

ARVIND GUPTA, THE TOY-MAKER

Arvind Gupta was born in 1953, one of four children whose parents had never been to school. He is now a major influence on science teaching in all India. He would rather be known as a tinkerer and a toy-maker, he says, but for him tinkering and toy-making are not only fun, but also a way of reaching scientific understanding. As a child he learnt by working toys from household trash.

After a successful school career he was accepted as a student at IIT, Kanpur, the Indian Institute of Technology, where he stayed for five years, gathering knowledge and according to him learning more from his peers than from the curriculum. Together they made many different all kinds of working models. Gupta also read a great deal. It was a politically volatile period, when Gandhi's ideas were re-emerging and there was a drive to go to the masses, to start from what they knew, and to build on what they had.

After IIT he worked for two years at TELCO, but he did not find this work satisfying, and went to work for six months with the Hoshangabad Science Teaching Programme (HSTP) in Madhya Pradesh. The purpose of the programme was to revitalise science teaching through the discovery approach.

'We have propagated a myth that science can only be done in fancy labs with glass burettes and pipettes,' he says. 'It has been made out to be a bookish affair in our schools – something in which you have to mug up definitions and formulae and spit them out in exams. But this is patently untrue. For children, the whole world is a laboratory. We have forgotten the task of bringing children closer to nature. If you can show them that scientific principles such as the laws of motion, or the principles of geometry exist in familiar daily-use objects around them, then they internalise science better and relate it to their daily lives.' (Taken from an interview with Rasika Dhavse, published in *India Together*, 15.01.10)

On his website, <http://arvindguptatoys.com>, you can find hundreds of the toys he has devised, using only the cheapest materials and household rubbish. You can find, for instance, a delightful centrifugal pump made from a drinking-straw, a piece of a bicycle spoke and some sticky tape, and a totally unbelievable way of balancing ten nails on the head of a single vertical nail, where they can be rocked to show how stable the arrangement is. It is well worth a visit just for the entertainment, quite apart from the educational value.

He has published many of his own books in thirteen different Indian languages, selling tens of thousands of copies, and he has conducted workshops in hundreds of schools. He has often demonstrated his inventions on television. He has received many awards for his work. One of his current projects is the Muktagan Science Exploratorium at IUCAA (Inter-University Centre for Astronomy and Astrophysics), where children will be encouraged to experiment.

In addition to all this Gupta has collected, translated and posted on his website hundreds of books. Many of these are concerned with the teaching of science through making toys, but he also has a selection of children's books, and a section on education. Here there is a colossal list of downloadable books including a large number of the classics of libertarian education, for instance *Libertarian Education* itself, by Joel Spring, as well as works by John Holt, Janusz Korczak, Ivan Illich, Paulo Freire, Anton Makarenko. Alice Miller, Maria Montessori and Herbert Kohl, to name but a few. It also includes two important books by less well-known authors, *The Idiot Teacher*, by Gerard Holmes, which tells the story of Prestolee, Britain's longest-running progressive state school in the early twentieth century, and *The Self-Respecting Child*, by Alison Stallibrass, which describes her experiences running a free-choice playgroup.

Gupta's interest in libertarian education is second only to teaching science through toy-making, and although he has nothing yet by A S Neill he is about to add books by Dan Greenberg and David Gribble and to translate them into Hindi and Marathi.

Gupta is determined to change the image of science as something that can

only be learnt in laboratories. 'Children are so traumatised by these equipments,' he says, ' that they stop learning all together. We have a slogan that the best thing a child can do with a toy is to break it. Why do children break a toy? Because they are so curious and want to know what's inside it. This is what propels them. And the good toy design must welcome children to pull it apart to see what is inside it and then put it back again. And I think there are enormous possibilities and potential in our children, given a chance of open learning, of discovering things themselves.

'And children are great experimenters. Each child is a true scientist. If you give them one idea, they will always carry it forward; they modify it and take it to greater heights. This is a great hope with children. I have learnt a lot from them. I don't know how much good I have done to children but, you know, children have done a great deal of good to me.'

(Interview by Shweta Parakh, in ICEPLEX news, 04/02/09)