

# Dream

# 2047

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## Science Fiction

World of Limitless  
Imagination

Meet Bal Phonke & Devendra Mewari and their  
Science Fiction Stories



**Editor-in-Chief**

**Nakul Parashar**

**Editor**

**Rintu Nath**

**Production**

**Pradeep Kumar**

**Bipro Kumar Sen**

**Sumita Mukherjee**

**Address for  
correspondence**

**Vigyan Prasasr, A-50,  
Institutional Area, Sector-62,  
Noida-201 309, U.P., India**

**Tel: +91-120-2404430, 35**

**e-mail**

**dream@vigyanprasasr.gov.in**

**website**

**http://www.vigyanprasasr.gov.in**



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# Interesting World of Science Fiction

**M**ost of us grew up watching the famous TV serial called Star Trek. Names like the USS Enterprise, Captain James T Kirk, Commander Spock, Uhura, McCoy, and much more from Star Trek still ring in our ears. Produced in 1966, this serial has given us eleven spin-off serials since then. The latest of it came in last year as Star Trek: Strange New Worlds. Interestingly, Star Trek caught the attention of the world over and went on to become one of the highest grosser in the TV industry. In fact, its franchise snowballed into various films, other television series, video games, novels and comics. This, of course, set the path for several popular science films and television serials like Star Wars, Space Oddeyssey, Planet of the Apes, and many more to emerge on the global hall of popularity. Well, all of them have emanated from what we popularly know as science fiction. Science Fiction deals with an imaginative-speculative and interesting world associated with science & technology. Most of them are either contemporary or futuristic. Surprisingly, advanced science & technology, extraterrestrials, time travel, and warfare have hogged the sci-fi or science fiction scenario world over. In India, too, sci-fi has been there for ages and has fascinated the populace. Stories of applying *rasayana* (chemicals) to transform various forms of creatures, air warfare using *vimanas* (aircraft), deep ocean-related gems, and associated plots have hogged our sci-fi too. The journey of sci-fi, like science & technology, the world over, thus, has been quite global in nature and accepted by all.

Quite timely, sci-fi predominantly has seen stories talking about our near and distant futures. For all of us, incidentally, talking nowadays talking about 2047 has become more relevant. This is when India would celebrate its centenary year of Independence. It is obviously a time in future, and thus, an ideal candidate for a sci-fi story. It is, in fact, about speculating how our country would be performing then. Coincidentally, the current period, between now and 2047, has been called Amrit Kaal, which provides more reasons to paint a promising sci-fi. While all of us strive hard to ensure that, our motherland leads the world in almost every sphere, Oh, what a coincidence again, our flagship popular science monthlies in Hindi & English are called Dream 2047. Hats off to the visionary founder-director of Vigyan Prasar, the late Dr Narender Sehgal, who got this title to these monthly magazines.

Besides films and serials, sci-fi-based popular science theatre have also been very successful. We, at Vigyan Prasar, intend to bring forth the National Science Theatre Festival later during the fourth quarter of the calendar year. This would be an attempt to showcase science theatre in various Indian languages. Stay tuned.

In current times too, we're lucky to have a few prolific popular science fiction writers amongst us. Dr Bal Phondke in Marathi & English, Mr Devendra Mewari in Hindi are among the two that we managed to interview about their standpoint on sci-fi and their speculation for how India would be in 2047. Thanks to Mr Kollegala Sharma & Mr Nimish Kapoor for getting this done for this collectors' item special on Sci-Fi.

By the way, one more piece of good news. We've gotten started with SCOPE-in-Odia recently. Malayalam and Nepalese are close to getting started as well.

Back to where I started. I guess we all remain indebted to Gene Roddenberry for having given us such a marvellous picturized sci-fi – Star Trek. Enjoy the world of imagination. Enjoy the world of science fiction.



Email: [nakul.parashar@vigyanprasar.gov.in](mailto:nakul.parashar@vigyanprasar.gov.in)

A child with white hair, wearing a red jacket and blue pants, sits on a grassy field at dusk. A bright beam of light descends from a large, dark, circular UFO hovering in the sky. A red tricycle is suspended in the air within the beam of light. The background shows rolling hills and a starry night sky.

# LIMITLESS INTERESTING IMAGINATION

**T.V. VENKATESWARAN**

**W**alk into a well-stocked bookstore. You will indeed find a section marked 'science fiction', stacked with brightly coloured covers illustrated with intricate spaceships floating in the vast space with weird-looking aliens or men and women clad in bizarre apparel in futuristic cities. Flip through it, the tropes are quite recognisable: travel to other planets, encounters with extraterrestrial life forms, utopian social speculation, futuristic extrapolation or even travel back/future in time.

What is this animal called science fiction? Is it romance? Yes, it can be; even an intense romance between a woman and a machine (Bicentennial Man) is feasible. Is it horror; drama; humour; action; or soap operas (Star Wars)? Each piece of science fiction could be identified with one of these genres. However, what sets SF apart from other literature is a narrative centred on the sense of wonder. The sense of wonder might be engendered by the natural, such as the rings of Saturn or the horizon of the black hole, or by the technological, such as a space station or a rocket ship.

At the heart of this genre is constructing a world other than our own, another planet (or even another universe) or a future world in which conditions have changed—alien invasion, Martian colonies, a permanent cure for the ageing process. The “what if?” in science fiction enables readers to focus on the human ramifications of the story and allows science fiction to become a powerful instrument of speculation and social critique. In science fiction, ‘the idea’ is the hero.

One is tempted to classify mythical stories such as Ramayan with pushpak vimana as ‘SF’, but that would be anachronistic. Scholars like Darko Suvin locate the emergence of SF in the West to the intellectual impact of the Copernican revolution. By challenging the authority of scripture, Copernicus challenged the authority of the Church, the prime axis of political power in his times. The potential dissolution of the social and political arrangement, which was hitherto seen as permanent and god given, opened new avenues to imagine future social structures radically different from the present. In this context, we should read Thomas More’s Utopia (1516). The protagonist of this utopian science fiction reports visiting a distant island, where society is ordered immeasurably better than in the Europe of his time. Despite science fiction being “fantastic”, it is not pure fantasy. While the mythical and fairy tales are set in “once-upon-a-time far away, beyond seven seas and seven mountains”, SF is futuristic fiction. This is not to say that all SF novels must be set in the future, but to state that the genre is counterfactual literature: not things as they actually are, but as they might be, whether in the future, in an alternative past or present, or in a parallel dimension.

The genre draws from the post-Galilean modern science, a clear break from the magical apprehension of the cosmos to a newer materialist, non-magical discourse. Suddenly, the cosmos was vast, unknown and unimagined objects (like the moons of Jupiter) were discovered, and other new ways of thinking about time were possible. No longer was the trope of magic essential to bring about awe; science (and increasingly technological potential) was enough to

create wonderment and spectacle. If fantasy relied upon the magical to generate a counterfactual, true science fiction is expected to do so only with science and technology’s prospective/plausible potential. That is why Jules Verne scorned H G Wells (The first man on the Moon, 1901) for using purely magical anti-gravity material cavorite to lift his rocket to the Moon.

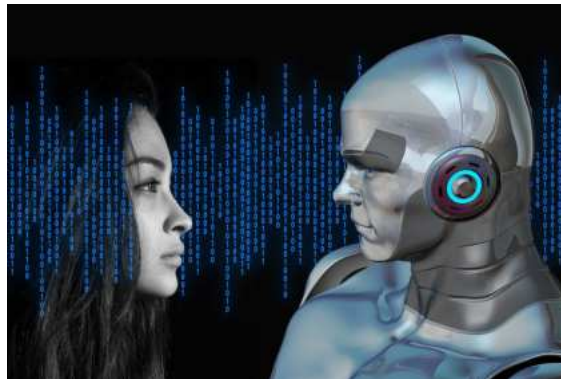
Two dominant narratives have come to stay in SF; hard (didactic) and speculative (fantastic). The former, exemplified by Verne’s narratives, sought to teach science through fiction. The latter, exemplified by H G Wells, developed fiction through science. Further, if Verne transported his readers to exotic locations, the centre of Earth, the Moon, the North Pole and distant planets, Wells took the reader on a journey through time.

SF literature of the 19th century mirrored the aspirations and fears of the middle classes. Take Albert Robida’s The Twentieth Century. The protagonist of this 1883 novel, a young woman, is exploring the Paris of 1952, looking for a suitable career. The utopian Paris in the author’s imagination was teeming with aircabs that transported people. Each home contained a telephotoscope to broadcast the latest news and entertainment, and where the government was swept out of office every 10 years in a planned decennial revolution. The novel speculated not only on technology, mass transport and communication but also on questions of feminist issues (women’s careers) and forms of government (elected democracy).

In contrast, Mary Shelley’s Frankenstein (1818) is a mark of the fears of the elite, unable to reconcile themselves with the rapid changes in the social fabric in the wake of the emergence of capitalism. Having moved the source of

terror from the supernatural to the scientific and rejecting the naïve belief in the scientist as a hero and in technology as inherently good, the novel is a romantic rejection of technological progress. The archetype, the mad scientist who, in his hubris-filled pursuit of knowledge and power, betrays fundamental human values, became a defining plot for the future.

Interestingly SF in India, particularly Bengal, emerged almost simultaneously as the first works of H. G. Wells in Britain. K.C. Dutt’s ‘A Journal of Forty-Eight Hours of the Year 1945’, published in the Calcutta Literary Gazette in June 1835, was the first Indian science fiction in English. This speculative fiction is actually a historical fantasy, in which the author described a war of independence led by a charismatic leader, which Indians would fight against the British at a time about a century in the future. Soshee Chunder’s The Republic of Orissa: A Page from the Annals of the 20th Century (1845) that narrates “the bid, in 1916, of the people of the state of Orissa to break



away from the British Empire” and "Sultana’s Dream" (1905) by Rokeya Sakhawat Hossain are some of the pioneering science fiction work by Indian authors in English. The “Sultana’s Dream”, which was published with a tag line “a terrible revenge!” (against men) in The Indian Ladies’ Magazine, was a utopian tale of gender role inversion that placed hope on the power of modern education to transform the position of women in contemporary Muslim society. Interestingly, one of the earliest SF in Tamil, ‘the visitor (1906)’, by a well-known pulp fiction writer JR Rankaraju and the Vihanga Yanam (Birds’ Flight, 1906) in Telugu by Tekumalla Raja Gopala Rao imagine a feminist technoutopia.

When works as above in English reached the emerging Bengali Badralog, science fiction novels in Bengali such as Jagadananada Roy’s Shukra Bhraman (Travels to Venus), published in 1879, Hemlal Dutta’s “Rahashya” (“The Mystery”) in Bengali, published in two instalments in 1882 in the pictorial Bigyan Darpan magazine and the Premendra Mitra’s “Piprey Puran”(“The Annals of the Ants”) and "Mangalbari" (“The Martian Enemies”)

addressed the ‘native’ educated population. The author uses science fiction as a device to criticise the strife and division amongst humans and yearns for the unity of humankind to face the challenges. J.C. Bose, a famous scientist of the late nineteenth century, celebrated today along with Marconi for the discovery of Radio communication, wrote a science fiction novel Palatak Toofan (“Absconded Tempest”) in 1896 which narrates a thrilling story of how a turbulent sea was calmed with the help of a bottle of hair oil.

In Tamil, the famous national poet Mahakavi C. SubramaniaBharathiyar wrote a story entitled Kakkai Parliament (Parliament of the Crows), capturing various aspects of science fiction elements. Told in first person, Bharathi is taught the language of crows, and he can eavesdrop on a conversation of the ‘parliament’ of crows. The plot revolves around king crow, who has recently returned from a journey to Russia, where the Czar was overthrown by the revolution and issues of inequity in contemporary society are discussed. In another work, Ganarathan (wisdom chariot), Bharathiyar travels to other ‘worlds’. The sojourn is not to planets in the solar system or other galaxies but



## SCIENCE FICTION

to the 'worlds' speculated in Hindu Puranas, such as Kandarvalog, Sathyalog, etc. Bharathi says, "if some of the pleasures of the Gandharvalog appear to be against the 'aacharadharmam' (etiquette and public morality), do not curse me. I am provoked to laugh at the sermons made by Indians, who are but slaves, saying that this pleasure is immoral and that action is degenerate", and gives a vivid description of lip-lock kiss he received from a beautiful Ghandarv-maiden and describes with awe the nudity and celebration of the beauty that he found in Gandharvalog. The guard at the gate of 'Upasanthilog' (world of peace/bliss) holds a gleaming sword of wisdom.

The story narrates how an enormously wealthy man, on reaching satyalog (world of truth), immediately ran away howling, unable to withstand the intense light of 'truth'. Through the allegory of travel to other worlds, Bharathi, in his Gnanaratham, describes his 'utopia' and provides scathing criticism of conservative orthodox 'native' society. One may object that perhaps Bharathi's work is actually 'fantasy'; yes, fantasy is an aspect, but the storyline is entirely devoid of 'supernatural' or 'magical'. SF in colonial India, perhaps is an outcome of a shared field of ideas from English literature used by Indian writers. However, were the grounds for engaging with similar ideas different for the Indian writers from that of European SF writers? Even

if Indian SF, particularly in the colonial period, is understood as a by-product of colonisation, was it merely a 'derivative' discourse? Whether and if so, how Indian writers encountered modern science and indigenous knowledge systems? Was the dream utopia-just the same? These themes need to be engaged with.

Science fiction, in particular, imagines change in terms of the whole human species. These changes are often the result of scientific discoveries and inventions applied by human beings to their own social evolution. Small wonder socialists of one hue or another like Edward Bellamy, William Morris, H G Wells and Jack London were SF writers. These early to mid-20th century authors believed scientific and utopian romance was allied with the social reform of amoral laissez-faire capitalism.

Science fiction of the 1960s and '70s was impelled more by what Italo Calvino called "a utopian charge", a powerful, unformed desire to rid the world of poverty, racism, sexual



repression and exploitation, than naïve scientific romance. Soviet writer Ivan Yefremov's acclaimed SF novel *Andromeda* (1957) broached virtually every issue relevant to socialist concerns, from science to the arts to ethics. It engaged Western science fiction in a well-informed subtle polemical dialogue, which is noteworthy.

This is not to say all works of contemporary science fiction were to take a socialist standpoint. Critics have pointed out that in recent times pulp SF, especially from the US, has been a significant inspiration for developing super-weapons of mass destruction. SF films like *Independence Day* and *Armageddon* have been deconstructed to reveal the insidious ideological force of an apparently harmless form of entertainment. Scholars point out that these films attempt to rationalise nuclear weapons at a time when mass movements

for the abolition of atomic weapons are growing in strength. The role of American pulp SF in denying global warming is also well known.

In its time, *Don Quixote's* duel with the windmill may have been seen as hilarious. Still, after August 1945, technology is anything but naively good. Naturally, the man-machine relationship has engaged the imagination of SF. The naive view of technology—of machines relieving man of drudgery—has given way to suspicion and mistrust of technology. When an ultra-modern new generation computer is asked the question "whether there is God", the machine replies "yes" and strikes dead a man who is about to turn off the machine in Fredric Brown's *Answer* (1954).

Recent SF questions conformism, creeping bureaucracy and commodification. It highlights the cause of environmentalism, cautions against xenophobia and advocates tolerance and multi-culturalism. It critiques capitalism's expanding sphere of influence and its often sinister relationship with technology (*Avatar*). However, unlike earlier times, these works rarely pose solid political questions or offer alternatives to global capitalism.

SF is at a new crossroads. Today, we seem to be clear about what we reject, but it appears we cannot articulate what we desire.

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**Dr T V Venkateswaran** is Scientist-F with Vigyan Prasar, New Delhi.

