

Creative Science Writing to Spark Interest

National Conference on Creative Writing in Science for Children

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If we want children to ‘make friends with science’, we need to dish out science not merely as a compendium of concepts but as exciting hands-on experiences. While on the one hand our science textbooks fall far short of inspiring and motivating students, teaching methods, in India, too leave much to be desired.

Creativity in science writing, therefore, has to be the cherished goal. But how do we achieve the goal? Can creativity in science writing be taught and nurtured? What are the essentials of creative science writing? What constitutes creative science writing? To thrash out these issues and deliberate on methodologies of practising and popularizing creative science writing, the National Centre for Science Communicators and the Homi Bhabha Centre for Science Education, TIFR in Mumbai organized a two-day national conference on ‘Creative Writing in Science for Children’ during 3-4 October 2015.

In his Keynote Address, Prof. Jayant Narlikar, astrophysicist and Emeritus Professor at the Inter University Centre for Astronomy and Astrophysics (IUCAA), Pune said that conscious efforts must be made to bring science closer to the masses in such a way that it is seen and appreciated for what it really is. Since the royal road to the human mind is through literature, we need to bring science and literature together, he said. Prof. Narlikar said this is to be done in two ways — through

popularization of science and through the medium of science fiction.

Presenting science through the medium of science fiction, he said, has the analogy of a sweetener used to coat a bitter medicinal tablet. Often a person will shy off from a scientific result under the conviction that he or she will not understand it. To such a person, the same result may be presented within the framework of a story. A young new entrant to the field of SF writing can be motivated to learn some of these scientific concepts in classic books written by science writers of repute.

Creativity in this context is to be judged by the dramatic way in which the scientific idea has been used, said Prof. Narlikar. This dramatization is often carried out by extrapolating the scientific idea beyond its known boundary of validity. However, he posed the question, given the ways and means to develop a plot around an SF notion, how do we motivate young authors to write good SF? Do workshops devoted to techniques of writing a story or schools involving actual writing SF help?

Prof. Narlikar, himself a science fiction writer, said: "My own personal thinking is that even though we may encourage SF writing by equipping the 'would-be author' with ideas from real science, and invite experts in literature for briefing the person on good writing, ultimately the result is decided by the creativity that he or she possesses. Just as teaching differential geometry and tensor analysis to a person does not imply that the person will become an Einstein, nor does teaching how music is composed guarantee that the person will grow into a Mozart or Beethoven...so do these technical aids fall short of making the aspirant into an H.G. Wells or an Arthur C. Clarke. Exposing the learner to classic SF and discussing some of these stories can at best tell him what the merits are of good writing. Beyond that it is the role that his innate creativity will play."

Continuing with them, Dr Bal Phondke, former Director of the CSIR-National Institute of Science Communication, said that while writing science fiction it should be ensured that established science is not diluted or presented wrongly. He said that we need to clearly make a distinction between writing for adults and writing for children. Creative writing for children is a different

genre altogether, he said. As a writer, one should make efforts to expose the child to only a certain number of phenomena and a certain depth of concept. As the child grows, we start adding more concepts. At the entry level, a multitude of details will only lead to creation of apathy in the mind of the child for science.

The kind of language and presentation required for children also has to be different, he said. A child identifies with stories of different kinds. All fables that have an underlying stream of education, where animals talk and where exciting imageries are created — that is the structure favoured by children. This is proved by the popularity of stories contained in the *Panchatantra* or *Aesop's Fables* or *Arabian Nights*, or stories like *Alice in the Wonderland*. At that young age curiosity and adventure are inherent in children and this is what fable writers have used to their advantage.

Dr Phondke called upon writers of children's literature to come up with prose that enables participation of the children. He said that Enid Blyton's adventure stories were popular with children because the detectives in the story were children and so while reading such stories children feel a sense of participation. However, the stories need to relate to the local ethos and should be rooted in culture.

