cannot sit on the lonely snow-capped peaks on the Himalayas absorbed in contemplation of our glorious past . . . We cannot waste precious time and strength in defence of theories and systems which, however valuable in their own days, have been swept away by the irresistible avalanche of worldwide changes . . . we can live neither in nor by our defeated past and if we would live in the conquering future, we must dedicate our whole strength to shape its course . . . let us raise an emphatic protest against all suicidal policy of isolation and stagnation' (emphasis added).

Similarly, the great educationist Gopal Krishna Gokhale, a friend of Asutosh Mookerjee was of the view⁴:

'I think and this is a matter of deepest conviction with me that in the present circumstances of India all western education is valuable and useful. Even if it is not the highest it is not on that account to be rejected . . . in my mind greatest work of western education in the present day is not so much that encouragement of learning as *the liberation of the Indian mind from the thralldom of old world ideas and the assimilation of what is best in the life and thought and character of the west. For this purpose not only the highest but all western education is useful*' (emphasis added).

Therefore, the claim of Virk¹ seems to be at variance with what is clearly on record. It is true that the exposition of Hindu religion and its philosophies by the likes of Swami Vivekananda and Radhakrishnan did bring about a profound change in the perception of oriental culture in the western world, but there is no reason to believe that it influenced the essential tenets of the modern scientific inquiry in any significant manner though, perhaps indirectly it boosted the morale and developed a faith in our abilities in general.

In my view, Ramamurthy's observations and suggestions are more appropriate⁵: '*We need to do science that will create more and better jobs*' (emphasis added). And not the other way round!

1. Virk, H. S., *Curr. Sci.*, 2000, 78, 659.
2. Haldane, J. B. S., Reproduced in *Curr. Sci.*, 1999, 77, 305-307.
3. Quoted in Sinha, N. K., *Asutosh Mookerjee: A Biographical Study*, Asutosh Mookerjee Centenary Committee, 1966, p. 146.
4. *ibid*, pp. 112-113.
5. Ramamurthy, V., *Curr. Sci.*, 1999, 77, 1568.

S. K. BHATTACHARJEE

*Molecular Biology and Agriculture Division,
Bhabha Atomic Research Centre,
Mumbai 400 085, India
(e-mail: swapankb@magnum.barc.ernet.in)*

A bibliometric analysis of scientific research in India

A number of bibliometric analyses¹⁻⁶ have been carried out during the last two decades to evaluate the research productivity of Indian scientists. Most authors have used the CD-ROM version of the Science Citation Index (SCI) to map scientific research in India.

Rashmi Mehrotra and F. W. Lancaster of the University of Illinois, USA, published their findings in *Current Science*¹ during 1984. Their database comprised 38,000 research publications produced in India during 1979 to June 1981 and indexed in SCI. Among the top 25 insti-

tutions of higher education and research in India, Indian Institute of Science (IISc), Bangalore occupied the top position followed by Banaras Hindu University (BHU), Varanasi; Delhi University, Delhi; Madras University, Chennai and Calcutta University, Calcutta. Surprisingly, four universities/institutes from Punjab, viz. Punjab Agricultural University (PAU), Ludhiana; Punjab University, Chandigarh; PGIMER, Chandigarh and Guru Nanak Dev University, Amritsar were also included in the top 25 institutions of India. Similarly, Uttar Pradesh

(UP) was represented by Aligarh Muslim University, Allahabad University, Roorkee University, Lucknow University, Meerut University and Agra University among the top 25. It was quite revealing that *Current Science* turned out to be the most productive Indian science journal out of a list of 35 journals published in India which were used in the SCI database. Indian scientists published 50% of their papers in Indian journals and 50% in foreign journals with higher impact factors. The percentage of research publications by the university scientists was