**Email:** tw123@gmail.com



# A VERSATILE SCIENCE STORYTELLER

**D**r Gajanan P. Phondke, familiar to Marathi readers as Bal Phondke, is a veteran in both English and Marathi science fiction, and popular science writing. With more than five decades of writing behind him, Bal Phondke has contributed tremendously to science communication. He probably is the only Editor of a science magazine, who had extensive research experience. Beginning his career as a scientist, that too as a theoretical physicist, Bal Phondke changed track to explore biology for more than two decades. Quitting his exploits in the laboratory, Dr Phondke began experimenting with editing science magazines. He was the editor of *Science Today*, the only commercial science magazine of 1980s. Later he transformed *Science Reporter*, a CSIR-publication, into a very popular and widely read magazine. He led two CSIR institutions, the Publications and Information Directorate (now known as National Institute of Science Communications and Policy Research, New Delhi) and the CSIR-Unit for Research and Development in Intellectual Property, Pune. Here he speaks to Kollegala Sharma about his life in Science and Science Communication.

**KS:** Good morning. You were a practising scientist in a prestigious institution like Bhabha Atomic Research Centre, Mumbai, and then you turned into an editor of a commercial popular science magazine, an entirely different career. How did this switch happen? Why?

**GPP:** Well. A number of changes have happened in my life, not just the one you mentioned. For example, I did my masters in Theoretical Physics, and had absolutely no formal education in biology. When I was in BARC's training school, there were a couple of lectures on radiobiology which got me interested in biology. I changed my field of research from physics to biology. This way I have changing fields every now and then.

I spent about 25 years in BARC doing research in immunology as a scientist. I was interested in writing right from my school days. But did not publish much. When in College, I got some stories published in many magazines. But they were not science fiction. They were ordinary fiction, slightly humorous. Then I was selected in BARC, and then I went to do my PhD. During that period, for almost twelve years my writing had totally stopped. There was no time, or inclination for that.

Then I went to London. There my colleague Tony Morrison, introduced science fiction like Isaac Asimov to me. He used to get some books from library and give them to me to read. I read some of them. Not that I understood much, but the stories intrigued me. That planted the seed of writing science fiction in me.

After returning to India, an opportunity came. An editor of a daily newspaper in Marathi, a well read person, thought of introducing a weekly science page. He got some persons in BARC together to discuss, and I wrote some articles there. After sometime there was a change in the newspaper, and the page stopped publishing. But it had started my writing. So the zeal for writing was there from the beginning.

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Later some one suggested to me that I write only on science. Around 1974-74, Professor Jayant Narlikar started writing science fiction and published several stories. His story was about a person who gets transformed laterally, from a right hander to a left hander.

### **KS: Was that the famous left handed Ganesha story?**

**GP:** Yes. The left handed Ganesha story that was based on the principles of physics. That reminded me of similar principles in biology where proteins. Proteins are made of amino acids which come in two forms – left handed or right handed. But in life forms only the left handed are used not the right handed. So I thought of an idea of a bug that used only the right handed amino acids, it can create havoc. I wrote a story on that. It is called by the same name, left handed Ganesha. That's how I started writing.

It went on for some time. May be six or seven years later, one day there was a call from the Times of India office. They were looking for an editor for Science Today. I had written some articles for Science Today also. Not science fiction, but you can call them as popular science. Articles that were based on science which appeared on regular research journals. Some one had suggested my name. The Managing director called me for a chat, which then turned into a sort of interview. Two days later he sent a word that they had selected me for editorship. It was a difficult decision., to change from a assured and secured job to commercial sector. But then I thought it was an opportunity to combine my vocation to my joy. So I jumped into it, and that is how I became an editor. When I took this decision, everyone around me cautioned that I was making a 'harakiri' of my career. Only Prof. B M Udgaonkar, then professor at TIFR, and Dr. D. Balasubramanian, former Director, CCMB, Hyderabad, told me to go ahead.

Did you ever miss the lab, and repent for it?

I didn't repent, and even now I don't repent, the decision because by then I had had a good long innings at BARC. If I had continued, may be I would have had a fellowship or two of the science

academies. But, I don't think I would have made a earth-shaking discovery as a scientist. So I said to myself, "let me try a new career." I went to ToI, started editing Science Today, and then changed to editing a science page of daily newspaper.

One day I received a letter from Prof. A. P. Mitra, the then Director General of CSIR that the Prime Minister—the Sri Rajiv Gandhi was the PM-appointed me as Director of Publications and Information Directorate. There again was a difficult decision to take, for it meant shifting not just the job, but also the home from Mumbai to Delhi. But it was not also easy in the sense that my daughter had completed her education, and my son was about to complete. So I spoke to my wife and decided to go to Delhi. That is how I became the Director of PID and the Chief Editor of Science Reporter.

I have not repented any of these decisions that I took. Each career had its own challenges and difficult times. I might have had some niggling doubts, but no regrets.

**KS: You have been a science fiction writer both in English and Marathi. There is a criticism that Indian science fiction is still in its infancy, and most of the works are generally adaptations from English. Of course, Indian English science fiction is also hard to come by. How**

### **would you look at this criticism?**

**GP:** I don't agree with you in that, especially when Marathi science fiction is concerned. In Marathi, science fiction is very, very matured. Most of them are original. Science Fiction in Marathi has taken roots to such an extent that you pick up any Diwali Special issue of newspapers and magazines, you will definitely find at least one science fiction there. An original, not an adaptation. What is more heartening is that our generation, I, Prof. Narlikar and others are now passe. A number of young writers have come. In the last two or three years itself, I have seen five or six very, very promising young writers publish their stories. Their science fiction is, I would not say advanced, but more innovative than of our generation.

### **KS: In which way are they innovative?**

**GP:** More innovative in two way. One, for me, science fiction is not writing about robots or aliens, but it is story of humans. Story of challenges that humans face due to advances in science and technology. May be it is not happening now, but may happen in future. What these young writers are trying now is to take up relatively newer scientific advances and project them into the future to see what challenges they may pose for humans. That way they are more innovative.



**KS: Isn't science fiction a story set in a different time and space? Distant from the reality?**

**GP:** No, I don't. There was a time when scientific advances took considerable time to come into practice and affect the human life. That is not the situation today. Today we see scientific advances impact and change our lives, whether we like or not. Some of the scientific advances, especially in biotechnology, have intruded into our very private lives too. Things like testtube babies, IVF (in vitro fertilization) and things of that sort have been affecting our lives. We can't have science fiction totally devoid of these developments. This is a reality, if not today, certainly tomorrow. The fast pace with which we are advancing in science, this may happen if not this evening, definitely tomorrow. So I don't agree that science fiction has to be adventurous, non-realistic or magical like Harry Potters' series. I don't consider Harry Potter as science fiction at all. It is just a fantasy. You can't call it a science fiction.

**KS: You have been communicating science in both Marathi and English, and do you find any difference between the two?**

**GP:** Yes. Writing in Marathi is more satisfying. I don't subscribe to the view that communicating science in Marathi, or for that matter in other Indian languages, is difficult because there are not suitable words. In science communication, especially popular science writing, explaining concepts clearly is important than the words. Some times we may have to coin a new word, but coining new words itself is not enough. It should communicate. One reason writing science in Indian languages is more challenging than English is because they are diverse. Even in Marathi you have so many dialects, and that makes it challenging.

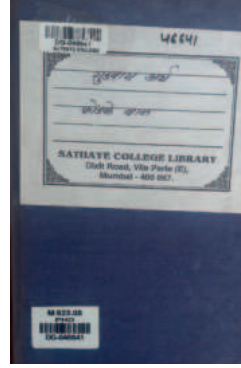
**KS: For example?**

**GP:** I remember one instance. I was to write an article on microbiology and fermentation. If you look at the Marathi dictionary, there is a word for enzymes and fermentation called *kinvan*. But

while speaking to my wife, I found that for fermentation a different word is used colloquially. So instead of using *kinvan*, I used the other word which was understood by most. Fermentation is used traditionally in kitchens to make idli, dhokla and such other dishes. So people know what is fermentation. They had a word. Why not use it?

**KS: Is there any Aha moment, an article or story, that you would like to cherish and remember?**

**GP:** Yes. One work, I would not say it popular science, but a document. I was involved in creating a document Vision 2035. Predicting the future in a different way, I enjoyed the work, and remember it as a significant output. I have been writing for so long that it is difficult to list out one or two that made impact. But I can tell about those that gave me joy. Once around year 2000 I was chatting with a group of friends. The topic was time. I told them that time is a very interesting concept because, it is both a measure and the measured! It is a dimension, as Einstein described, and an abstract idea. We can measure it, like we weigh matter or measure space, but cannot feel it the same way. There was an editor of a newspaper in it. I forgot about this discussion, but the very next the editor called me to ask if I could write a series of articles on different aspects of science for a weekly science page for children. I was taken aback. Time is such an abstract concept that explaining it to educated itself is difficult, and now for children! It was a challenge. One night, while asleep, I had a flash. Why not use Vikram Aur Bethal type of narrative? Vikram Aur Bethal also dealt with



morals, a kind of abstract idea. So why not time? That started another series of articles for children on time. I enjoyed it most, because it was also most challenging.

**KS: Writing for decades, have you noticed any change in your style? In writing?**

**GP:** Yes. I had a style. I always use a conversational tone in my articles, and use more of colloquial words. This helps to connect with a wider audience. Now a days, my style has changed a little. I find that my writings nowadays are more literary. More to a matured audience. I don't know how this happened. But it is noticeable.

**KS: What do you think of future? Of science fiction or Science communication?**

**GP:** I think science communication will be very important in future. As the pace of science and technology is very fast, communication and outreach also becomes very important. This was felt very deeply during Covid times. I have hope. I feel now that more and more scientists are talking of outreach. May be they feel it is important, or may be only for personal development. But there is a perceptible change. Earlier, scientists usually looked down upon popular science writing, but not now. Especially, science communication in Indian languages is now considered important. That is a happy change. As I said, in Marathi a new crop of science fiction authors is coming up. But we need more.

**Sri Kollegala Sharma**, a former Chief Scientist at CSIR-CFTRI, Mysuru, is an experimenter in science communication in Indian languages especially Kannada.

**Email:** kollegala@gmail.com



Illustration by: D K Ramesh

# The Renaissance

**BAL PHONDKE**

The resounding round of applause brought Madhavrao out of his reverie. He looked around. The audience, to a man, was looking at him. Those on the rostrum too. Even the speaker himself. He was embarrassed. He shifted in his seat. He tried to obtain relief by re-crossing his legs but with no avail.

He had no clue to that sudden applause. *What were they applauding? What was the speaker saying? What was he telling them about me?* He had seen expectation writ large in all those eyes focused on him. *What did they want from me? Were they disappointed because I just sat still? Made no move?*

All sorts of doubts had started playing

'let's-go-round-the-mulberry-bush' in his head. He knew this would happen. He was sure of that. That is why he did not want this felicitation. He never did like that people should shower praise on him in his presence. That he should listen to all that without batting an eyelid. He did not wear a thick skin of that sort. He always felt uncomfortable

in the presence of anyone saying a good word about him, whether in private or in public. Particularly in public. Instead of feeling proud he was haunted on these occasions by a nagging suspicion that he had committed a dreadful faux pas.

He never could understand why any importance should be attached to a person. A person was mortal. If at all there was anything immortal it was his work. A work of art in the case of an artist like him. It should be that work of art that should get talked about, be admired, or be condemned for that matter, no matter who the artist is. That was his way of looking at the world at large.

That is why he had so far assiduously stayed away from limelight. He had only placed his paintings for public scrutiny. He had not even bothered to read the reviews. He had no interest in them.

He had painted because his inner self, soul if one wanted to call it that, had demanded it. It was the only way he had to express its inner turmoil. He did not want to know how others viewed it. That is why he had shown no inclination to be an office bearer of any of the several artists' associations. He had merely enrolled as an ordinary dues-paying member. In that capacity he would attend some of their programmes, always occupying a nondescript back seat. And then he would slip out as unobtrusively as he had come in. Neither his presence was ever noticed, nor his absence detected.

But he could not get out of this felicitation function of today. He was basically a shy person. He could never willfully hurt anyone's feelings. That is why when his close friends and relatives, his near and dear ones mooted the idea of this felicitations he could not muster enough courage to say no. He tried to persuade them but finally gave in when they persisted. After all, Fellowship of the prestigious Lalit Kala Academy was not an ordinary honour. It was not bestowed upon any Tom-Dick-and Harry. So when his admirers took the lead in organizing a felicitation function on the occasion he gave his consent, albeit reluctantly.

Even so he insisted on a short and simple ceremony, devoid of pomp and publicity. He would have been happy if

it had remained an informal function restricted to a select number of friends. But his fans were many. They could not let slip the rare opportunity to see, at last, in person the artist whose paintings they had appreciated for so long. For them this chance of seeing him, possibly listening to him telling about the birth-pangs of a few classic works, was but a chance in a million. It was but natural that they should crowd the hall and belie all expectations of the organizers.

That is how he came to be sitting in front of them all. All that multitude. Sitting there like a bashful new bride, the blushing red on her face vying with the shocking pink of the bridal attire.

"For the last forty years Madhavrao has kept himself busy performing this art Yagya ceaselessly, without a moment of rest." The speaker took a meaningful pause, perhaps to catch his breath, only to resume with vigour once again. When he first came into limelight in 1990, it was with his now legendary Abhisarika, the painting that at once cast a spell on the art lovers and continues to do so even today. It has won a unique place in the hall of fame much like Leonardo da Vinci's 'Mona Lisa'."

Madhavrao prayed for a way to melt away on the spot. He felt awkward with the hyperbole the speaker was employing liberally. How can I even think of being compared to the Great Leonardo? But his subconscious reminded him that he was at his peak while painting Abhisarika. If some one had drawn a parallel between him and Leonardo at that time, he may not have objected a great deal.

The mention of Abhisarika brought up the time capsule buried deep in his mind. How new ideas, ever new concepts used to crowd my mind then, each vying for attention? How the desire for novel experimentation burned incessantly! Nobody could believe that Abhisarika had taken, shape totally from his imagination. They had all speculated

widely, often wildly, about the "model" for Abhisarika. Even a few names were mentioned at the time, to the delight of those mentioned but to the discomfiture of Madhavrao.

In that respect it had some similarity with Mona Lisa. The thought brought a half smile to his face, not dissimilar to that of La Gioconda. But it stayed there only for a fleeting moment. For, the very next moment he was reminded of those unpleasant developments. How many of those here know that Abhisarika was lying unfinished for several months?

Abhisarika had developed well from the moment of conception. But when it reached a kind of adolescent stage Madhavrao suddenly became aware that the hand that held the brush, the one that wielded the brush any way he liked, had suddenly turned rebellious. It had started disobeying his mind's orders. It had started behaving as if it had an existence of its own. It had stopped enacting brush strokes dictated by him. When he wanted the brush to go in a straight line it would suddenly go along one alluring curve ending at a totally unexpected spot. In another age Madhavrao would have been convinced of being a victim of black magic and would have approached a shaman or voodoo expert to effect a cure.

But this was the twenty-first century and Madhavrao was a rationalist. He went to a doctor. But the medico too was flummoxed. He called for some specialists to help him. They invited others. Finally a neuro-physician came up with a diagnosis. Some of his brain cells had started degenerating. Much like hairs on his own brush falling off over a period.

"Does it mean a tumour is growing?" The detached coolness as he asked the question surprised even himself.

"No! No! It's not that. A tumor develops because some cells start growing in an uncontrolled fashion. It's

just the other way round here. Here the cells are wearing out from that part of your brain that is responsible for artistic expression."

"I see! That means Parkinsonism. Or possibly Alzheimer's disease."

**It means it is going to get even worse. I'd not be able to make the brush see my way. I'd not be able to express my thoughts through my paintings.**

“Not even that. But, well, something similar. I don’t believe there is a name as yet for this disorder of yours. This is the first case I have encountered. I haven’t come across one even in the vast medical literature. That is why...”

“...That is why what, Doctor?”

“I was about to suggest it to you. If you do not mind, I would like to carry out some more tests, take a cat-scan or two for record. It would help me consult other experts elsewhere, even abroad. Moreover, I am convinced that this is just the beginning of your...”

“...Oh! I see! It means it is going to get even worse. I’d not be able to make the brush see my way. I’d not be able

to express my thoughts through my paintings.”