Dr K. Krishna Kumar, President, *Gyan Vigyan Samiti* also said that science teaching should be about stories, about passion, about interdisciplinary connections and connections with society — all of which have to be conveyed to the child. At the kindergarten level it should not be about teaching science but doing science, he said. Dr. Kumar lamented that textbooks today restrict teaching. He said that questioning is the basic trait of science and children ask daring questions. However, most teachers in our schools work hard to spoil all the imaginative power of the child. He said we are taking the natural scientists — the children — away from science by unduly disciplining them. But when the child grows we feel the need to re-inject science through books as if these were capsules. Dr. Krishna Kumar said that creative people should learn to deal with science not as mechanical concepts.

Prof. S. Sivadas, Professor of Chemistry and Editor, *Eureka* also agreed with him when he said that interest in science wanes as students go up the academic ladder. A good teacher teaches well, he said, but a great teacher inspires. And that is why we want creative science writers — because we want children to love science, to be excited by scientific concepts. He asked science writers to bring about a synergy between literature and science — creative science writing is a fusion of literature with science rather than coating science with literature. He said that if you have the imagination you can make any science interesting. Even dry maths could be converted into interesting literature. The effect of creative science writing can be multiplied manifold with the use of appealing visuals, he said.

However, there was a need to distinguish between ordinary, good and creative writing, said Dr V.S. Venkatavardan, former Director of the Nehru Planetarium, Mumbai. Creativity in science comes from being able to explain something unexplainable. Good writing becomes creative by effective use of words. Writing is the greatest invention by humans, he said, and called upon budding writers to visualise whatever they wrote. Words should create visuals in the mind. Attempt to teach science through the medium of stories, he said. If you teach science to a child, that will last for eternity.

This is especially so because children are born curious, agreed Dr Chandana Chakrabarti, science communicator and writer. She said that all children are born with a tremendous sense of curiosity, power of observation and questioning – all attributes of a scientist. But then what goes wrong? Perhaps parents and teachers are to blame, she said. Asking questions is frowned upon both at home and in the school. We also demand obedience. In effect, we are asking the child to stop asking questions and toe the line. Today, books are out, TV and mobiles have taken over and there is no play. So, where is the creativity going to come from?

Dr Chandana said that while science provides you with rationalism, an inadequate understanding of science leads to erroneous beliefs, anti-science movements, discrimination and exploitation due to ignorance. She said that an important attribute of science is the right to question. Science has no

high priests, she said, unlike godmen who cannot be questioned.

So, while science education is essential for all, it is necessary to convey science to the child in a manner that it finds appealing and interesting, said Dr Chandana. This can be done through stories. However, the stories should have some relevance to the surrounding scenario. Besides, you cannot be an adult talking to a child; you have to become a child while talking to a child.

Dr Devendra Mewari, children's science writer, also said that children want to read stories that are interesting, that keep them entranced. And most of all they want to hear ghost stories. But he recounted one instance where when he told the children a ghost story some refused to believe it while others wanted to know how it happened. This was an encouraging sign in today's children, he said. Apart from stories, children are also interested in poems and dramas that can be enacted. They are also interested in listening to biographies of scientists. However, while writing for children one needs to keep talking to children to make the writing simple. Dr Mewari even suggested that children should be involved while proposing publications for them.

Dr Vithal Nadkarni, science journalist, said that there can be no science without questions — only dogma. A journalist's duty is always to question. As for topics to write on, he said there are innumerable topics to write on, and all are capable of flights of fancy. He said there is an embarrassment of riches today but we must know how to mine the information. As print writers we have to compete with the Internet, he said and so we must understand, celebrate and rectify our vulnerabilities.

Dr A.P. Jayaraman, nuclear scientist and science writer, said that a creative activity cannot be performed in isolation. The task of reaching children through the print media has become all the more tough today because they are increasingly exposed to visuals. And so, it requires specialists from various fields to come together — writers, illustrators and sometimes narrators too.

The conference also hosted an Editor's Conclave. Among the many points that came up during the conclave, the most

prominent was that fun-to-learn exercises can be a good way of exciting children into the field of science. Children love anecdotes, the younger ones love animals. Story forms including such devices could work for children. Children also learn science through role play, touch-and-feel, hands-on and play-way methods.

The two-day conference reiterated the fact that a familiarity with scientific principles and phenomena is essential to develop a sense of reasoning. But for children to gain such a familiarity it is essential that creative methods be adopted to convey science.