

recruit 200 young fellows and take them through a training school course. If I get at least 10% of them doing outstanding work, I am gratified'. Therefore, there was investment in manpower, and the result is that after 50 years, we don't have to look for experts from abroad. We don't even require training from abroad.

Take Space. They are now opening up a university system in Thiruvananthapuram, so that they can induct more people into this new technology of making and launching satellites. This is organic growth. But this did not happen, for example, in the aircraft industry. The National Aerospace Laboratory in Bangalore started in 1950s. In 1960s S. R. Valluri, the Director, told me: 'I don't have the mandate to go to industry'. To make an aircraft industry, you have to consider all aspects from materials to technology and testing. But there is no organized effort.

What you write in *Current Science* should reflect on the progress and some lessons for the reader. Reporting on science is that you go deeper, asking searching questions, asking how great scientists became so famous and whether that experience can be reflected in the new generation of people? There are many subjects in which you don't do

research. Can you go and talk to the expert and say: 'This subject has been neglected'? Nobody wants to take up an M Sc in mathematics because there are only teaching jobs. But mathematics is a precise way of expressing science and natural laws. It makes our observations of nature accurate and truthful. Statistical analysis of data is used by many related fields.

Your experiences ...

I was lucky enough to have joined the Department of Atomic Energy at a time when it was a baby, in 1952. Because of that and because of my association with some of the best known scientists like Homi Bhabha, Vikram Sarabhai, Raja Ramanna, and even those in other areas like M. S. Swaminathan, I was able to catch on to what is necessary to do science. The desire to make the students prosper, through which teachers themselves prosper – that philosophy is no longer there.

I worked with a man (in 1957) who eventually got the Nobel Prize – Bertram N. Brockhouse. I could see even at that time, how he emphasized on new creativity rather than multiplying the number of publications. If you are a pro-

fessor and give a lecture, you must say something that is new, that triggers the curiosity of the student, of the listener.

Nowadays there is bureaucracy in funding agencies. They can't be experts on every subject, but they have produced a system by which projects could be evaluated by peers. Who are the PhD examiners for your students? Your friends. That is not the right way of doing it. Somebody told me that if you are a student at Cambridge, the teacher will let you find your own problem. In research, there is no point in going entirely by what has been done before. Yes, it is necessary to know that. But if you stick on to that, then your curiosity is saturated and you think there is nothing more to be done. That brings down the quality of your research. Fortunately in *Current Science*, you publish things that are not necessarily proven, which is an open mind. Many other journals don't have this open mind. These are some of the innate risks involved in science, and if they are taken care of, then of course things should progress much faster.

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T. V. Jayan



T. V. Jayan (courtesy: The Institute of Mathematical Sciences, Chennai).

T. V. Jayan is a science reporter and science editor at *The Telegraph*, Kolkata. He has been reporting science for over

15 years. Jayan has worked with the Press Trust of India (PTI), Vigyan Prasara, *Deccan Herald* and *Down to Earth*. He was a panellist at a discussion held during the workshop on academic ethics, hosted by The Institute of Mathematical Sciences, Chennai, where I asked him about ethics in journalism. Jayan is a science graduate who quit the Master's programme at the University of Calicut in its first few months and joined a science communication course at Madurai Kamaraj University. Here he helped arrange guest lecturers for taking classes. Jayan likes literature and has acted in plays including one on Galileo.

How has your career been as a science journalist?

It has been pretty rewarding. Science journalism was a hard field back in 1994;

we used to spend an entire day in the library and look at research journals, find some stories or research papers and bring them to our Science Editor, K. Jayaraman at PTI, where I started my career. All other forms of journalism are not that difficult. In science journalism, you need a hand on science, without which you cannot focus.

What kept you going in science journalism?

It is not only because of the science journalism course I did, I was generally interested in science. I have covered other beats as well but the reason I like science journalism is that it gives a lot of opportunity to write on different subjects. You can write on neuroscience, biotechnology, archaeology, space and so on. This variety excited me a lot.

You said that other forms of reporting are not that difficult as science reporting...

Our mentor Jayaraman used to say that when you go to a meeting for covering other beats in a newspaper you generally return with a story; in science seminars you come with a story idea but do your story later. That is the slight difference. If the editor does not understand these things then he would expect you to file the story on the same day.

Science journalists report on topics they do not have a background in...

About 80% of the stories I cover are on biology. I never studied biology beyond my tenth standard. I try to read and understand. If I do not understand something, I ask field experts and they clarify the doubts I have.

Usually headlines are more catchy than relevant to the story...

There is nothing wrong in it. Anyway, the reading habit is going away; nobody wants to read a newspaper. If you give a catchy headline, people will read. If the story itself is not sensationalized, then there is nothing wrong in sensationalizing the headline. The headline is not even written by the reporter. It is written by the sub-editor and his job is not to learn science, but write the headline. Still the headline should not be completely off the story.

Media is often accused of misreporting and science journalists of misquoting scientists...