“No! No! I didn’t mean that,” the doctor hastened to add.

“Nothing definite can be said about these neural disorders. Certainly not about those of the degenerative kind. We cannot predict with any confidence the direction in which they would develop. Or about the speed of their development nor whether they would develop at all or rather stay put in a stagnant, half-witted stage. If I keep on examining you regularly I might be able to form an opinion.”

“Half-witted stage!” Madhavrao tried to laugh. But it sounded hollow.

“That is a pretty good description of my condition, doctor. This brush of mine, it had become a part of me. As if a new limb had germinated out of this flesh-and-blood hand. And now this limb is trying to sever its umbilical cord. It is trying to behave like a delinquent teenager. No wonder I am out of my wits reaching a half-witted stage.”

“Don’t despair, Madhavrao,” the doctor tried to reassure him patting him on the back. “Didn’t I say this was just the beginning. We should thank our stars that it was detected at such an early stage. I’d be able to keep a close eye on it and take appropriate steps at the right time.”

“I am not worried, doctor. There is no dearth of half-witted artists having come up with all-time classics. Vincent van Gogh, for example.”

The doctor preferred to remain silent.

True to his word, Madhavrao also didn’t worry much about his condition. He did not miss any of his regular visits to the doctor. But simultaneously he threw himself headlong in his work. With a renewed resolve, renewed determination he learnt to control his brush. He even allowed it to have its way once in a while. With new found enthusiasm he kept on working to complete his painting. His disciplined haste of those days was not much different from the one scientists approaching the countdown of a rocket launch engaged themselves into.

And all these efforts resulted in the completion of *Abshisarika*. It was acclaimed far and wide. That is what this speaker is reiterating.

“*Abshisarika* represents not only a significant stage in Madhavrao’s career but it is also an important milestone in the march of Indian, nay global, art. That painting gave birth to a new stream. And Madhavrao’s own career took a new turn.”

A new turn indeed! He is right. Absolutely right. But can I say with confidence that I took the new turn myself? Or did my brush force me to take it? This chap is extolling my intelligence. How would he react were he to be told that, that very intelligence had started wearing thin like the sole of an old shoe. Would his tongue start to behave like my

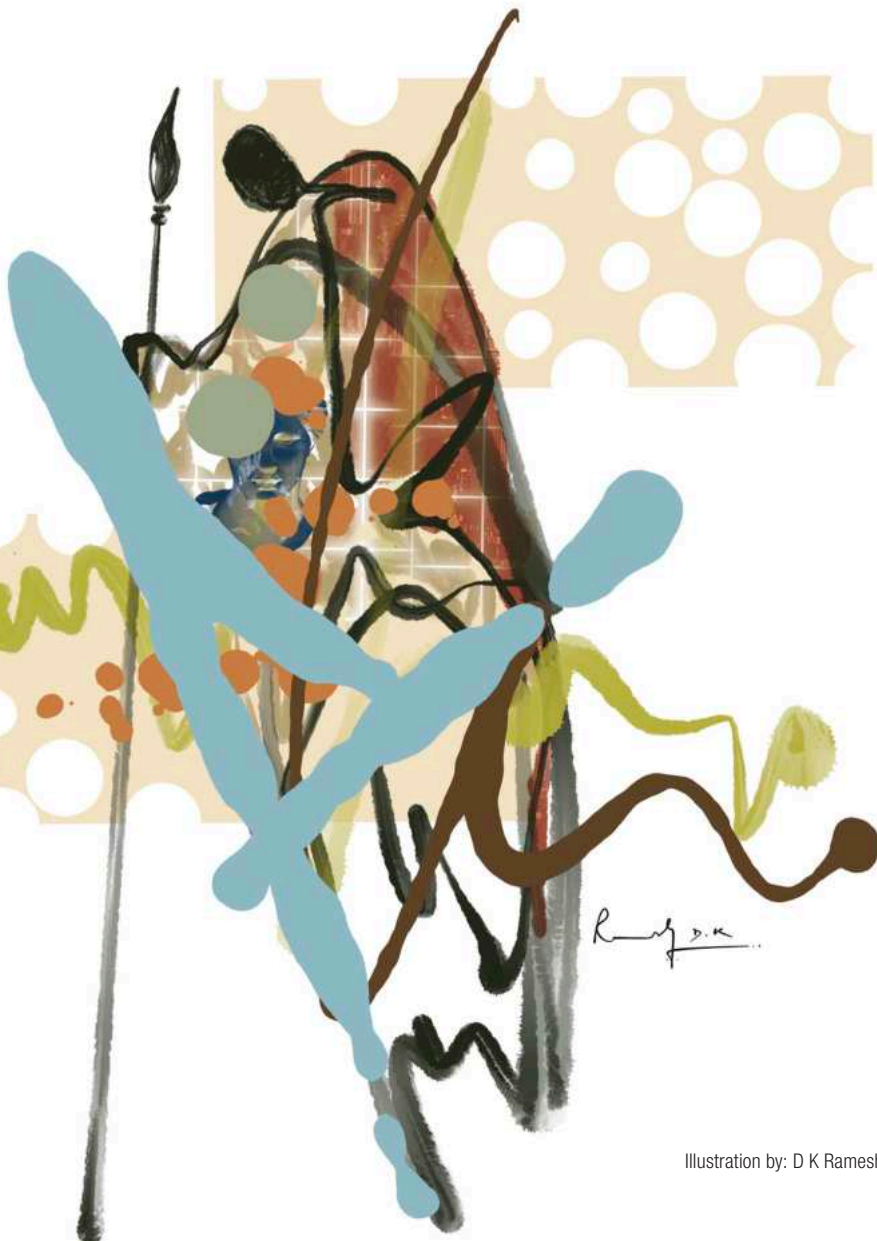


Illustration by: D K Ramesh

brush did in those days? *Take turns that he does not intend? Would it utter words that are not in his mind?*

Were that to happen wouldn't it throw all this carefully chalked out function totally out of gear? The irreverent thought brought a mischievous smile to his face drawn taut with increasing discomfort.

"It is generally believed that talent starts waning once one reaches forty. It is true too. But only for ordinary mortals like us. These crass generalizations, these empirically derived rules do not apply to those gifted with exceptional genius. Rather it is these exceptions that prove the rule.

"Madhavrao's brush did show some signs of faltering when he was in his forties. Some of his paintings from that period did little to enhance his reputation. Not that they were inferior. Not a chance. They would still be considered first rate were they to be produced by someone else."

Oh No! He is overstepping his limits now. He does not have the guts to say that those were absolutely mediocre paintings. Even a novice would do better. A dim-witted child would tell you that those paintings were devoid of any sense of proportion or purpose.

**He threw himself headlong in his work. With a renewed resolve, renewed determination he learnt to control his brush.**

In fact they do not focus on any well thought out concept. I am not one to be unduly disturbed by criticism of even the best of my efforts. Why should I lose my equanimity if those paintings were condemned, showed for what they really are? Absolute trash. Even a painter given to painting film hoardings would be able to easily surpass their quality. How could one maintain quality? It was becoming increasingly difficult to control the wayward brush. Almost by the hour the situation was worsening. That disorder

which had just raised its head while painting Abhisarika later grew like a weed gone berserk.

He did visit the doctor regularly as promised. But right at the beginning he had extracted a promise from the physician too.

"Doctor, I have a request."

"Yes."

"Promise me not to hide anything from me. Howsoever shocking your diagnosis, you will not try to spare me. I am prepared to face the inevitable. At least I'll try hard. But I'd hate to be kept in the dark about it."

"All right. I understand." The doctor sensed his determination to face the situation. "I appreciate your courage. I will not keep anything from you. I'll talk to you openly and explicitly about my observations and my interpretations. I promise."

And the doctor had kept it too. That is why the doctor was not able to hold out any hope on any of the visits that Madhavrao made regularly. He couldn't even state that a status quo was being maintained. He couldn't say that there is no improvement but that there is no further deterioration either. He couldn't say that even once. Slowly but surely the disorder kept getting more serious. Not one painting turned out as planned. Disgusted with himself. Madhavrao finally decided to call it a day.

"About thirty years ago, when he was still only in his forties Madhavrao had almost retired. Everyone was stunned by his decision. But he wasn't prepared to keep on doing run-of-the-mill paintings. He never cared for the

ordinary stuff. His talent was always eager to scale new peaks, take up new challenges, strive for new expressions. How could it be confined to run in the same groove? It is like expecting a caged lion, that king of beasts, to roar in inhibited fashion.

When told that there is nothing more left to conquer, Alexander the Great was reduced to tears. Madhavrao's self-imposed renunciation had emerged out of that state of mind."

The man is incorrigible! What

hyperbole! Those ludicrous similes and analogies, woefully out place. The king of beasts and Alexander the Great! Bah! How could one even entertain the thought of conquering new territories when he was hard put to keep those in hand from slipping out? The hand that once rattled a sabre so menacingly wasn't capable any more of tying one's show laces. If it was a lion it was one which had lost its heave, its incisors, nails, even the roar.

The decision to give up painting was not an easy one. He had taken it with a heavy heart. But there was no use pretending anymore. The doctor too was moved visibly by it. But he couldn't offer any solace. The affliction was getting out of hand. All the treatment strategies that he had employed had come to nought. Even that faint ray of hope that he had seen at the beginning had disappeared.

"So you will give up painting, will you? What are you going to do then?"

"What am I going to do!" Madhavrao tried to laugh failing miserably in the attempt. "What can I do? I haven't done anything else in my life than paint. But if that is getting corrupted like this then – you know, Doctor, there is no shortage of hypocrisy and sycophancy even in our field. So whatever I am painting these days can also be made to pass muster under the guise of a new, unheralded, abstract style. Even that can be lauded.

Even that can be made to fetch a handsome price on the strength of my past reputation. If I cultivate the right critiques even this rubbish can be arranged to be looked upon as a great piece of contemporary art but I won't be able to live such a monumental lie. I am not made of that fiber. I would rather content myself with whatever little I have been able to achieve so far and get on."

For a moment nobody said anything. The doctor too felt terribly depressed. But all he could do to express his anguish was to press Madhavrao's hands gently thereby hoping to convey his sympathy.

It appeared as if everything was over bar the shouting. In fact it would have indeed been the end had not the doctor showed a ray of hope on his next visit. On that occasion the doctor had greeted him excitedly.

"Ah! There you are! Come in, come in. I have been eagerly waiting for you."



not want to raise false hopes. But now the experiment is over. And successfully too. It is no longer an experiment but a practical mode of therapy.”

“Therapy?” Madhavrao was still skeptical. He had a right to be.

“Some of your brain cells are wearing out. It is not possible to arrest their degeneration. They are almost dead. Nor would their place be taken by other new healthy ones as happens with the skin cells.”

“I know that, doctor...”

“There is one way out,” the doctor interrupted him. “Transplantation. Cell transplantation. Transplantation of new cells capable of growth, cells that will replace the degenerated ones physically and functionally. There is only one source of such cells.”

“And that is...?” Madhavrao asked, almost against his wishes.

“A fetus. A young foetus. The nascent neural cells. Cells of an embryo can repair the damage caused by the degeneration of your own brain cells. They will grow and endow you with a new vigour. Almost a hybrid vigour. You will once again be able to ply your art, take it to new heights. Your art will blossom again.”

“But, but, where can one get such a foetus? Who will donate one? Besides that transplant operation...”

“Don’t worry about it. Leave it all to me. All you need do is to give your consent.”

I had initially balked at the grotesque concept. To arrest a new life, nip it in the bud and then use it as a source of raw material appeared utterly reprehensible to me. But then who does not hold his own life very dear? To save it people are apt to go to hell and back. And then I am not a Mahatma.

“And just as suddenly as Madhavrao had thrown his brush away earlier he picked it up again. He started a second innings with a new found vigour. There was a renaissance. And in style, in all the majesty of an uncrowned king.

His paintings from this period, particularly those completed over the last decade or so have acquired a unique, mystique character. At once they appear fierce and yet charming.

Illustration by: D K Ramesh

“Doctor, I have come to bid adieu.”

“Adieu! What are you talking about? I am at a loss to understand...”

“...Well, when this affliction has assumed such a terminal proportion. What is the point in getting checked up again and again. All that these tests would do is to tell me how close I am to death if not already dead. It does not matter a wee-bit if I remain physically alive or not.”

“Don’t talk like that, Madhavrao, please.”

“Well, normally I am reticent. You must have noticed that. But if I do not talk now perhaps never would I...”

“Look, please take a seat. I have promised to always apprise you with the truth. Remember that? Then if your end is indeed near I will not hesitate to tell you so. In so many words, if you like. O.K.? Now listen. I am not going to talk of the end. On the contrary, I have found an answer to your problem. It was still in an experimental stage. That is why I did not mention it earlier. I did

**But Madhavrao could not find words to adequately express all that inner turmoil. He merely stood there, speechless, with folded hands**

The joy they provide is tinged with sadness. Even as you are enticed by them, they make you, to borrow from Kalidasa, paryutsuk. They remind you of those famous couplets of the Kavikulguru “Ramyani Veekshya Madhuranshcha Nischmya Shabdan...!”

“This novel style of his is now making waves all over the world. Many others have tried to emulate it without any success whatsoever. What Madhavrao presents through these paintings is a world seen from an altogether different angle. Words fail to describe the shapes or compositions precisely. If at all one can call it, it is wordless poetry.

Then, there is the colour combination. It is simply out of this world. It is cosmic. Even as one is totally captivated by those enchanting shades of colour one fails to find these colours anywhere else. They do not figure in any other painting. Indeed, they are not seen anywhere else in this world. It is a mystery how Madhavrao is able to conjure them. It is said that there is a radiance, brighter than a thousand Suns, that runs this universe. What Madhavrao presents to us is probably various facets, a kind of kaleidoscopic image of that supreme radiance.

At long last the Lalit Kala Academy too was compelled to recognize this unique, one-of-its-kind art exposition. That provides an excuse, if one was indeed necessary, for us to express our appreciation, our joy, our gratitude for having been served with such extraordinary artistic fare. We are here, as you are all aware, to salute this undisputed emperor of the Kingdom of Art.”

The words kept impinging on his eardrums like tidal waves. He felt their reverberations, the shock waves spreading in all directions. But there meaning left him high and dry. He sat there in a trance. A storm was raging in his mind and he was being swept away in its wake.

He was still in that semi-conscious state when the president doffed the ceremonial shawl, the mahavastra, round his shoulders, placed the coconut in his hands and presented the giant idol

of Nataraja as a memento. And in that dazed state he found himself in front of the microphone apparently to say a few words acknowledging the felicitation.

But he was confused. What can I tell all these fans? They have sung paeans to this new style of mine. How can I lift the veil of mystery surrounding it? They find the style different, even unique. They feel the mystic in it. They realize that behind the composition lie different eyes. It is true these eyes are different. Their perception is indeed out of this world.

Who told you that the foetus has no cognition, no sensation. Go ask those scientists constituting the Parliamentary Commission in Britain chaired by Dame Warnock. Ask them when life begins. When life emerges not when it gives out the first yell after coming out of the mother’s womb but it is born on the eighth day after the zygote is formed out of fertilization of the mother’s egg cell by the father’s sperm. That is the real eighth day of creation.

It is only truism to say that ‘with life comes cognition and sensation’. After all, that is the difference between animate and inanimate, isn’t it? The block of wood does not respond at all to variations in temperature, humidity, light. For that matter, it is not rattled even by the impending landing of the woodcutter’s axe. It has no sensory perception. So how can it respond? But the tree from which that block came, is in a different league altogether. It expresses itself freely in response to changes in the environment. Come rain and it blossoms. Let it get cold and it wilts. That is the hallmark of life.

The live foetus too would be blessed with sensory perception. What you see on my canvasses is an expression of that perception. It represents its feelings in response to the experiences it has had in its cocooned state. These are the images of this universe seen through unopened eyes. You find those colours out of this world, do you? Fools, all of you are

fools. They indeed belong to this world. But they can be found only beyond the rainbow that shackles your eyesight. To see these colours you have to learn to see beyond the obvious. We cannot see them. But then, how can we, wearing as we do these blinkers of what is called culture? These are the views seen through eyes before they get hemmed in by all that education, training, moorings in cultural and social ethos. The lot, The rot. That is why they do not see shapes. They see only the radiance in all its splendor.

