Popularising Science
A Weapon Against Superstition

By JAYANT V NARLIKAR

DR Jiri Grygar, this year's Kalinga awardee for science popularisation, commented in a recent interview that the end of totalitarianism in his country, the Czech Republic, had brought to the surface not just free thinking and freedom of expression but pseudo-science and irrationality as well. Thus science popularisers like him have to face new challenges that were earlier not there.

That even the technologically advanced countries have their quota of irrational thinking is not surprising. The news that Mrs Nancy Reagan used to consult an astrologer made headlines and brought considerable embarrassment to those who thought that superstitions are the legacy of developing countries alone.

Difficult Challenge

While one should condemn irrationality per se, the difference between a developed and a developing nation is that the former can afford it, the latter cannot. Just as a rich man can afford to have expensive vices but a poor man cannot. So, a major challenge facing science popularisers in this country is to help eradicate irrationality, which is, however, difficult for the following reasons.

First, the respectability accorded to irrationality. Unlike in the West, where those believing in astrology do so quietly, and often in a lighthearted fashion, here, even the highest in the land publicly subscribe to it. Whether it helps to consult an astrologer on the best time for moving into or out of an official residence, is at best debatable. However, it sets a pattern for the common man to emulate.

Whether God exists or not is a debating issue for the philosophers and thinkers far more mature than I am. But to me if God exists, he is surely not like the corrupt official who will do your bidding for a high enough bribe. Yet people approach God with a variety of offers to make Him do things for them that they have not worked hard enough to deserve. Otherwise, why does a long line of students form before Siddhi Vinayaka before the exams? Why should God arrange to give more marks to a student who has not studied than to one who has, just because the former has made an offering?

Yet the social environment is such that even the well- educated will readily believe in Ganesha drinking milk and will be hostile towards the sceptics trying to give a rational explanation. The same applies to ash appearing from nowhere, people eating fire, and to other miracles.

Where does science come into it? Not directly. But over the years, science has evolved a self-correcting method which provides a way of handling such matters. In science, no theory is ever proven: a theory is always on probation. It survives if it meets all the observational and experimental checks. If it succeeds on nine occasions but fails on the tenth, it must still go. It is through such a firm discipline that science advances. And the mental attitude that subscribes to this feeling is the scientific temper which itself goes well beyond the confines of science.

In the *Bhagvadgita*, towards the end, Lord Krishna tells Arjuna: "Think over it all and only then do what you think is right." This should be the attitude of the science popularisers dealing with superstitions. He may present the arguments, the evidence and even perform experimental demonstrations to show why astrology is not a science, why miracles are either created by sleight of hand or draw upon some known scientific phenomenon, why following the superstitious path is wasteful of time and resources and not guaranteed to deliver the goods, and so on.

But he must stop there. The ultimate judgment has to be exercised by the person whom he is addressing. Simply telling the person to desist from superstitions is as bad as encouraging him to go on his superstitious ways. As Dr Grygar pointed out, suppression of superstitions does not eliminate them. Yet some of the enthusiastic workers promoting rationalism commit this mistake: by being aggressive they activate a defence mechanism which makes the listener more stubborn in his or her superstitions.

Another Side

The 20th century has accelerated what the industrial revolution in Europe had initiated, viz., the growing dependence of society on science and technology. While the urban middle classes bask in the conveniences provided by S&T, and the rural farmers benefit by improvement in agriculture, all this is taken in its stride by society at large. There is another side to the coin too: The cost to the environment, the danger to our very existence by the sophisticated weaponry, the psychological problems that arise as machines take over from the humans and so on. The science popularisers have to bring these issues to the forefront.

As usual, there is the financial aspect too. Scientific research is increasingly becoming a big-money proposition. And the funds inevitably come from society's coffers. It is the duty of the scientists, therefore, to report to society how they are using these funds, what new results have come out, what their implications are. All too often the scientists adopt a holier- than-thou, or rather, wiser-than-thou attitude saying that the man on the street will not understand what they are doing.

Several Reasons

There may be several reasons why most scientists in India stay away from science popularisation. Apart from a lack of confidence in their ability to talk down, some consider it a waste of their valuable research time, while some think that others, not they should be doing this job. The list of Kalinga award winners includes scientific luminaries like Bertrand Russell, Margaret Mead, Julian Huxley, David Attenborough and Fred Hoyle who did not consider it below their dignity, or a waste of time, to describe science to the layperson.

All said and done, the effect of any science popularisation exercise will be magnified by suitable help from the media, print, visual, as well as electronic. There is considerable scope for this, which unfortunately remains untapped. There are moments of frustration too, like when Doordarshan aired my *Brahmand* serial on Monday afternoons at 4 p.m. I have yet to find the class of audience who can watch television at this hour. Why produce a programme if you broadcast it when no one has time to watch?

On a larger scale, a similar frustration exists concerning the National Science Day, February 28. On this day in 1928, the discovery that became famous as the *Raman Effect* was announced. A number of very interesting scientific programmes take place on this day and it was expected that their media coverage will go a long way towards identifying science with society. But there was hardly any coverage the following day. The reason? You guessed it, February 28 also happens to be day when the national budget is presented to Parliament. Can the finance minister be persuaded to postpone this by one day?

