

## Indian Academy at crossroads

Sixty years is as good a time as any to look back and to reflect on where one is, where one wants to be and how one can get there. That is precisely what the past presidents of the Indian Academy of Sciences were asked to do at the Diamond Jubilee meeting of the Academy held at the JN Tata auditorium in Bangalore in the first week of December.

The Academy, as everyone knows, is a creation of C. V. Raman. As long as he lived 'he was the centrepiece of everything'; he was president for life; he virtually decided who would be elected; and he ran the *Proceedings* virtually all by himself, so much so when he passed away the Academy was really at a loss to find someone among the Fellows who could take over as Editor of the *Proceedings*. M. G. K. Menon, the third President of the Academy, did not mince words when he said that in the first (or the Raman) phase of the Academy both the structure and function of the Academy were totally determined by one man. Of course, the founder had a stature unparalleled in the history of modern Indian science, but for Ramanujan. Year after year he attracted packed houses at the annual meetings irrespective of where the meeting was held. He inspired many young people. Asked Menon, rightly, how many of us could do it now. He was clear that none of the present Fellows could do what Raman did. Indeed, at the Diamond Jubilee meeting only two people spoke to a full house, Abdul Kalam and General Sundarji. Is there a message in only soldiers and defence scientists being so popular in a meeting whose ostensible purpose was to showcase the best of India's scientific research?

Reminiscing the second phase – from immediately after the death of the founder up till now – Menon said that the first concern was how to ensure that the Academy created by Raman would survive and grow. He was candid enough to admit that the inheritors of the Academy found it was not truly an all-India body and it was not representative of all disciplines. He narrated how the Academy took expeditious steps to rectify the situation; indeed the Academy changed the statutory restrictions on the number of

Fellows that could be elected in a year and increased it to one hundred for the two years 1974 and 1975. Thus a large number of scientists who deserved to be in were elected. Among them was C. R. Rao, the eminent statistician, who had been elected to the Royal Society several years earlier!

Menon then went on to present what he would like the Academy to be in the years to come. It is clear that science is no longer of the 'sealing wax and strings' kind and now it is a huge organized effort. Science today is far different from what it was in 1934 when the Academy was founded or in 1970, the year Raman died. To be sure, the philosophy of science and the scientific method have not changed, nor for that matter the need for quantification, experimentation, and the need for theory and experiment to go hand in hand. What have changed are the scale at which we do things today and the speed at which things are happening. Science today is almost an industry; it needs a whole new kind of leadership; there is so much of interconnectivity; many new fields are opening up; fields like energy and environment involve science, technology and social sciences in a symbiotic relationship. We need huge inputs as never before. 'We need to create a viable scientific community'. Menon said, 'unfortunately it does not exist now in India'. He would like the Academy to go beyond the scientific community and reach out to the people at large. It is no longer enough for the Academy to be talking to itself. Institutions elsewhere such as the Royal Society in the UK and National Academy of Sciences in the USA have woken up to this reality long ago. The Royal Society has a Committee on Public Understanding of Science and holds Discussion Meetings at regular intervals. The NAS publishes many documents of high quality covering a whole range of concerns to science and society. Menon also touched upon the need to better integrate the functions of the three Academies, the Indian Academy of Sciences (Bangalore), the Indian National Science Academy (New Delhi) and the National Academy of Sciences of India (Allahabad). Before closing, he did emphasize the need to attract young people with the proper

attitude to science, especially at a time when science in India is being relegated to the backburner.

This theme of science no longer receiving the kind of attention and patronage as it did till recently, came up again in the presentations of S. Varadarajan and C. N. R. Rao. 'While science is becoming far more important than ever before the scientist in India is losing his importance', said Varadarajan. He would like the Academy to analyse 'this dichotomy' and find ways to restore the importance of scientists and technologists. Rao was agitated that science in India was threatened and he would like the Academy to play the role of a protector. He was sad that India's investment in science had come down from more than 1% of GDP a few years ago to 0.83% last year, compared to 2.5–3.0% in the advanced countries. He was clearly perturbed by the uncertain future for science in India and the excessive dependence of science on the government. However, he said that the government should continue to provide most of the funds for science till alternative sources came to be established. In fact, he would like scientists to challenge the government and make it raise levels of funding for science. However, Varadarajan would like the Academy to raise funds but at the same time retaining its independence. A sensible suggestion I thought.

Notwithstanding such pious hopes of retaining independence, the Academy went on to elect the Secretary to the Government of India in the Department of Science and Technology as its new President. And some of the past Presidents had also held secretary-level positions in the government while they were Presidents. Indeed, one of the glaring features of the scientific establishment in India is the inability (or is it unwillingness?) to distinguish between status and the purely scientific stature of scientists. A number of middle-level scientists are tempted to opt for administrative and bureaucratic positions as they see they are far more rewarding than a mere research or laboratory job.