That is what appears on my recent canvasses. I call them my canvasses because my hands, my brush, my palette have provided the vehicle for this expression. Otherwise, they are not mine. I am as Sant tukaram says, “Mee to hamal bharvahi” “ I am but a load carrying beast of burden.”

The underlying current of thought, planning, composition, colour, all that comes from that unknown, unborn, unwanted foetus. If you want to shower praise shower that on It. Give the credit rightfully to It. Felicitate It not me.

But Madhavrao could not find words to adequately express all that inner turmoil. He merely stood there, speechless, with folded hands, those very hands which could have very competently put on canvass all that chaotic commotion in his mind.

There was a deafening applause. Even as he tried to acknowledge that, he could not but feel pity for that congregation. What sort of art connoisseurs are these! They think I am greeting them with these folded hands. Fools. My dear chaps I am here with these folded hands because I want to salute the real artist. To convey your accolade, your felicitation, your ovation to It. You do not understand. You will never understand. I must make sure that the credit goes where it is really due. To It. Until I become sure of that I must stand here. With folded hands. In silence!

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**Dr Bal Phondke** is a leading writer of science literature. He worked as a nuclear biologist at the Bhabha Atomic Research Centre and served as the director of the Publications and Information Directorate of CSIR.

Email: [balphonke@gmail.com](mailto:balphonke@gmail.com)

# STORYTELLER DEDICATED TO NATURE AND SCIENCE FICTION

**S**enior author and science fiction writer Shri Devendra Mewari is one of those rare litterateurs who are integrally and intimately connected to both the fields of science and literature. On the one hand, where he has been writing on science for the general public for more than fifty years, on the other hand he is active in literary creativity with his science fiction and poignant memoirs.

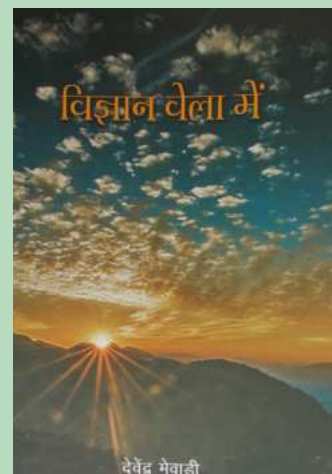
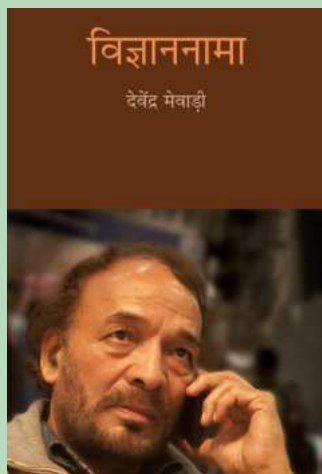
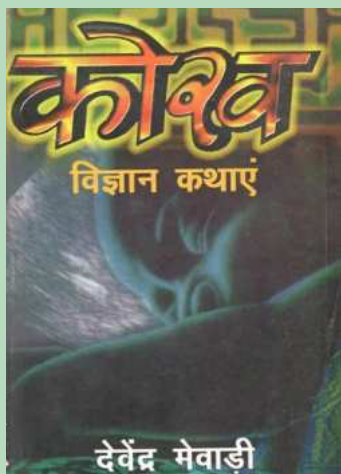
While his autobiographical memoir 'Meri Yaadon Ka Pahar' has touched the hearts of a large readership, his active science writing for a long time has contributed immensely in spreading the awareness of science in the society.

In the words of Mr. Mewari himself, "He writes science with the pen of literature," which makes his writing piece fascinating and the common man finds it interesting like a story. He has written science in various styles so that science can reach the readers in every possible way of writing. These experiments of writing can be seen well in his major works- 'Katha Kaho Yayavar', 'Rahi Main Vigyan Ka', 'Vigyan Vela Mein', 'Vigyan ki Duniya', 'Delhi Se Tungnath Via Nagnath', 'Natak- Natak me Vigyan', 'Meri Yadon ka Pahar', 'Vigyan aur Ham', 'Vigyannama', 'Meri Vigyan Diary-1', 'Meri Vigyan Diary-2', 'Meri Priya Vigyan Kathayen', 'Phaslen Kahen Kahani', 'Vigyan Barahmasa', 'Vigyan Jinka Rini Hai', 'Sooraj ke Aangan me', 'Saurmandal ki Sair' etc.

Mr. Mewari has also edited and translated several science journals and scientific books. Apart from print media, he has also constantly done high level science writing for electronic media like radio-television and digital media.

He has been awarded many national awards for his remarkable science writing, including Kendriya Sahitya Akademi Bal Sahitya Puraskar (2021), Vanmali Vigyan Katha Samman (2021), Central Hindi Directorate (Ministry of Human Resources), New Delhi's 'Shiksha Puruskar' (2018), National Level 'Vigyan Bhushan' Award of Uttar Pradesh Hindi Institute, Lucknow (2017), Prestigious Atmaram Award of Central Hindi Institute, Agra, received from the President; Hindi Academy Delhi's 'Gyan-Prodyogiki Samman'; 'Rashtriya Vigyan Lokpriyakaran Puruskaar' from the Department of





Science & Technology, Government of India; Bhartendu National Children's Literature Award etc.

To create scientific consciousness in the society, Mr. Mewari has also made science accessible to students and other people in different parts of the country through the oral art of storytelling. In the last four years, he has taken more than 1,00,000 children on a journey to the world of science through his storytelling. Mr. Mewari is currently actively doing freelance writing.

**Shri Nimish Kapoor**, editor of Dream 2047 Hindi talked Shri Devendra Mewari on science fiction in detail. Here are the edited excerpts from the discussion:

**NK: To begin with, I would like to know how you define science fiction? It is important for budding writers to understand that a science fiction story is called a Vigyan Katha or a 'Vigyan Galp'. Can a general story based on science be different from science fiction?**

**DM:** Nimish ji, there are a lot of definitions of science fiction. Science fiction writers and critics have defined the genre in several ways. If you ask me, a story or fiction which has been created on some culmination or possibility of science is called a science fiction. It is a kind of a story that stems from the impact of science on humans and human society. This impact might be in the past and we are facing its results now in present, or it can be woven on the impact which science is currently exerting on human beings and human society, or it can be woven on the future potential of science.

Now the question remains whether it is science fiction, vigyan Katha, or vigyan Galp. Here I would like to add that famous American writer-editor Hugo Gernsback named this genre of story writing as 'Scientifiction' in 1926 and said that it is a genre of fiction only. To make it clear, he gave the example of Jules Verne, HG Wells and Edgar Allan Poe's stories which were being written on scientific facts and future possibilities in that period.

Then in 1937, another American writer-editor John W. Campbell Jr. led science-fiction literature to prominence. Later, 'Scientifiction' came to be known as science fiction. In the print medium science fiction is often abbreviated as 'SF' and in the film and media it is called 'Sci-Fi'. In Hindi, it is customary to call science fiction as 'Vigyan Katha', although if it is called 'Vigyan

Galp', it includes science-based drama, skits, poetry and songs and films etc. along with science fiction. In this way 'science fiction' gives a wide meaning.

**NK: You have been writing science fiction for five decades. Please tell our readers a brief about when and how your first encounter with science fiction happened, and a brief summary of the journey that followed.**

**DM:** The seeds of the science-fiction genre germinated in my head in Nainital where I was pursuing higher science education. Along with studies, I was writing Hindi stories which were getting published in famous short story magazines 'Kahaani', 'Madhyam' and 'Utkarsh'. It was the time when I met fiction and science fiction writer Yamuna Dutt Vaishnav 'Ashoka'. He told me about science fiction and said that his science fiction 'Vaigyanik ki Patni' (Scientist's wife) had won first prize in a story competition when he was studying at Allahabad University. The judge of that competition was famous litterateur Jainendra Kumar. Seeing my interest in story writing, Vaishnav ji suggested that being a science student, I should also write science fiction.

Then I wrote my first science fiction story, 'Shaival', in which a scientist living by a lake hosts a feast for his friends. All the delicious dishes in the feast are made from the algae of the lake. That science fiction story of mine was published in the weekly 'Parvatiya'. After that, to make people aware of the misconception of ghosts on big trees like Banyan and Peepal, I wrote another science fiction story- 'Pret Leela'. That story was published in 1965 in the literary magazine 'Tripathaga' of Uttar Pradesh Information and Public Relations Department.

Then I got busy and entangled in job and various responsibilities. But, in the year 1976-77, on the suggestion of the famous astronomer Carl Sagan, golden records filled with all the sounds and visuals of our earth were sent through Voyager-1 and Voyager-2 spacecrafts to the intelligent beings of other unknown worlds, my imagination also took flight. I kept thinking who would get those records in some other world?

What if those places had only bacteria, viruses and insects? Or if a species like monkeys got those records? But there might be intelligent beings like us too? Why just like us, there might be a civilization more intelligent than us. That's all, and here

I got the seed of the story and I wrote the novelette –‘Sabhyata ki Khoj’ (Discovery of Civilization). This novelette was published in the famous magazine ‘Saptahik Hindustan’ of that era in the year 1979, whose editor was Manohar Shyam Joshi. The story narrates the culmination of a civilization flourishing on a distant planet of the universe and how it is defeated by the intelligent robots created by it only.



world will keep changing like this. The famous science fiction writer Isaac Asimov wrote in one of his articles that the futuristic world he and other science fiction writers were imagining in the third decade of the last century became a reality in the seventies. He was right. That's why science fiction stories being written today, are presenting an image of tomorrow's world.

My journey of science fiction writing continued. After that another long science fiction story ‘Bhavishya’, written by me, was published in the Saptahik Hindustan. ‘Good bye Mr. Khanna’ was published in the Diwali special issue of ‘Amrit Prabhat’, Lucknow, which was further included in ‘Beeta Hua Bhavishya’, the science fiction collection of Indian languages being published from the National Book Trust, India, under the editorship of Dr. Bal Fondke, a famous writer and editor. Even after that my science stories have been published in various magazines. Each of these science fiction stories has its own account behind it.

**NK: In your opinion, how can science fiction be beneficial in science communication?**

**DM:** Science fiction can become a very natural and powerful mode of science communication. Readers get information about the possibilities of science very easily with the help of science fiction. That's why famous astrophysicist and science fiction writer Dr. Jayant Vishnu Narlikar considers this genre as a powerful mode of science communication. The facts and principles of science which are difficult to explain through direct text or article, the reader easily understands them while reading science fiction. There is a great need for science communication to work in this genre. I go to different states and narrate science stories to students and other people which they listen to very attentively. I feel, knowledge of science can be successfully communicated by reading as well as listening to science fiction stories. In this endeavor, videos, audio programs and comics based on science fiction can also yield a lot of success.

**NK: What would you like to say about Hindi science fiction? Do you think there is a dearth of quality science fiction in Hindi? What reason do you see behind this?**

**DM:** Nimish ji, there is immense potential for science fiction writing in Hindi. The coming time will be of science fiction, I can assert this as science is continuously making a deep impact on our life and society. Due to new discoveries of science and technology, our life, standard of living and relationships are changing. Not only this, our entire environment is also getting affected. New deadly weapons are being made, not only in factories, but in many countries, robots are handling work in hotels, restaurants and even schools and colleges. Tomorrow's

little was written in this genre for the first two decades. The first Hindi science fiction story ‘Chandralok ki Yatra’ (Journey to Chandralok) written by Keshav Prasad Singh was published in the famous literary magazine ‘Saraswati’ in the year 1900. In the year 1922, Rahul Sankrityayan wrote the novel ‘Beesvin Sadi’ (Twentieth Century) imagining the future society. Expressing concern over the lack of science fiction literature in Hindi, Dr. Sampurnanand wrote the scientific novel ‘Prithvi Se Saptarshi Mandal’. Acharya Chatur Sen Shastri wrote the novel ‘Khagras’ in 1950 based on the Cold War between the two superpowers of the world. Before this, in the third decade, Dr. Naval Bihari Mishra, Yamunadatta Vaishnav ‘Ashoka’ and Brajmohan Gupta made remarkable contributions to science fiction literature. From the fifth and sixth decades, a lot of science fiction literature started being composed in Hindi, in which many story writers contributed. Taking this tradition forward, Hindi science fiction writers are writing very good science fiction stories in the twenty-first century, which is helping Hindi science fiction literature getting enriched.

Let it be any language, science fiction can be strong as well as weak. Hindi science fiction that has been written and are being written today include a lot of good and powerful science fiction stories. New science fiction writers of today are very enthusiastically writing stories based on new ideas of science fiction.

To promote Hindi science fiction literature, the genre of



science fiction writing should be encouraged in every way. Interest should be taken in their publication and science fiction should also be included in the textbooks from the primary level itself. Seminars and workshops should be organized for serious discussion on science fiction writing. Feature films, telefilms and television serials should be produced on good science fiction. Excellent science fiction should be rewarded. This will not only give a boost to science fiction literature but its reputation will also increase. Hugo Award, Nebula Award as well as many prestigious awards are given every year in the world to encourage science fiction literature.

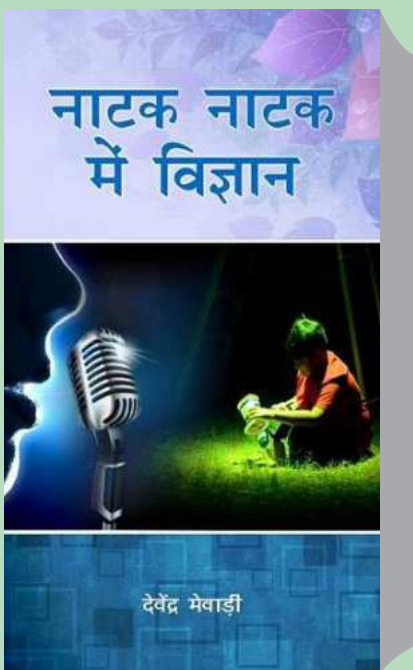
**NK: What advice would you like to give to science fiction writers? What are your suggestions for new writers to come forward in science fiction and what kind of encouragement should be given to science fiction writers by science communication organizations or publishers (like any scheme or fellowship etc.).**

**DM:** Every science fiction writer has his own writing process. All I can say is that they should try to create a story by imagining the impacts of science affecting humans and human society now and in future. A good science fiction can be written if you have your own thinking and imagination, on which there will be no impression of any indigenous or foreign science fiction. Science fiction by other writers should be read but one should use one's original imagination to create science fiction. One more thing, we should create science fiction stories in the environment of our country and time. Such science fiction will create its own identity and will have the stamp of Indian science fiction. If the place of science fiction is abroad or even in some other world, then Indian characters can give a touch of Indianness to it. Foreign science fiction should be read, they will open new windows of your thinking but when you write your own science fiction, it should be based on your original thinking. I have already talked about the promotion of science fiction writing.

**NK: What should be the characteristics of a good science fiction story?**

**DM:** The first thing is that it should be a good story written in the said genre. It means that to write a story of science, the writer should know the art of writing a story. That's why story writing should be practiced first. After that, it is to be thought that how to write science fiction on any effect of science or science generated situation keeping human emotions in mind at the same time. I mean the theme of the story will be based on science. It is very important to keep this thing in mind that explaining any fact or formula of science by creating a few characters is not science fiction. That would be merely called a lesson taught in the class.

Traditionally, science fiction has been written keeping in



mind the elements of the story, but over time, new experiments were done in this genre and today apart from keeping the elements of the story in mind, science fiction writers are trying to create new styles and techniques for writing science fiction. This can be understood very well by reading the global science fiction literature.

