The Right Equations

Desperately Seeking Science

By J V NARLIKAR

WHICH was the first one-way street in the world? The Sunset Boulevard in Hollywood? Rue Lafayette in Paris? Praia de Copacabana in Rio? Or Albemarle Street in London? A question, perhaps too tough for *KBC*. The correct answer is the last in this list.

Albemarle Street, an otherwise nondescript thoroughfare, has a distinguished institution located on it, the Royal Institution of Great Britain. The institution acquired fame in the 19th century with the lecture demonstrations by Michael Faraday. The distinguished scientist made seminal contributions to the science of electricity and it is to his work on the dynamo that we owe our power supply. Faraday was fond of sharing his knowledge and excitement of science with the common citizen. His lectures to children, some of which have been transcribed, show his incredible knack for communication.

Well, to come back to our question: the response to the Faraday lectures was so tremendous that Albemarle Street got jammed with hansom cabs. And ultimately the only solution was to make it a one-way thoroughfare.

Faraday was correct in seeing science as a force whose time had come, or was soon going to come. Victorian England was hardly a place brimming with high technology. But science in Faraday's time was a sapling from which we see the mammoth tree spreading its banyan-like roots and shoots all across society today. It is no longer possible to remain immune from its influence. Try eliminating from your life all the inventions that came during the 20th century and see how far can you survive.

In India, unlike in a fully developed country, we see a broad spectrum of levels of technological development. Apart from the cliche of bullock carts co-existing with the jet plane, there is the more serious juxtaposition of age-old superstitions side by side with high-tech existence, often found in the same person. A businessman equipped with a mobile and laptop, will willingly break and rebuild his house on unproven advice that unless he does so he is in for a series of losses. This type of mindset makes it even more imperative that our population is made science-friendly and appreciative of the scientific temper. And scientists, who subsist on public money need to and can contribute to this goal.

Against this background, one may wonder as to what extent Faraday-type lectures and lecture demonstrations on science would be received in the India of the 21st century. My own experience tells me that there is considerable scope for this experiment, if only my scientist colleagues take it seriously.

To begin with one has to convince oneself that 'I can do it', and that 'it is worth doing it'. Many scientists stumble at these two barriers. They are either unsure that they can bring down their subject to the level of the layperson, or think that it is a waste of their precious time. With time management, however, it is possible to spare some time for this activity, and with practice, one may even be able to reach out to the lay audiences and enthuse them about one's particular aspect of science. However, one has to be convinced that it is indeed a worthwhile activity. The trouble is that many super-Faradays think otherwise.

IN BRIEF

- It is no longer possible to remain immune from the influence of science
- Scientists must spare the time to communicate to laypersons
- Too much time is wasted on rituals at science lectures in India
- The public is very keen to know more about science

The next barrier comes at the audience level. Educated adults rather than kids have a mindset that a lecture on science will go above their heads. Which is why, when they listen to a successful lecture, their first reaction is one of disbelief that they actually understood what the speaker said. And one way of knowing that the lecture has been successful is that at the end the kids have a lot of questions. On the other hand, it is very easy to lose the adults as well as the kids by being excessively pedantic with a lot of technical jargon.

Having done this job several times, I can add to this list of problems. It is one thing to lecture in the auditorium of a well-run scientific institution, and quite another to lecture before a country audience in a small district place. Power supply cannot be guaranteed; but then I recall lecturing to engineers and their families at the Tarapur Atomic Power Station and there too power went off as I began to show slides.

Even if the power remains miraculously intact, you have to be prepared for a makeshift screen set up so as to be invisible to half the audience, for your slides being messed up in order, or worse still getting chewed up in a primitive projector, or the mike going berserk with ear-shattering whistles, for long delays to accommodate a local dignitary, etc. Then you have to be prepared for time consuming rituals of garlanding or giving souvenirs, repetitive speeches of welcome, never ending votes of thanks, and the person presiding 'summarising' your speech out of all recognition. These are cultural aspects of our public functions that have become deeply entrenched.

On such occasions, trapped on the dais, I wistfully recall the Friday evening discourse I once gave at Faraday's Royal Institution, back in 1971. That venerable institution follows a long established tradition for these lectures held at nine in the evening. The speaker is conducted formally into the auditorium and to the rostrum sharp at the stroke of nine, by the director. Without any preamble or introduction by anybody, the speaker starts his talk which he must end at the stroke of ten and leave the auditorium, again without any vote of thanks. Any interaction of the speaker with the audience is left for the reception that follows outside. Indeed, I feel that we scientists should follow this pattern at least in spirit to set a new trend in our public lectures by insisting that rituals like introduction and vote of thanks are cut down to a total of three minutes before the main lecture.

Having said all this, let me end by stating that the compensation for all these trials and tribulations is the enthusiastic response that I invariably receive from the audiences. This proves that there is a considerable thirst for getting to know science, amongst the populace, a thirst that needs to be quenched by more scientists reaching out to the public to share their research excitement and also to convey the importance of scientific outlook in the 21st century.