Our young scientists, Rao said, were uncertain not knowing where to go and what to do. In his perception, science



was no longer seen as a prestigious profession in India. Varadarajan pleaded for improving the quality of Academy's publications. He said they should be sought after and quoted by scientists everywhere. He felt that our methods of reaching a worldwide audience were poor. Varadarajan suggested that the Academy do away with the sectional committees as science had become borderless. Rao would not mind too if the sectional committees were abolished.

Rao admitted that it was becoming increasingly difficult for Indian scientists to do good experimental work and publish in excellent journals. Visibility of Indian science, he said, was at a very low ebb—just like Indian sports. Both of them felt that healthy media could be an ally of science in India. Compared to the other two Academies, the Indian Academy is young—in terms of the average age of the Fellows. Rao would like it to remain that way. As Ramaseshan pointed out, to recognize potential winners, well before they actually produce their best work, should be the hallmark of an academy. Indeed that was what Raman did all the time at a success rate of greater than 95%, he said. Ramaseshan's priority would be 'to think and rethink our journals' and make them reach all universities and students so that Indian boys and girls would be excited to do science at international levels of excellence. That, he felt, was more important than even making our journals 'international'. He was sorry that unlike Raman, Indian scientists of this generation, were lazy when it came to writing down what they did. Was it not our duty to propagate knowledge, he asked.

Satish Dhawan was distinctly dissatisfied with the Indian scientific community. He asked what had the community done in matters of grave

concern to the nation. Don't we have a view on issues affecting the Indian people? Science in India could thrive only if India prospered, he thundered. What have we done about our rag-picking children? Have we expressed our view on the Mandal Commission Report? Or, do we have a view at all? In his view, since Independence science has been getting tremendous support, perhaps even illegitimate support that was not earned. Inaction is our worst enemy, he said. His priorities are to take a long term view of history, to act and do things in a way that would make us be proud and live a civilized life in a free India.

T. S. Sadasivan, the octagenarian botanist, was concerned about the decline in standards of education, the mushrooming of correspondence courses and the poor quality of teachers. He suggested that the Academy should bring out books like the Nuffield Foundation books and the Colorado series. Unless basic science teaching at the school level is strong, one cannot expect the superstructure to be strong. He suggested that the Academy should bring out a set of books on the history of twentieth century science, which could serve as a springboard on which school science education in this country could rest. He would be happy to know that C. N. R. Rao has assembled a team of chemists to write a book—not a textbook—calculated to excite the imagination of our school children.

Obaid Siddiqi, who spoke the least, drew attention to the fact that the same problems keep cropping up again and again. I thought he meant that the Academy should go beyond mere discussion and act. Action needs committed people. That was what Roddam Narasimha, the outgoing President, asked for when he suggested that Fellows should volunteer to work for the goals of the Academy collecti-

vely and individually. The strength of the Academy is after all dependent on the commitment of the Fellows and the resources available—probably more on the commitment than on the resources, I think.

One of the tasks the Academy had initiated in its Diamond Jubilee year was to look at the quality of education and examine ways to improve it. A panel with N. Mukunda of the Indian Institute of Science as chairman had prepared a position paper and the paper was circulated to the Fellowship. While one is happy to know that the Academy is taking serious interest in issues such as the quality of education, one also wonders what action it is taking in areas of its core interest such as improving the quality of research, improving the quality of peer review and publications, and attracting more scientists, young and not so young, to its own meetings. When the President, Narasimha, called out names of the Fellows for their customary introduction to the audience many Fellows from Bangalore had not turned up, and my neighbour, a newly elected Fellow, I guess, was more than surprised. For that matter when some newly elected Fellows and Young Associates presented some good work in biology and organic chemistry at the Faculty Hall of the Indian Institute of Science, the speakers would have liked to see a few more senior biologists and chemists in the audience.

A senior scientist, who is a Fellow of all the three Academies, told me that India would be much better off if each one (individual and organization alike) did his (its) job well. I thought he was a bit harsh, but on reflection I think that he had a point after all.

---

**Subbiah Arunachalam**, Central Electrochemical Research Institute, Karaikudi

## Career of women scientists

A panel discussion on 'Identifying Obstacles to Successful Careers for Women Scientists' took place at the 16th International Congress of Biochemistry and Molecular Biology, held in New Delhi, India, Sept. 19–22, 1994. It was sponsored by the American

Society for Biochemistry and Molecular Biology (ASBMB) and the Committee on Equal Opportunities for Women (CEOW). This was the third successive panel discussion in the International Congresses of the Union of Biochemistry, focusing on specific issues

encountered by women. The panelists included Drs Donna J. Arndt-Jovin, Max-Planck Institut, Gottingen, Germany, Angela M. Gronenborn, National Institutes of Health, Bethesda, USA, Manju Sharma, Department of Biotechnology, New Delhi, India,