**NK: What kind of preparation and skills are needed to write science fiction? Do you think Indian science fiction writers are becoming less inclined to do homework before writing science fiction?**

**DM:** Science fiction writing is a creative act. For this one should try to be well informed and well-read. Listen a lot and read a lot. Then keep thinking about any culmination or possible culmination of the impact of science on man and his society

so that the blueprint of a perfect science fiction is prepared in the mind. For example, after the Golden Record was sent in Voyager-1 and Voyager-2 spacecrafts, I kept thinking about it for a year and a half, my mind went on wandering and finally got the story seed of 'Sabhyata ki Khoj' (Discovery of Civilization). The outline of the story became clear. Similarly, after reading the news of freezing the body of an incurable cancer patient before his death, I kept thinking for a long time whether that patient will be revived tomorrow? As a reply, I wrote my long science fiction story 'Bhavishya'. Similarly, in the 1960s, the question was being raised in science journals whether man would interfere in the work of God? Will men play God? But, in 1978, the world's first test tube baby Louise Brown was born. Since then, millions of test tube babies have been born all over the world. Due to this achievement of science, the situation of 'hired womb' came to the fore in the society. Surrogacy started being taken advantage of by paying money. Keeping this human issue in mind, I wrote the science fiction 'Kokh' (Womb).

In my opinion, every science fiction writer should do homework in his mind, you may call it a mental turmoil.

**NK: Why has science fiction in our country, especially science fiction written in regional languages, not got the same place that science fiction written in English and other languages is getting in western countries?**

**DM:** The truth is that science fiction stories in Bengali, Marathi and Assamese languages are richer than Hindi today. There is a lot written and being written in this genre there. Regional languages and Hindi cannot be compared to science fiction in English and other foreign languages in western countries. There, science fiction has been encouraged more in every way by writers' own organizations and at the government level. Science fiction literature has been given full recognition. Whereas, in the history of Hindi fiction in our country, you will not even

## SCIENCE FICTION

find the mention of science fiction. The first science fiction story in our country was written in 1900 while the first science fiction story in China was published in 1904. However, science fiction writing has been continuously encouraged in China by forming science fiction clubs at the level of villages and communes. The science fiction literature there, is very rich today. They have celebrated the centenary of science fiction literature in the year 2004 whereas there was no discussion of Hindi science fiction literature in our literary field.

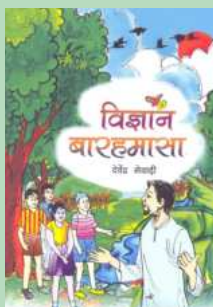
**NK: In western countries science fiction films are produced in large number and sometimes with huge budget whereas in our country science fiction films are rarely made and their quality is very low as compared to science fiction films made in western countries. What reason do you see behind this?**

**DM:** Nimish ji, the main reason for this is that Indian science fiction is not selected for film making. Take the example of Steven Spielberg, the world's greatest film director. He has directed several science fiction films, including E.T. the Extra-Terrestrial, Terminator and Jurassic Park. It is said that the original story of 'ET' was written by Satyajit Ray, the great filmmaker and writer of our country. A masala film 'Koi Mil Gaya' was made here on this subject. That's why science fiction should be taken very seriously. Many such science fiction stories can be selected from Indian science fiction on which very good and successful feature films can be made.

If any sincere film director makes a film on good Hindi science fiction, it will certainly be of high quality and successful.

**NK: What should be the aims of a good science fiction story? Also, kindly tell us what 'take home' messages science fiction contains for readers.**

**DM:** If I speak the truth, Nimish ji, when a science fiction writer writes a story, he does not write a story keeping any specific objectives in mind, rather he wants to write a good science fiction story on the theme woven in his imagination. So, science fiction must be good science fiction. This only can be called an objective or aim. The science fiction story which is written for telling some facts of science or for scientific awareness, will be a science story fabricated for that purpose. I understand that just as a social story puts forward the society and human relations and emotions, similarly a science fiction in its literary form also puts forward the problems related to human life and its society. Just as every literary story tells something, science fiction also tells something to the readers. It speaks about both the positive and negative effects of science in a language of a fable, but at times also warns of future possibilities. Science fiction writers have long warned about the horrors of deadly weapons created based on new discoveries and inventions. Similarly, science



fiction writers also warned about the increasing pollution in water, land and air. The question is, how seriously the policy makers take those warnings of science fiction writers.

**NK: Tell us about some science fiction stories written in India and the world and their authors, which according to you must be read.**

**DM:** In my opinion, those remarkable science fiction stories of Indian languages and of the world must be read which have created the history of science fiction literature. This can guide new science writers as to when and what kind of science fiction have been written. They will come to know about the diversity of subjects as well as the unique experiments of the pursuit in this journey of evolution of

science fiction literature. For example, the first science fiction story in Hindi 'Chandralok ki Yatra' (Journey to Chandralok), Rahul Sankrityayan's short novel 'Beesvin Sadi' as well as science fiction stories of prominent old and new writers of Hindi should be read. Similarly, if possible, translations of science fiction in Bangla, Marathi, Assamese and other Indian languages should also be read.

This genre of stories was named science fiction in the third decade of the last century. While the stories of this genre were being written long ago. The first story in English which can be called a science fiction is 'Frankenstein: Or the Modern Prometheus', written in 1818 by Mary Shelley. Jules Verne, author of adventure travel fiction as well as H.G. Wells, an author of profound social science fiction is today considered the father of science fiction.

Apart from these, Arthur Conan Doyle, Jonathan Swift, Voltaire, Anatole France, Rudyard Kipling, Jack London, E.M. Foster, Karel Capek should also be read to know about historical journey of science fiction. Modern science fiction writers like Isaac Asimov, Arthur Clarke, A.E. van Vogt, Robert A. Heinlein, Ray Bradbury, Aldous Huxley, George Orwell, Kurt Vonnegut should also be read.

Similarly, English science fiction and translated stories of other languages of the world should also be read. And, also, science-based works of Hindi mainstream litterateurs should also be read like Sanjeev's novel 'Reh Gayien Dishayen Isi Paar' and 'Faans', Mahua Maji's novel 'Marang Goda Neelkanth Hua', Dr. Ramesh Upadhyay's science fiction 'Mausam ki Bhavishyavani' and Mamta Singh's novel 'Alav Par Kokh', etc.

Nimish ji, thanks a lot for this detailed discussion.

Mewari ji, thank you for the meaningful discussion on science fiction.

**Nimish Kapoor** is Scientist E at Vigyan Prasar.

Email: [nimish.vp@gmail.com](mailto:nimish.vp@gmail.com)

Translated by Ms Kshama Gautam

DEVENDRA MEWARI

# Delhi, My Delhi!

Dear grandfather, Mitali and I send you our best regards. How are you doing? How is grandma? We haven't received any letter from your side for a long time. Don't you remember us? You know, in the meanwhile we missed both of you a lot. Would you like to know why? Because we went on an educational tour from our school to the 'Sunshine - Golden Hill', Darjeeling. We wanted to see the sunrise. We wished to see the enchanting effect of the sunrays on nature. This time we were given this project as a task by the school. For this we had to go somewhere to see the sun as you know in our city Delhi the sun is not visible at all. There is so much smog here in the morning, evening and even during the day that it just seems that the light is coming through the other side of some old worn glass. So much smoke of motor-cars mixes in the air that the sky seems to be surrounded by it all the time.

Grand pa, once you wrote us that when you used to work in Delhi, you used to suffocate in the morning and evening due to the poisonous fumes of motor cars. While going to the office and returning home, the smoke used to be so thick at many intersections that eyes started burning and people started coughing as it choked the throat. You also wrote that some people started wearing 'masks' while driving scooters and motor cars. It made us laugh when you said that those people would look like creatures from other planets. But, that is more than thirty years old situation. Now if you come here, you will mostly see creatures from other planets! The environment of our Delhi is filled with so much smoke that people prefer to wear 'masks' not only while driving but also while roaming in the markets. We were told in our environment class that about 1400 metric tons of S.P.M. reaches the sky of Delhi. It means, Grand pa, such a part of poisonous smoke keeps floating in the air in which we are breathing,

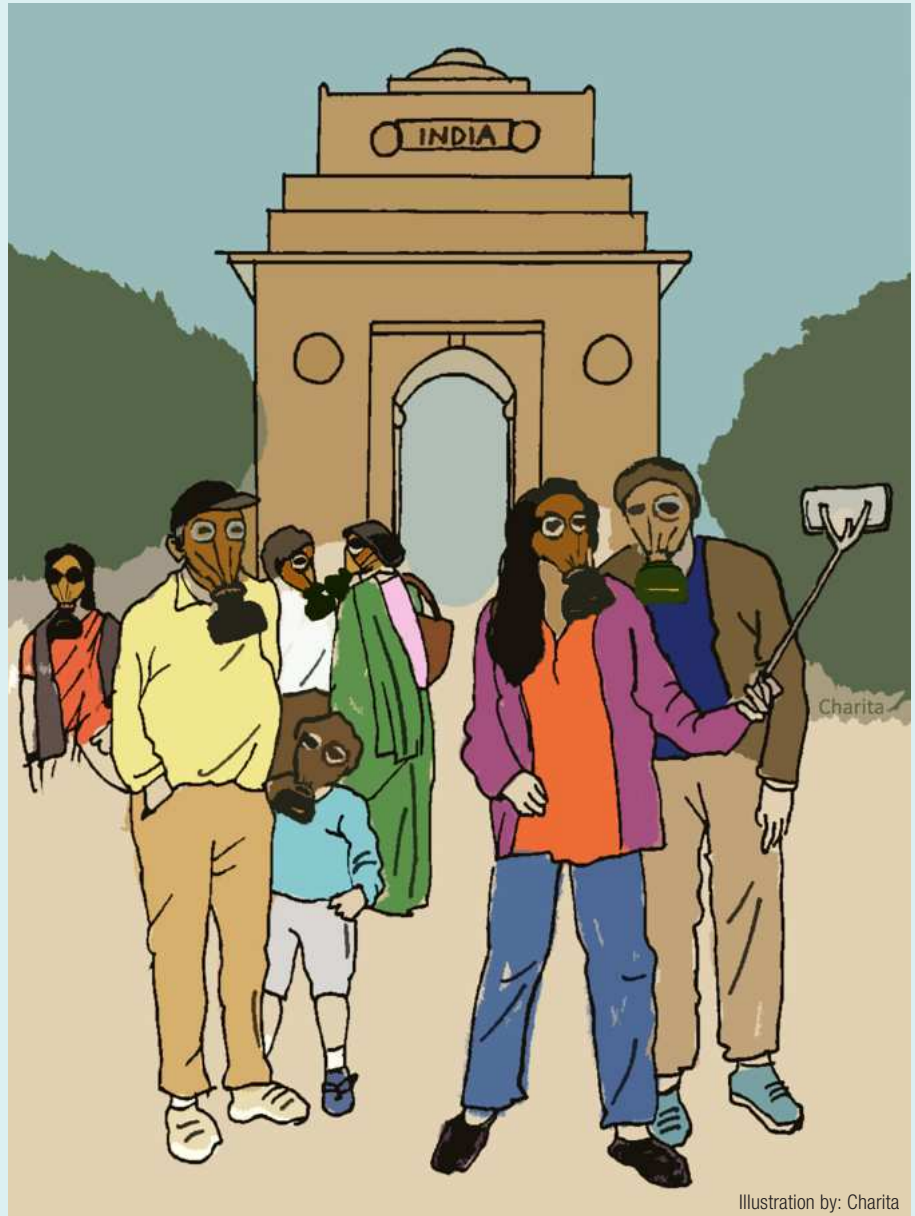


Illustration by: Charita

You took a good decision not to stay here and returned to the lap of the same mountains where you were born. Papa says that you adored mountains. He says, you used to have dreams of mountains always! Even if an incident happened there, it would have been visible in the sight of mountain itself!

After visiting Darjeeling, now I wish that like you, I too have dreams of trees,

mountains, birds and rivers! I can never forget the sun rising and setting through the tall Dhupi trees at Tiger Hill. I also had a dream of Kanchenjunga and Everest peak changing color before sunrise and after sunset. Let me tell you something funny, grand pa. While returning, we stayed at Mirik, do you know who used to wake us up in the morning? Birds..! Yes, the chirping of birds used to wake us up.

At dusk again the same chirping of birds, chime of crickets and classical music of frogs! Believe me grand pa, Mitali and I used to feel as if we have come to another world. And yes, how can I forget to say about stars! We had never seen so many stars in the sky. Innumerable stars and the white Milky Way. On the other hand, in Delhi only a few stars are visible in the open sky after heavy rains. The rest we can only see in the 'Nehru Planetarium'.

When we returned from there, we felt like we had returned to some burning furnace. In a furnace, dangerously hot and full of suffocating smoke. When our plane hovered over Delhi for landing, only black roads and thousands of concrete buildings were visible below. Dry buildings wrapped in a blanket of smog. It seemed that there was not even an inch of land anywhere. Coming back to Delhi after that clean air and greenery, my heart sank and I got scared. Mitali and I wore masks most of the time even at home for several days.

You people must be experiencing the sunrise and the sunset every day, must be breathing in pure air. What do we do? Neither father ever gets free time nor does mother have time. That's why we too cannot go anywhere. If we come to you, we will fill our lungs with plenty of pure air. Now I can feel that the noise of motor-cars has reduced a bit. Looks like it's been late night. So let me close now. I will discuss rest of the things in the next letter. In the morning we will be awakened not by the chirping of birds, but by the noise of the horns of buses and motor-cars.

All right grand pa, convey our best regards to grand ma. I will wait for your letter.

- Mukul  
Delhi  
May 14, 2025

Dear grandfather

I have received your letter. You wrote that sometimes you have great desire to talk to us on the telephone, but this is not

possible because you are hard of hearing .... it is you who do not hear clearly at this age of eighty-two. But, grand pa, would you believe-we are already turning a little deaf even at this age! Why only us, there is such a raucous noise of buses, motorcars, three wheelers and two wheelers on the roads of Delhi that most of the population of three crore 11 lakhs here is hard of hearing. We have all been victims of- 'noise induced hearing loss-', in the parlance of doctors. People are unable to hear a whisper here. They own shrill alarm clocks. They talk to each other loudly and almost shout. You wrote that when you stayed here, the population of Delhi was around 85 lakhs and around 22 lakh vehicles used to ply on the roads. But today more than 91 lakh buses, motor cars and other vehicles run on the roads of huge city Delhi. Grand pa, you can assume that how much noise they would be making and how much poisonous smoke they would be releasing in the air. Can you guess Grand pa, which disease are most people suffering from? From asthma and bronchitis! This is due to the toxic fumes mixed in the air.

I have read the books which you suggested me. After reading them I am thoughtful. Where did all that greenery vanish? Where have those green trees along the roads gone? Grandpa, I think now they have remained only in these books in the form of pictures. The books read- Sir Edwin Lutyens laid the foundation of New Delhi and Mustov planted green trees here, about 105 years ago. Trees of Neem, Jamun, Shirish, Pakar, Amaltas, Gulmohar, Jacaranda, Vilayati Babool, Semal, Kachnar.... You also enjoyed their shade and coolness. But, now the roads here are without shade of those trees. No idea, when most of those trees dried up. Do you know why those trees dried up?

They started drying probably during

your time. In the craze of covering everything with cement, concrete and stones, cemented tiles were also laid around trees along the roads. The whole ground was covered. Then the trees also stopped absorbing rain water. Gradually they went on drying up. It would rain, but instead of going into the ground, its water would flow directly into river Yamuna by flowing through roads and drains. Grand pa, you once wrote that thirty years ago when you were in Delhi, people used to get water from handpumps in many colonies. Water was drawn with the help of the motor pump and was filled in the tanks. It was used for bathing and washing. Drinking water was supplied by the Municipal Corporation in the morning and evening. But, now there are



neither handpumps nor motor pumps because the underground water has reached so low that it is not possible to pump it out. I wish, instead of draining the rain water of Delhi, millions of gallons of water would have been allowed to be absorbed in the chest of the earth or it would have been deposited in the raw lakes and ponds in the low-lying areas, then water would have remained in the ground. My heart aches grandpa when I think that those big old trees must have continuously searched for water inside

the earth with their long roots, but as the water receded, they too must have died in agony of thirst. That's why now neither the red palash glows, nor the Gul mohar blossoms, nor the leaves of Neem and Peepal rustle.

