Jayant V Narlikar

POPULARIZING SCIENCE: MAKING A MESS OF THE MESSAGE

I RECALL, years ago, meeting an educated non-scientist friend returning from a public lecture by C V Raman on why the sky is blue. I could sense my friend's excitement at the revelation of the mystery behind something that we observe every day. There were two aspects to this excitement — first, that one can find a rational explanation for a natural phenomenon in terms of the known laws of science. The second, and in my friend's case the more important aspect, was that he, a non-scientist, could understand the explanation — that a Nobel Laureate came down to his level of communication.

For science to prosper in this country the first factor, excitement, has to be conveyed to talented youngsters in schools so that at least some of them are motivated to pursue a scientific career. A few years ago there used to be a National Science Talent Search scheme which used to award scholarships to talented science-oriented youngsters. More recently this was changed to the National Talent Search Scheme, with the word "science" dropped. This, in itself, is not a bad thing because the country needs talent in humanities as well as in science.

But how good we Indians are at generating anomalies in good-intentioned schemes! Coaching classes have sprung up all over, training would-be aspirants in how to answer NTS test papers. How talent can be generated by coaching, I don't know. What's worse, these classes discourage students from offering mathematics or physics where on-the-spot thinking and originality are required, and where the scoring rate is low. Instead they are encouraged to go for geography, biology or civics where memorizing data can lead to high scores. The result is a shift from real talent to rote-learning. Such a scheme is hardly likely to encourage the talents of a Raman or a Tagore.

Wouldn't it be more logical to have a test scheme that encourages original thinking and innovativeness so necessary for science? Can't we demonstrate to the young that the joy of doing science lies in probing nature through thoughts and experiments? As it is, we only suppress whatever motivation they have for science under masses of unnecessary detail and rote-learning.

At the other end of school science the situation is equally dismal. The other day my five-year-old daughter made the comment that she doesn't like science. Surprised and shocked at so definitive a statement at such an early age I asked her the reason. She brought out her class work book, pointing to the words she had to correctly spell. These include necessary, measuring, breathing, resistance, everywhere, muscles, recreation, vegetables, repaired and buffalo. Whatever curiosity a child of her age may possess is sure to be killed by a system of teaching that empha-

D T Padekar

D I Padekar

sizes memorizing difficult words rather than explaining facts about nature.

That's the experience of a child who goes to the first standard in our cherished Kendriya Vidyalaya system. Will the ivory towers in Shastri Bhawan and Aurobindo Marg take note?

The real thrill of doing science lies in discovering the hidden order and harmony that lies beneath masses of detail. It lies in turning those discoveries towards the betterment of human existence. Do we want to frighten the young away from mathematics — the subject that helps the scientist discover that hidden order and harmony, the subject so essential to turning pure knowledge into useful technologies?

The joy of doing science can to some extent be shared also by the common man. More importantly, a society enlightened about science can influence decision making on how scientific knowledge is being used. As we all know, the misuse of science can generate problems of its own.

Of course, it is because of the benefits of science that the human death rate has come down and the human lifespan has lengthened. As a result there is a tendency for populations to grow unless control is exercised on the human birth rate. Since a country's resources are shared by its inhabitants, the standard of living of a typical citizen cannot rise unless the size of the population is kept under control. Some countries achieve this by compulsory legislation, others do it by voluntary methods offering incentives and relying on enlightened family planning by its citizens. In our country the need for population control is severe, but the milder second approach is followed. Although incentives and medical advances help, in the final analysis enlightened self-interest is what matters. It is therefore necessary to educate the masses on this issue.

The popularization and dissemination of science are therefore all the more important in our country. The print media, radio, TV, lectures, lecture demonstrations, science exhibitions, fairs, jatras and jathas are the means available and in use today. Several individuals and voluntary organizations are playing laudable roles in these fields. Of late the Government of India has set up the National Council for Science and Technology Communication (NCSTC) to co-ordinate and fund many such activities.

However, a word of caution. With the best of intentions an infrastructure may be set up by the government in order to further a certain desirable activity. In practice, although a lot appears to be done, much less is actually achieved. Let me cite my own experience. In 1982 I was asked to write a simple book on astronomy for children for the Nehru Bal Pustakalaya of the National Book Trust of India. I wrote a book which was duly published and I am happy with the quality of production. But it's hard to get hold of this book in any bookshop. It hasn't been advertised properly nor has it been reviewed. As a result the potential readers do not know of its existence. What's the point of working hard on producing a book if it doesn't reach those for whom it is intended? I had a similar frustrating experience with a popular book on astronomy which I wrote in Marathi for the Maharashtra State Board of Literature. The annual reports of such organizations show that so many books were published, but has the main purpose of bringing them out been served?

Yet, it is heartening to see that the National Council for Science and Technology Communication has already established a good rapport with individuals and voluntary organizations dedicated to science popularization and the spread of scientific temper. Organizations like Eklavya in Madhya Pradesh and the Kerala Sastra Sahitya Parishad are playing a much needed role in these fields and their scope and numbers need to be increased. So I hope that guidance, encouragement and if necessary funds provided by NCSTC will go a long way in future years.

Science by its very nature has a built-in objectivity and universality that make it transcend caste, creed or social inequalities. Its dissemination is not only beneficial but essential for preserving the unity and increasing the prosperity of our country. Let's hope that through science an increased awakening of man's responsibility to life and nature will develop into a new sensitiveness for fruitful living — something that's worth dreaming about, now that the twenty-first century's so near.

JAYANT V NARLIKAR

Dr Narlikar, senior professor with the Theoretical Astrophysics Group at the Tata Institute of Fundamental Research Bombay, is a member of the Science Advisory Council, Government of India.

He is also well known as a writer of science fiction in Marathi.