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Book Review: Ten Little Fingers

A review of "Ten Little Fingers: Ideas and Activities in Science," written by Arvind Gupta, illustrations by Avinash Deshpande, National Book Trust, New Delhi, 2001, 120 pages, Rs. 65.00.

I used to be one of those people, I am ashamed to admit, who think that science and technology require oodles of expensive equipment. It follows from this premise that for a poor country like India the doors to science and technology are closed. The only path that would allow India to progress must therefore be the path of mathematics.

I was wrong of course. I have since realized that science and technology require only the right attitude. And little else besides. That I was as well-equipped to do good science and engineering-design then in India as I am now, living amidst the wealth of the United States.

"Children do not need fancy laboratories and expensive equipment for doing science ... ," writes Arvind Gupta. And he is right on the money. His book is a testament to the fact that the simplest materials are all we need, to do things that exercise our imagination. Not just in childhood, but at any age at all.

We were dazzled in India, I remember as a child and then as a young man, by the spectacular achievements of western science and technology. The Soviets lofted their Sputnik when I was a year old. The Americans landed on the Moon when I had but one year to finish high school. We followed the moon landing avidly on radio and TV.

To me, standing then at the doorstep of manhood, India appeared to be a land mired in the imbecility of religion and prejudice. Hopelessly behind times. That religion and prejudice exercise an equal grip on the American mind was something I would learn only later.

One Amar Nath Puri who taught me Physics at the (allegedly) exclusive Modern School in Delhi had written a tome on the subject that was hugely popular, if one might call it that, throughout the high-schools in Delhi. It was one of the dullest books I have ever come across. And with the benefit of hindsight --- comparing it against the exquisite Feynman Lectures on Physics and the Berkeley Physics series that I became acquainted with much later --- it is now clear that it was a work of great and extraordinary imbecility. The author, I am sorry to say, was as imbecile as his book.

What was true of my high-school physics text was also largely true of my high-school mathematics, chemistry, history, social studies, and biology texts. They were plain shitty. Some of them were foisted upon us by the grandly-named National Council for Educational Research and Training (NCERT), but they weren't worth wiping your rear-

end with. To go through a Delhi high-school in those days was the equivalent of radical lobotomy.

I should not neglect to mention that I do remember a couple of great teachers who rose well above the textual material they had to work with. Mr. Madan Mohan Sahgal who taught me mathematics, and Mr. Santosh Arora who taught me Chemistry, were two that readily come to mind.

When I arrived at the Indian Institute of Technology in Kanpur in 1970, it immediately became clear that we had been had in high-school. The professors at IIT were a breed apart from the Puris, the Mohindroos, and some of the other Sad Sacks of my high-school days. These were teachers the equal of any anywhere in the world --- I would later realize.

Also in my class at IITK there was Arvind Gupta, who I am sorry to say I did not get to know as well as I should have. This evening, as I stepped into the house, Abha handed me Arvind's book "Ten Little Fingers" that arrived earlier today in the mail. I have read through all of it already. Each and every page. It is engrossing. It is well written and simply written. There is something in it for everyone, even for one as old and cynical as me. It is written with humility and without pretension.

I want now to get hold of the other ten books Arvind has written. I would urge you support this magnificent man in every way you can. I think that every rupee invested today in the publication of a book like this will yield a return worth at least a million rupees to India within the next twenty years.

Arvind's address is C-7 / 167, Naveen Niketan, Safdarjung Development Area, New Delhi 110016. I hope he won't mind my writing it in this forum. His address is <arvindguptatoys@hotmail.com>.

I hope also that the Government of India or the IITK-class-of-75 or Tata or Ambani would buy up the rights to the Feynman Lectures and other foreign books of similar quality, whatever that might cost, have them translated into every Indian language, and pass them out to all children for sixty-five rupees per volume.

We never heard of the work done by people like C.V. Raman in high school. We never learnt that Jagdish Chandra Bose (see e.g. <http://www.tuc.nrao.edu/~demerson/bose/bose.html>) working in a primitive makeshift lab in the 1890s, using railway timetables and bundles of jute as polarizers, was already researching radio at 60 GHz --- work that western technology with all its might and all its wealth is only now beginning to catch up with.

It is likely that some of our Boses and Ramans and Newtons and Ramanujans in the next twenty years will look back and remember Arvind as their first inspiration.

One thing does worry me. I wonder if Arvind's books are available also in Indian languages. My copy is all English. We need to make sure that language does not bar the children's way.