Grand pa, despite all this, there is no shortage of drinking water. We laughed heartily to know that in those days when you were here there used to be several demonstrations for drinking water carrying empty pitchers and buckets! It is not so now. Here we get drinking water from Yamuna, Ganga and Tehri dam. Yes, demonstrations still happen but to create lakes and ponds, to stop lakhs of gallons of rain water in Delhi itself. If this happens then it is possible that the level of water inside the earth will increase here. May be the earth's womb will turn green here again. But who knows how long it will take. Even if this happens, rows of huge shady trees will be able to stand after twenty years. Yes, we can bring back the greenery in our Delhi with fast growing trees and ornamental shrubs and vines. Am I right grandpa?

- Mukul  
Delhi  
June 5, 2025

Dear Grandfather,  
It is nice that after reading about the condition of today's Delhi, you remembered the Delhi of your time. You have written that perhaps this was bound to happen because the speed with which Delhi was 'developing' and the builders were erecting sky-touching concrete buildings in every inch of its land, it seemed that one day Delhi would become a concrete forest. Seeing that speed, you left Delhi. Which poet's line did you keep remembering while leaving... You have written... Yes, it is Zauq.....*kyon jaye Zauq Dilli ki Galliyan chhod kar!* My father and we also think so. We think, whatever may happen, it is still our Delhi! Yes, the tourists who



Illustration by: Charita

come to visit the Red Fort, are now very surprised to utter those words- If there is a heaven on earth, it is here... it is here... it is here... Zameenasto.... Zameenast.... You think yourself; how would it feel to read all this while wearing a mask on your face?

Do you still remember the 'Green Lung' aka Ridge of Delhi! Grand pa, on the entire black-gray smoky canvas of Delhi, it seems like only a 'stroke' of a green brush. It also remains dirty due to the soot of polluted air. Sometimes when it rains and the leaves are washed, the trees of Pilkhan, Peepal, Neem, Keekar, Gular, Shisham etc. spread greenery. It has been stopping the hot sandy winds coming from Rajasthan, otherwise half of Delhi would have turned a desert by now. The Ridge is now a protected forest area. For this, probably the fight had started in your time itself. Okay grandpa, tell me one thing, why, were we unaware of the fact for so many years that the Ridge is truly the 'green lung' of Delhi? If it is not there, Delhi will stop breathing. It will suffocate.... Well, it is a protected forest now. The birds chirp there. All the monkeys of Tughlakabad and other areas now live in the Ridge.

Grand pa, father keeps saying what will happen tomorrow. The population of Delhi is increasing day by day. Its 'development' is also increasing rapidly. The concrete jungle is getting denser. The number of mechanical animals and

their raucous noise is increasing. The chimneys of the growing industrial units are spewing smoke in the air every moment.... then, what will happen in coming future? He says, what are we giving you? That's all? He says, tomorrow your children will ask, what have you given us? What will you answer then?

Grand pa, what will we really answer? While turning the pages of the illustrated books of the history of Delhi, we also have the same question in our minds –what have you people given us? The apartment where the sun never shows up! The roads in which the uproar of lakhs of scooters, motor-

cars and buses are tearing eardrums with screams and spewing poison in the air at the same time! The air in which we cannot even breathe! The land in which no seed can sprout!

That's why today we are going to 'Smriti Van'. It is situated in the area of Ridge only. We have determined that we will enhance the power of the green lung of Delhi. Papa has somehow got permission to plant a tree after trying hard. Thousands of rupees will be spent on this. But, it is a matter of great happiness that we can plant a tree there. Earlier, trees were planted here only in the memory of the loved ones who had left the world. Now we can plant trees to give breath to the coming generation. We are naming the tree after you and Grandma. This tree will be for us from your side....and, for those who come after us.

All right grand pa, I will write the rest in the next letter. Send my regards to grandma.

Your loving grandson  
Mukul

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**Shri Devendra Mewari** is a veteran author and science fiction writer who are integrally and intimately connected to both the fields of science and literature. On the one hand, where he has been writing on science for the general public for more than fifty years.

Email: [dmewari@yahoo.com](mailto:dmewari@yahoo.com)

Translated by Ms Kshama Gautam

# ALIENS ARE WATCHING

ARVIND DUBEY



**18** November 2066. This day was going to be very beautiful, and full of curiosity for those interested in stars, meteors, and celestial phenomena. Because according to the meteor shower prediction calendar of scientist Mikhail Masalov, a Leonid meteor storm was about to appear today. By the way, every year from 6 to 30 November is the time of Leonid meteor

showers whose peak is visible on 18 November.

Milind is an amateur astronomer which means he does not have any astronomy degree etc. He has not even taken any training in astronomy. He loves gazing at the sky. His hobby has taught him a lot. Now he is better than a well-trained amateur astronomer. He is very excited. As the night fell, he is

settled on the roof of the society building with their picnic blanket, a thermos full of his favourite black coffee, some snacks, three or four bottles of water, and a laptop in which he had installed Deep Sky Astronomy software. He adjusted his telescope on a tripod and rotated it toward the Leo constellation in the sky. He connected it to Bluetooth and the software of his laptop. It will give him information about today's meteor storm, such as the number of shooting stars visible in the sky every hour.

Milind lives in my society. We are friends because I also have some interest in astronomy. So that Milind can easily connect me. So when Milind finally settled on the rooftop of the society building, he rang me.

"Mishraji, will you not come upon the roof today?"

"Why?"

"Don't you remember today is the night we were waiting for" He laughed.

"Milind, don't talk in Greek and Latin. Tell me directly, what is the matter?"

"Forgot so soon, that day we were talking about celestial fireworks in the sky."

"Oh yes, today is 18th November, a Leonid meteor storm day". I beamed.

"Why haven't you come yet?" You know, these shooting stars are best seen before sunrise. Midnight has passed. This meteor storm also comes after 33 years. Somebody gets to see this only once in his lifetime.

Although I was about fall asleep but with Milind's request and my curiosity to see the meteor storm, I got up. After putting on a sweater, and taking a sheet and blanket, I also reached the rooftop of the society building, where Milind was sitting with all his belongings.

We watched the meteor shower for a long time. Today there were a lot of meteors.

"Look, Mishra ji, what is this?" Suddenly Milind called my attention.

I focused my eyes on the object, Milind was pointing to. A wide line of bright light was drawn in the sky from one end to the other, which lasted for a long time. In meteor showers or meteor storms, there are not such large meteors. Most of them

are a maximum of 10 millimetres in size and weigh up to half a gram. This was a very unusual thing.

“It’s something else, Mishraji,” Milind whispered.

“What can it be?” I asked.

Milind had no answer.

I doubt, “Somewhere under the guise of that meteor storm, some of our enemy countries have fired non-nuclear missiles at us so that we keep thinking that it is a meteor.”

“Mishra ji, you always look for the ‘grey’ side of the matter,” Milind said sarcastically.

“No-no, I have a doubt.” I was grinning.

The night was starting to end. The red colour sunrise started appearing in the sky. Now the meteors will be less visible in this light, although the meteor storm was at its peak. I and Milind picked up our belongings and started getting down.

“Mishra ji, have a cup of hot tea with me before you go home.”

We started descending the stairs of Milind’s house. As we were sipping our tea, we turned on the TV. to see how the reporters are reporting last night’s meteor burst event. We were also curious about what are they saying about bright broad bands of light stretching from one end of the sky to the other.

This was the first news.

There was another weird news that yesterday there was a sudden fire in our country’s three ordnance stores. According to eyewitnesses, a bright red object fell from the sky directly on the store which caught fire. The full report is awaited as the reporters are not allowed to go there. The possibility of missile attacks by enemy countries on the ordnance reserves cannot be ruled out.

More such news started coming from all the developed and few developing countries. Some people were considering it as a computer fault. According to him, there may have been some damage to the ordnance reserves of a country due to the fall of a small meteor which may be recognized as a missile attack by its automatic defence system. Then the automatic defence system of that country has would have responded to the



Illustration by: Ragini

country in the direction of the meteor. The automatic defence system of this country would have fired missiles at another country and the trail would have continued. It was also suspected that some human factor was also involved in this and this was done intentionally because only nonnuclear weapon stores were targeted exclusively. People who believed in aliens were considering it an alien invasion.

After extinguishing the fire, when the debris was cleared, the first attempt was made to find out what type of weapon was used to target the ordnance stores. Ballistic experts could tell that a weapon of high kinetic energy was used. It could have been a special type of bomb, or a missile, but they have not found evidence of any kind of explosive or gunpowder.

While clearing the debris of the burnt weapons, they started getting one foot by six inches strips of a special metal, which was neither found on the earth nor could they gather information about it. These strips were found in the rubble of the weapons of every country. On whom something was written either in English or in countries where English

is not spoken and understood, in their mother tongue. Its alien connection was confirmed when a warning engraved on it was read which meant-

*“We live in another solar system one million light-years away from you. But we share the same genetic pool. Why it is a mystery for us too? We and you have so much in common in the genetic material that even organ transplantation can be done between us. There are few planets in the universe on which there is a possibility of life and there are very few planets on which creatures like us and you, whom you call humans, live. Although we and you may be slightly different in appearance, it will be due to the difference in our atmosphere. That is why we try to protect you. Because we know that if we will be in the trouble, we may need your help. We have a highly developed system to destroy large meteors in the atmosphere itself. You don’t know that we have saved your earth many times by being destroyed by such great meteors.*

*We are observing for a long time that people of the earth are involved in hostile acts toward each other which in the future*

may destroy their civilization. They have developed deadly nuclear weapons and are continuously increasing their killing power and number. After all for what? These weapons are especially dangerous because ultimately they will be used for each other and ultimately your civilization will perish. We don't want that. There are some planets on which there is life and they want all of you to perish. That is why they have sent some people of their species to the earth by changing their form, who are trying to provoke others by sensing the political situation there. This time they have made another fatal move. They have genetically modified a simple virus and released it in a city of a nation on the earth. When that started killing its victims in millions, people came to know that there has been an infection of some unknown virus. They will accuse that particular nation of spreading this disease all over the world. On one hand, this virus will kill a large population of the world and on other hand, all countries will make allegations and counter-allegations over each other and will fight with each other. Many of these nations are empowered with the most modern nuclear weapons. So one click of their defence computer will destroy the entire population of the earth. So stop fighting over this virus. Fight the disease and stop fighting with each other. We are making some efforts that will cause a gradual decrease in the outbreak of this virus. Till then bear with each other and live in peace with each other. It is good for both of us. Save this earth from destruction. Save your species from extinction. Before other people, come from other planets for destroying your species succeed, we will destroy you because we will not let the earth go from our hands at any cost. But we want you to survive. May your earth be green.

As a warning, we have attacked your non-nuclear warheads only with kinetic weapons. Kinetic weapons are those in which we do not use any kind of explosives. These are cylinders 20 feet long and 1 foot in diameter of a special metal, found in abundance on our planet. We have projected a few of

### THE SCIENCE BEHIND THE STORY

In the conflict between North and South Vietnam in 1975, major nations of the world were divided into two parts, with one part supporting North Vietnam and one part supporting South Vietnam. US support lay with South Vietnam. Few weapons which were used in this war were made of solid cylinders whose front end was pointed and the rear end had metal wings. No gunpowder or nuclear warhead was used in these. These weapons played an important role in destroying the bunkers in this war. These weapons were called 'Lazy Dog Weapons'.

Impressed by this experience, America started a project under which twenty feet long and one-foot-in-diameter cylinders made of tungsten, were to be installed on an artificial satellite in the Earth's orbit. These cylinders were planned to be projected into the Earth's atmosphere if required. Due to the gravity of the earth, their speed and temperature will increase continuously due to gravity and the friction of the earth's atmosphere. When these weapons hit a target on Earth, they were likely to cause severe destruction without the use of gunpowder or nuclear warheads. It is not possible to say with certainty whether this project was implemented or not, but at that time this project was called 'Operation Thor'. The present science fiction story "Aliens are watching" is based on this project.

The meteor shower prediction calendar of scientist Mikhail Maslov and the Leonid meteor storm mentioned in the story are established scientific facts.

these in an orbit of your earth. When they reach the Earth's atmosphere, due to the effect of your Earth's gravity, their speed becomes about 36,000 kilometres per second in your measurement and their temperature also becomes very high. But this metal can tolerate it. Due to this huge kinetic energy and extreme temperature, they can cause terrible destruction without explosives. We have other weapons but we have used these

weapons without explosives to warn you. But when it collides with a solid object, it can pierce it and go inside it. In this process, it evaporates on its own after doing its job and you do not get any proof of this. So don't try to find proof. You take this as our warning and live together. If we wanted, we could destroy your nuclear weapons stockpile, but the emanating radiation could destroy your entire population. We warn you that if you do not learn to live together if you do not stop this nuclear arms race, then even if you do not destroy yourself, we will destroy you and take over your earth. However, we will not be happy in doing so. Slowly start destroying whatever nuclear weapons you have collected in a phased manner. So that you do not get harmed and these harmful weapons are also destroyed. If you don't do this you may have to face the consequences. That's all we have to say."

It's been a year now. The governments of the world have started implementing this. Today nuclear prohibition treaties are being signed everywhere. It is also being signed on how to gradually disable these manufactured weapons so that this nuclear arms race can end and humanity can live in peace.

Mankind is slowly moving towards a peaceful world.

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**Dr. Arvind Dubey** is well known science author and Professor in the Department of Pediatrics at Hind Institute of Medical Sciences, Ataria, Sitapur. He has authored more than a hundred popular science articles, three dozen science fiction stories, a picture book by NCERT, an award winning book for neo-literates, three books on popular medical science in English and one book in Hindi and a children's science fiction collection. Another science fiction collection from the Publication Division and a popular medicine book from the National Book is under publication. Writing for radio and television for over four decades. He is recipient of International awards for Two radio programs in Thailand and Iran, one science article in international competition on Google. Shri Jagpati Chaturvedi Bal Vigyan Lekhan Samman from Hindi Sansthan Lucknow, Awarded by Tagore University Bhopal for science fiction writing.  
**Email:** drarvindubey2004@gmail.com

ARVIND MISHRA

# THE LIVING PROOF!

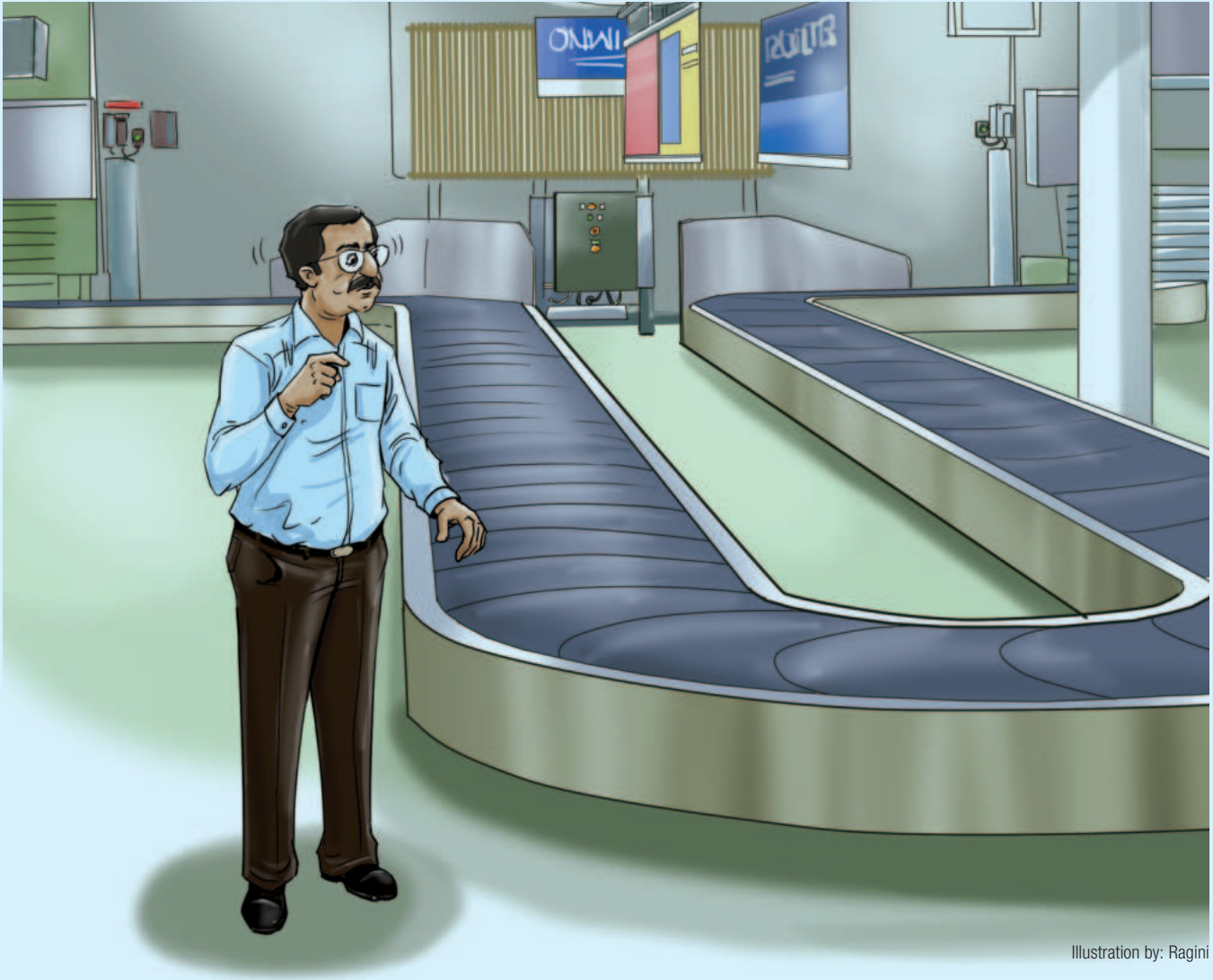


Illustration by: Ragini

An important issue was being discussed in a meeting urgently called by the higher officials at the Delhi-based headquarters of the Airport Authority of India.