There are two reasons. One is the genuine misreporting that mainly happens because the reporter was not trained in science. A trained journalist rarely makes a mistake; it is not like he wanted to make one. Sometimes he can correct it; sometimes he is not in a position to do so. At least he understands there is a problem and would not repeat it.

The second reason is that scientists in India are not willing to talk. They are afraid of talking to the press, maybe because of this misreporting, but they should be able to judge who writes good science. A CSIR scientist has a lot of compulsions. Even after publishing a paper, he needs to get permission from

his Director to talk to the press. We can understand that, but sometimes it takes to such levels that he thinks I should be quoting his Director also. Then the Director will say you have to get a quote from the Director-General also. Where is this going to end?

If a scientist says that he will get back to me after three days (after getting permission from the Director) and asks me to send him an e-mail with questions that he will answer and then get the answers vetted by his Director, that it is not the way newspaper journalism (the business of daily reporting) works. Scientists from other countries talk to journalists and when they don't, there is a genuine reason behind it – they might be travelling or might be on leave. One can understand that, but here you will not get any answer.

So, in a way are you saying that misreporting is attributed to working on deadlines?

No. We still have very few people who understand and report science. Unless you have more people, it is difficult to say that misreporting is happening. If somebody covering crime until yesterday is deputed to cover science from today, he is definitely going to misreport.

Scientists should also take some responsibility. They should be talking to journalists often. If I get a press release and my Editor or Chief of Bureau tells me to write a story, I cannot reproduce the release. I need to add value to it. I can add value to it by talking to a scientist or a group of people. If I get to talk to a scientist who has done the work and then I misreport, you can accuse me. You cannot accuse without starting the process of talking. Just because one person had the experience sometime ago, one cannot say that all journalists will misreport.

What is your take on press release reporting?

One need not reproduce a press release; value has to be added. Copying from the press release is a shoddy work and journalists who do not understand science play safe by paraphrasing what is written in the press release. But this has reduced because of competition in the publishing industry.

The Telegraph, Kolkata, carries more stories from the Academy publications

than any other newspaper in the country. We reported on papers published in *Current Science* even when there was no press release. We go through almost all the articles in *Nature*, *Science*, *PNAS*, *Cell* and *Neuron* every week. We follow many other important journals, including *BMJ* and *The Lancet*, on a regular basis. When we don't get a quote because the scientist is not in town or he is not talking, we have to use the quote from the press release. In that case we generally write 'said in a statement', unless there is a pressure of space.

There was an intense discussion about ethics that scientists must follow, here at the workshop on academic ethics. What code of conduct should journalists follow?

That is a good question. You should be faithful to what you are writing. Plagiarism is bad; I don't know if it ever happens. You should not victimize anyone just to score a point over others.

During the panel discussion at the workshop you mentioned that a majority of the scientific misconduct stories are broken in the newspapers. But most of them are reported to the journalists by whistleblowers or are discovered accidentally by journalists...

That is true! We track the Society for Scientific Values and the *Indian Journal of Medical Ethics*, and many a times we break the story based on their findings. Sometimes, people report such instances to us, but we listen only to reliable people, then look at the merit of the story and decide accordingly. We do a lot of inquiry and talk to several people before running the story.

Is there a flipside to mainstream media?

Many! One is that science is not appreciated. We have to sell the story to the Editor and pester him almost every day. For a correspondent covering political issues, the space is reserved on a daily basis. What Sonia Gandhi or Manmohan Singh is saying is definitely going to appear.

People in Kolkata read science but in many other places, people are generally not interested. They don't read science

maybe because they are not given science in a form they can absorb.

The problem with the Indian press is also that we still reproduce stories from news services like Reuters, AFP, etc. There is another problem – when a study is done by Indian scientists in collaboration with scientists abroad, Indian scientists are not quoted in some instances. One should talk to Indian scientists as well.

Since we have limited coverage of science and technology in newspapers, will allocating fixed space to science and technology help?

I do not think the Editor will agree to that. No newspaper will allocate say 5% of the news to science, unless we are doing that kind of great science in the country. I am not able to sell even one science story to my Editor, then how are you

going to keep 5% space? It is difficult to write science in India; you cannot make a livelihood out of it.

The coverage is perhaps less also because most journalists do not go to science conferences, and even if they do they attend only a talk or two...

Journalists will not come unless there is an important personality coming to talk or an interesting topic to be talked about at the conference. Anyway science is not of value to the Indian media. Most of the time pharma companies take advantage of this and there is paid news coverage.

What do you think is the contribution of blogging to Indian science?

There are as such no Indian blogs on science because confident science writers

are few in number. With exceptions of a few, Indian scientists do not blog and there are not many Indian science journalists who can comment. Even I cannot comment on a subject. I am a reporter; my job is to report, not analyse what somebody has done.

What would you like to convey to aspiring science journalists?

Science journalists cannot ignore anything. You need to know what Shakespeare said, about different species of dogs, what the *Bible* says, and maybe the latest advertisement because you need to capture the attention of your reader. So, read, read and read.

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