“We have to take a decision immediately. Leh’s Kushok Bakula Rimpochee Airport’s air traffic control is on the hotline. A rather unusual case. Captain of one Skyhigh Air Service’s flight, which was not traceable in 2016, is asking for landing permission,” Managing Director RK Bhalla said. He was terribly worried, as was clearly visible from his voice.

“But now Skyhigh Air Service itself does not exist. Air India is now operating flights in the same slot.” A surprised voice filled the atmosphere.

“That’s it, but now that missing plane of 2016 is seeking permission to land in Leh, and that too in 2026? After ten

years? What is happening? I am not able to understand anything.” The managing director’s panic increased. After a moment of silence, he said again, “But air traffic control wants an answer immediately. The plane is hovering over the airport, with only a few minutes of fuel left in the plane.”

“Please give the permission immediately.” An officer suggested.

“That’s fine, but we have to inform the Home Ministry “I don’t know what’s the matter; it could be connected with the issue of national security.” The managing director appeared indecisive to take some action to solve the issue.

“We can inform home ministry but to avoid an impending accident, the plane should be allowed to land first.” On the suggestion of a senior officer, the air traffic control at Leh

airport was allowed to give permission to land the plane by consensus, with the strict instruction that the matter should be kept a top secret.

The Skyhigh Air Service plane was about to land at Kushok Bakula Rimpochee Airport in Leh. Professor Meshram Paliwal glanced at the back of the seat in front of him. It was five o'clock in the evening. It had been almost an hour since the plane had taken off from Delhi. The aircraft was gradually descending from its normal altitude. Professor Paliwal was invited to preside over a conference of neurologists held at Spituk Buddhist Monastery. The conference was on research into brain activity during meditation by Buddhist monks. Controlling all the conscious activities of the body by some monks during meditation, even a brief pause in the heartbeat, was a challenge to medical science. Professor Paliwal was going to have an in-depth discussion on this subject with neuroscientists like himself.

The voice of the air hostess resonated, "Please fasten your seat belts. We are about to land at Leh Airport shortly. It is thirteen degrees outside, and there is a slight mist. Thank you for flying by Skyhigh. "Hope you will give us an opportunity to serve you again."

The landing of the aircraft at the airport was smooth. In a few minutes, the aircraft was connected to the aerobridge of the airport building. It is a common practice observed for Indian passengers to disembark as soon as the plane lands. There is a strange rush among people. Professor Paliwal sat quietly. He was the last person to get off. After crossing the aerobridge of the aircraft, he looked around. He was surprised to see that all the passengers except him were going straight out of the exit gate. Only he was heading toward the baggage belt for his luggage.

The next moment, he was standing in front of a conveyor belt. Area was brightened by the lights. The belt was rotating at its slowest speed. But there was no sign of the luggage. Suddenly, Professor Paliwal felt something strange. Somewhat weird. Fifteen minutes have passed. But neither his luggage nor any other passengers were seen near the belt. And where were the passengers? They had already left through the exit door. He was standing there alone, and an uncanny silence prevailed, which was getting more fearsome by each passing moment. Professor Paliwal felt restless. He walked towards the help counter.

"How can I help you, sir?" asked the lady manning the help desk with a professional tone in her voice.

"My bag hasn't arrived yet."

"Please show your baggage slip."

Professor Paliwal took out the baggage slip kept in his wallet and gave it to her.

The lady at the help desk took the baggage slip, and suddenly a look of astonishment appeared on her face. Professor Paliwal was looking at her face anxiously.

"Sir, how is it possible? The date on your baggage is September 5, 2016."

"Then? What is the problem? Today is September 5,

2016." "No sir! Today is 26 March 2026."

Professor Paliwal felt that strange feeling again. He could not understand anything. What was happening?

"I didn't understand anything." "What are you trying to say?"

"Sir! According to this baggage slip, your flight number SH 204 is dated September 5, 2016, when the airport was under the control of the Indian Army. Only a few civilians were allowed to travel."

"How can this be possible? You mean to say that I am a traveller from the past."

"Sir, you may not be a passenger of the past, but your bag must have been unloaded here in the past."

"What kind of joke is this? What is happening? Either I've lost my mind or you've lost your balance."

Professor Paliwal had lost his temper. There was an uproar.

It was September 5, 2016, and the sun was about to say goodbye. On that evening, a news headline was flashing on the digital media.

"An aircraft of Skyhigh Air Service lost contact with air traffic control just before landing on the runway at Leh airport. The whereabouts of the aircraft are not known." The news reader was explaining at length how a Skyhigh Air Service plane had gone missing just as a Malaysia Airlines flight a few years earlier had suddenly gone out of sight of air traffic control and had no trace of its whereabouts. This was another shocking incident. There were no signs of the plane that was about to land at Leh Airport. Nothing is known. Along with one hundred and twenty-five ground technicians of the military, Professor Meshram Paliwal, a renowned neuroscientist from India, was also in the plane. This second incident that happened after the Malaysian plane disappeared is equally mysterious. It was also mentioned in the news that all three wings of the army have been deputed in the search for the missing aircraft.

Here, Professor Paliwal was arguing with the ground staff of Skyhigh Air service. It was a strange case for the senior ground officials. A passenger has just arrived at Leh airport and was looking for his bag, which has the year 2016 stamped on its slip. In the year 2016, Leh airport was completely under the authority of the army, due to which only a few civilians were allowed to fly just to check the feasibility. However, the ground staff completed their formalities by assuring Professor Paliwal that his bag had been added to the lost and found list. But Professor Paliwal still had to experience more amazing situations. He was expecting that someone from Spituk Monastery must have come to receive him. However, his name was not on the name placards in the hands of a few people standing outside the exit gate. Most of the passengers had left anyway. There were only a few placards. Silence was prevailing at the airport. Exhausted, he booked a taxi and headed to Spituk Monastery, which was only half an hour away from the airport.

As if the grand palace of Spituk Monestary were waiting

for Professor Paliwal. A mesmerizing environment was being created by the gushing of the spring flowing from the Himalayan ranges and water falling in the Indus River at the side of the monastery. Right in front stood a colossal statue of Goddess Kali—a striking syncretism with Buddhism. Professor Paliwal did not have to wait long. As soon as he entered the monastery, he was called by the chief monk. He was received by a young monk who respectfully escorted him to the chamber of the head; a revered monk named Sanjay Bhante.

On the nameplate of the chamber door, the words ‘Sanjay Bhante, Bhikshu Pramukh’ were engraved in a script that looked like Pali. As soon as he entered the room, Professor Paliwal’s eyes fell on the table, and he was shocked to see the object lying on it. It was his lost bag. As he was about to pick it up, a soft, deep voice hit his ears.

“You’re welcome, Professor Paliwal. Be patient; you will get your bag. But before it is handed over to you, wouldn’t you like to know how it reached here?”

When Professor Paliwal turned toward the voice, he saw a dignified person standing in front of him. An impressive person was slowly moving forward from the inside door of the room to sit on his chair.

“I am Sanjay Bhante! Currently I am heading this great Buddhist monastery and responsible for taking care of about a hundred Buddhist monks living here.”

Professor Paliwal kept looking at him without uttering a single word until he sat down on the chair. Then suddenly, words burst out of his mouth.

“This is my bag.” “How come it is here?”

“I’ll tell you everything, Professor; have some patience; first, have some refreshment.”

“No, no, first you clear all my doubts and let me know whether all the preparations for the scientific conference have been completed or not.”

“Certainly. But first, have some refreshment. Calm down a bit, and then I will answer all your queries... First, understand that you are not in the year 2016, but in 2026. And that conference... The one you mentioned has already happened in 2016.”

Professor Paliwal was staring at the head monk continuously, speechless, and surprised. He was not prepared for such an answer.

“Have this sweet herbal drink; you will feel energetic and fresh. Right now, you desperately need some strength.

Then I will tell you everything in detail.” The monk chief offered the drink to him.

“And of course, first I want to tell you something about myself.”

“Yes, yes, tell me,” said Professor Paliwal, taking a sip of the delicious drink.

“It’s a long story, but I’ll keep it brief. I became a Buddhist monk about ten years ago. Prior to that, I was a scientist at the newly opened Department of Metaphysics at Rutgers University in the US. My subject of study was alternate and parallel universes. This means we are surrounded by innumerable universes of different space & time that are separate from our own. All these universes are in different dimensions of time & space and generally do not overlap with each other. But when the artificial dense electro magnetic field is generated, they can overlap each other or naturally, when there is a flow of infinite coronal plasma from the Sun, the same electromagnetic field is generated in the Earth’s atmosphere. That was the subject of my study.”

Sanjay Bhante took a moment’s pause and started speaking again. Professor Paliwal was listening to him, stunned.

“I observed in my experiments that any occurrence in



Illustration by: Ragini

our own space time has an effect upon the events of other universes, though they have parallel separate existences.”

Before Sanjay Bhante could say anything further, Professor Paliwal interrupted him, “Please explain with an example.”

Well, let us understand this with a simple example. In our known history, we know that Mahatma Gandhi was shot by a person named Nathuram Godse. If someone had suddenly twisted his hand at the time...

“But it didn’t happen,” objected Professor Paliwal.

“Yes, it did not happen in our space- time, but it is possible in an alternate history, and the whole chronology of history there would have been changed. Gandhiji would have given a new turn to Indian history by living longer.”

“It’s just building a castle in the air.” Professor Paliwal’s said in disbelief.

“It is not mere imagination; I have created alternative space & time by generating artificial electromagnetic fields inside my laboratory at Rutgers University, but unfortunately our department head labelled me as an eccentric. Not only this, I was thrown out of the university after they convinced university administration.” Sanjay Bhante said it in a serious tone.

“Then how did you come here?” asked Professor Paliwal spontaneously.

“I could not bear the shock. Desperate, I came back to India, and one day I came to this monastery in search of peace. Here, I found immense peace. My fellow monks saw something special in me, and today I am the head of the place.” Sanjay Bhante became silent after saying this.

“Whatever you are saying is beyond my understanding...” Professor Paliwal could not even complete his words. Suddenly, Sanjay Bhante interrupted, “My experiments to generate alternate space- time within the laboratory are now underway here. I have set up a laboratory. Would you like to have a look?”

“What proof do you have that alternate space - time or histories can be created?” Instead of showing interest in seeing the laboratory, Professor Paliwal asked.

“Professor Paliwal, you are the living proof of this yourself. You started your journey from Delhi in 2016, but you have arrived here now, in the year 2026, and just before your arrival, the air service sent your bag here. Where have you been all these years? Do you know that in the year 2016, your plane did not land at Leh airport? It suddenly disappeared from the air traffic control’s radar.” Sanjay Bhante paused for a moment, then started speaking.

“Your plane entered an alternate space - time. Where it was untraceable. You and your co-travellers went to a parallel universe. I do not know what kind of history you all created there, but you have returned to your old space time again. But, by then, more than a decade had passed in this world. Whereas in the alternate space time you went to, only a few hours have passed. ... can you realize this ‘time difference?’ You must be wondering, “How do I know all

this? In fact, a device in my laboratory has been recording all the occurrences of space time change for more than a decade. Its command area is about 100 square kilometres. Since 2016, after the incident of the disappearance of the plane, including you, my instrument has recorded the complete record of your return today.” Sanjay Bhante continued to speak after a short pause-

“You may not have realized what had happened, but the fact is that a decade has passed since your departure from Delhi, and you feel that you are still in the same space time. Today at the airport, too, you were confused. Now, the airport, as per the new rules, immediately sent the passenger luggage to the destination registered under door service. The luggage was yours only. The rest of the passengers were regular visiting army technicians who had not booked any luggage. They went directly to the exit gate, and you went to collect your luggage, which means this bag. You kept on arguing, and this bag of yours was delivered here. But what is the use? That scientific conference was over a long time ago.”

Professor Paliwal was stunned. He could not find the words as in state of shock. The storm of questions that were swirling in his mind had calmed down.

“Okay Bhante! Now there is no point in my staying here. Delhi is also not far away; I will go back.” Professor Paliwal spoke up and got up.

“But Professor, what will you do there now? ... Because of your long absence, the university had terminated your services years ago. You are unmarried, so there is no one else to wait for! Where will the traveller go? Who is waiting for you?” There was a subtle sarcasm in the chief monk’s tone.

“Then what shall I do?” Frustrated professor said.

“If you want...”

“What? Tell me... Tell me what do you want to say.”

“Spend the rest of your life with us in this monastery. You will be the one hundred and one Bhante of this monastery.”

Eventually, Professor Meshram Paliwal accepted Buddhism in a simple ceremony.

Alternate histories and parallel universes are familiar themes of science fiction. This one is an alternate history science fiction narrating the dramatic account of an Indian professor’s accidental entry into a parallel universe and subsequent return to his own world.

**Dr Arvind Mishra** is a well-known science fiction writer. He is the founder secretary of the Indian Science Fiction Writers’ Association. He has presided over many workshops and conferences of science communication and science fiction in India and abroad. Chairing the science fiction session at PCST 2010, the 11th Global Science Communication Conference, Delhi (2010) and representing India at the International Science Fiction Conference in Chengdu, China (November 2019) are of special mention.

**Email:** [meghdootmishra@gmail.com](mailto:meghdootmishra@gmail.com)

Translated by Suman Bajpai

# PACKAGING SCIENCE FOR PUBLIC INTEREST

## A Helpful Handbook For Budding Science Filmmakers

SANTOSH PANDEY



**T**he year was 1965, and Satyajit Ray was at the Berlin Film Festival to collect the Silver Bear award for his film *Charulata*. Ray received the award in the Best Director category. The Golden Bear award for Best Film that year went to *Alphaville*, directed by the famed French-Swiss film director Jean-Luc Godard. *Alphaville* was a dystopian science fiction, and Ray was all praise for it. In an article written the following year, while acknowledging the contributions of other Sci-Fi filmmakers, Ray acknowledged that no other leading filmmaker had attempted science fiction before *Alphaville* happened. ‘The crowning of *Alphaville* thus marks a course correction and will definitely encourage the handful of film directors with a taste for science fiction,’ Ray writes.

Almost sixty years ahead of that year, can we claim that the tide has been completely turned and Sci-Fi films are no longer an exception? Does a noticeable percentage of mainstream cinema incorporate science in its presentation today? Even from an optimist, the answer is bound to be a resounding ‘NO’. Amitav Ghosh, the noted author, lamented that mainstream novelists have banished science fiction to the outhouse of literature. Mainstream filmmakers have made no exception either. Again, science receives a poorer treatment if it doesn’t have a fictional element. Only documentaries, here and there, pick up a scientific topic some time, and the presentation occasionally is an eye-catcher.

Vigyan Prasar (VP), committed to changing India’s science communication scenario, has been relentlessly encouraging filmmakers to take up science for their productions. The recent publication from VP titled *Packaging Science for Public Interest* investigates the current situation and explores the horizon for possible answers. Author Subha Das Mollick refers to a workshop held in 2019 where the ‘...concept notes revealed that most of the students took up ideas circulated in the mainstream media, without understanding the principles behind these ideas. ... The participants were told to think afresh and not fall into the trap of these stereotypes.’

The content is divided into three sections: *The Concept, Progression and Future of Science Communication in India, The Philosophy and the Nut-Bolts of Science Filmmaking and The Practice: Specific Genres/Themes/Films*. It is in the third section of the book that Mollick makes her observation.

Siddharth Kak, producer of the weekly television magazine *Surabhi* that caught the nation’s imagination in the 1990s, comments in his Foreword, ‘The power of films in communicating messages cannot be underestimated.’ A resonance can be heard when Mike Pandey wonders how to sensitize our planet’s even hundred billion people of our planet about environmental degradation. He answers unhesitatingly, ‘I believe good value-based films can be the powerful and effective tool for generating awareness and information in the shortest possible time.’ Pandey’s documentary *Shores of Silence: Whale Sharks in India* not only won laurels but also created awareness that helped to save the concerned species from extinction. However, the obvious question from the budding filmmakers would naturally be – how can I produce such a film? The VP publication can be used as a helping handbook in this regard. Take, for example, the technical side of production. Gautam Pandey has chosen to present an insightful analysis of the digital tools that increase the dimensions of storytelling in ways that were unthinkable

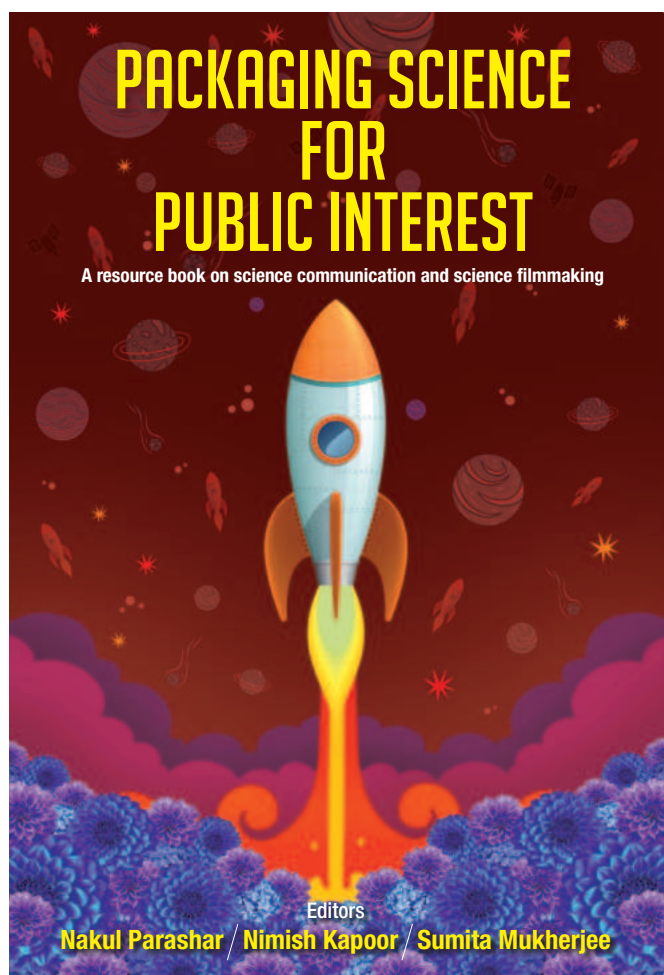
thirty years ago. Modern day filmmakers, he explains, can use drones and 360 VR technologies to produce an immersive experience for the audience. Y S Gill zooms in on mobile phones and asserts, 'A mobile phone video can be as persuasive as any film made traditionally.' The suggestions and showcasing of digital tools in these chapters are by no means exhaustive. What is commendable, however, is the combination of perspective and information.

As one would admit, perspective cannot be built up without the narrative of concerned history. A science filmmaker is not supposed to be a robot whose only job is to turn the script into a movie with available technological tools. S/he is a thinker and a philosopher at times, and requires to be informed about the backdrop of science communication activities through films. *Packaging Science for Public Interest* has taken care of this aspect and has included articles that expand on science films made in the past, projects under which these were made, and the role of Doordarshan (DD), the National Public Broadcaster. Chandra Mohan Nautiyal, Abhijit Dasgupta, Rashmi Sharma and others have presented a vivid and engaging description of the

achievements in the past. Foreign filmmakers like Brigitte Uttar Kornetzky, Rama Marinov-Kohen, Dorit Ofek, Rachel Knoll, Li-Yu Fu, and Shih Wei Wang have chipped in with valuable pieces. Many of these articles are opinionated; hence the reader is treated to an intimate recollection of important phases. Kartik Sharma's *The Story of Mental Illness and Psychiatry in Indian Cinema* examines the Bollywood Cinemascope from a different angle and makes interesting reading. Here the reader has a brush with feature films, the rest of the book concerned chiefly with documentaries.

Preparing the content for the screen is another challenge that the filmmaker faces, it being stiffer in the case of science films. There are a few articles in the book that focus on this aspect. In one of these, an effort has been made to tackle the intricate concepts of cosmology with the aid of lovable mythology stories. The concluding paragraph contains an appeal to take every care to separate the wheat from the chaff, i.e., to shun the superstitious beliefs that can dilute the whole endeavour. In another article, Sabina Kidwai stresses the need for developing a robust collaboration between the filmmaker and the scientist to effectively communicate the theme.

Such a book requires intensive work and is reflected in the Preface penned by Nakul Parashar, Director, VP, who says, 'Each article included in this anthology have gone through several rounds of editing, expansion, reduction, updates, and discussions with the respective authors.' Nimish Kapoor and Sumita Mukherjee have done a painstaking job shaping this book into 240 pages. The cover's design, however, needs a relook so that it represents the wonderful variation of contents contained within.



**Packaging Science For Public Interest**  
**A resource book on science communication**  
**and science filmmaking**

**Publisher: Vigyan Prasar**  
**Year of publication: 2022**

**Price: Rs. 150**

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**Shri Santosh Pandey** is the Managing Editor of India Science Wire at Vigyan Prasar.  
**Email:** [santosh9pandey@gmail.com](mailto:santosh9pandey@gmail.com)



## Special Feature CSIR-National Physical Laboratory (NPL-India)

# NATIONAL METROLOGY INSTITUTE OF INDIA

*We measure to serve the nation*

The National Physical Laboratory is one of the oldest national laboratories set up under the Council of Scientific & Industrial Research. The foundation stone of NPL was laid on the 4th January 1947 by Shri Jawaharlal Nehru. The first Director of the laboratory was Dr. K. S. Krishnan, FRS. The main building of the laboratory was formally opened by the then Deputy Prime Minister Sardar Vallabhbhai Patel on the 21st January 1950.

CSIR-National Physical Laboratory (NPL-India) is mandated to be India's "National Metrology Institute" (NMI) by an act of Parliament and is the custodian of "National Standards" with a responsibility for the dissemination of measurements to the needs of the country. Accurate and precise measurements play pivotal role to drive the growth engines of the nation.

Recently, Hon'ble Minister (S&T) Dr. Jitendra Singh ji emphasized that each of the 37 CSIR laboratories is unique and

specializes in a specific area which spans from genome to geology, food to fuel, minerals to materials, and metrology. To showcase and propagate such diversity across the society, Hon'ble Minister announced the idea of "One Week One Lab" to be a nationwide theme based campaign to showcase the technological breakthroughs and innovations in the CSIR laboratories.

CSIR-NPL is going to organize the *One Week One Lab* program from 17-21 April, 2023. During this program, the focus will be to create awareness about available technologies and services at NPL among potential stakeholders, to provide solutions to societal problems, to sensitize the masses about importance of precise measurements and to encourage the scientific temperament, especially, amongst students who are the future of the country.

The *One Week One Lab* program at CSIR-NPL comprises of the following activities:



◉ A **Press Release** will mark the beginning of the program on **April 15, 2023 (Saturday)** at Press Club of India (PCI) where media personals (print and soft media) are expected.

◉ The **Program Inauguration** on **April 17th** by Hon'ble Minister Dr Jitendra Singh ji in the presence of DG CSIR, Dr. (Mrs.) N. Kalaiselvi. The major focus of the inaugural day is the **Interaction with School/College student**. The students from various schools and colleges in Delhi-NCR will be participating in the program. Quiz competition and lab visits are two of the many activities scheduled for the day. The students will have the opportunity to interact with the NPL scientists.

◉ From **April 18-20**, there would be three days **Start-up/MSME/ Industry Meet**. The aim of this event is to showcase various services at NPL for

## SCIENCE FICTION

industries. In this event, all stakeholders will be invited whom NPL has helped/connected/provided technological support/consultancy/services, etc. A separate space/stall will be provided to the invited industries. During this event each day, about 30-35 industries will be joining to:

- \* showcase their technologies/ services (where NPL has contributed)
- \* talk about NPL's scientific and technological help they have received
- \* put their views how NPL can further help them
- \* project gap areas/potential areas
- \* express their expectations from NPL
- \* speak about industrial and scientific issues
- \* talk on problems faced by them

Finally, this is to take an opportunity to create a network aimed at increasing and creating networks between academia and industry for possible collaborations.

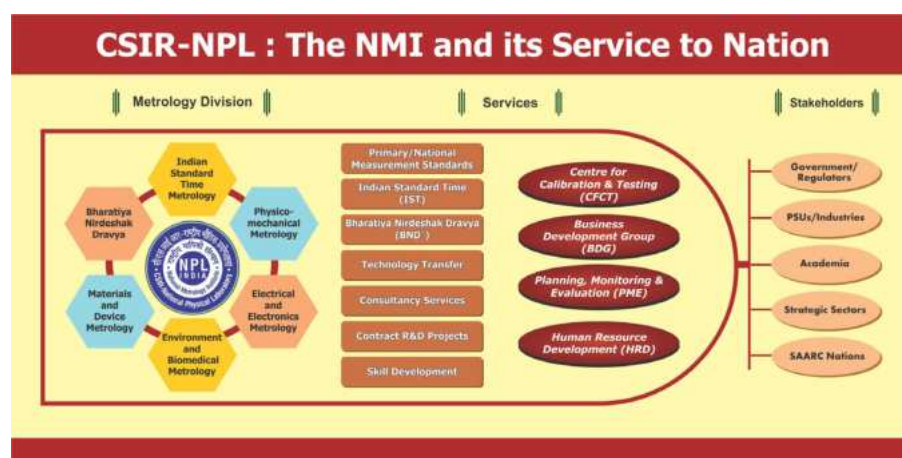
⊙ In parallel on **19th April**, there will be a one-day event, **Metrology Conclave** where release of Handbook on Advances in Metrology at CSIR-NPL is planned. CSIR-NPL's role and efforts in the field of Metrology, CSIR-NPL road map for future and developing national and international collaborations, panel discussion are the other attributes of the metrology conclave.

⊙ On **20th April**, **R&D Conclave & Women in STEM** is planned where eminent scientists of the NPL family and alumni will give presentations and will showcase the role of CSIR-NPL in recent advancements in science and technology. The focus of this one-day event will be on women empowerment. A series of activities will be conducted by the women scientists to discuss the recent trend in research and development, and challenges, and opportunities for women in STEM careers. Also, there will be a documentary film to showcase

**CSIR-NPL as "National Measurement Institute" (NMI) of India**

<p>NATURE February 6, 1947 vol. 101 184</p> <p><b>THE NATIONAL PHYSICAL LABORATORY OF INDIA</b></p> <p>By Dr. K. N. MATHUR</p> <p><b>T</b>HE National Physical Laboratory of India, the foundation-stone of which was laid at Delhi on January 8, 1947, by Pandit Jawaharlal Nehru in the presence of a distinguished gathering of Indian and foreign men of science, including Sir Charles Darwin, director of the National Physical Laboratory, Teddington, and Sir Harold Spencer Jones, Astronomer Royal, is expected to fill a wide gap in the scientific and industrial organization of India. At present there is no well-equipped laboratory in India which undertakes standards work, nor does India possess any standards of length or mass which could claim statutory acceptance or which could be compared with scientific precision for the use of industry. The foremost function of the new Laboratory will be, therefore, the maintenance of fundamental and derived standards and the undertaking of research with the view of achieving a high degree of accuracy in the measurement and duplication of these standards. This will mean in practice that the Laboratory will have to undertake regular intercomparisons between its standards and those of other countries, which is the accepted method of all the standards laboratories of the world.</p>	<p style="text-align: center;"><b>CSIR-NPL</b> The Legal Metrology (National Standards) Rules, 2011</p> <p style="text-align: center;">NOTIFICATION</p> <p style="text-align: center;">CHAPTER 111 NATIONAL STANDARDS</p> <p>23. Custody, maintenance, use of national standards of weights and measures, (1) The work relating to the realization, maintenance, custody, dissemination, dissemination, reproduction and updating of national standards of weights and measures shall, on the commencement of these rules, be the responsibility of the National Physical Laboratory.</p> <p style="text-align: center;">2 THE GAZETTE OF INDIA: EXTRAORDINARY (Part II-Sub-Section 3)</p> <p style="text-align: center;">MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE</p> <p style="text-align: center;">NOTIFICATION</p> <p style="text-align: center;">New Delhi, the 27<sup>th</sup> August, 2011</p> <p>S.O. 3026, 1986, Whereas, with a view to preserving and improving the quality of environment and preventing, controlling and abating environmental pollution, there is a need to take measures relating to certifying instruments and equipments for monitoring air quality.</p> <p>Now, therefore, in exercise of the powers conferred by section 2 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby designates the Council of Scientific and Industrial Research, National Physical Laboratory (CSIR-NPL) as national verification agency for certifying instruments and equipments for monitoring pollution and auditing air.</p>	<p>NATURE March 24, 1951 vol. 107 468</p> <p><b>NATIONAL PHYSICAL LABORATORY OF INDIA</b></p> <p><b>O</b>F the eleven national laboratories planned by the Council for Scientific and Industrial Research, India, the National Physical has very appropriately been located in Delhi itself, the seat of the Union Government. Unlike some of the other national laboratories specializing in problems peculiar to particular industries and therefore of greater interest to some regions than to others, the National Physical Laboratory is concerned with basic fundamental work; further, this Laboratory is expected to provide the standards of length, mass etc., which will be given statutory acceptance, and is therefore of peculiar importance to the State.</p> <p>An account of the plans for this Laboratory appeared in Nature of February 8, 1947, soon after its foundation stone had been laid by Mr. Jawaharlal Nehru. The Laboratory was inaugurated by the late Sardar Vallabhbhai Patel, Deputy Prime Minister, on January 21, 1958.</p>
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*Clippings of Nature articles published after CSIR-NPL's foundation (Left) and Inauguration (right) underlining the importance of accurate measurements and standards. CSIR-NPL is mandated to be "National Measurement Institute" (NMI) of India by the act of Parliament (Middle).*



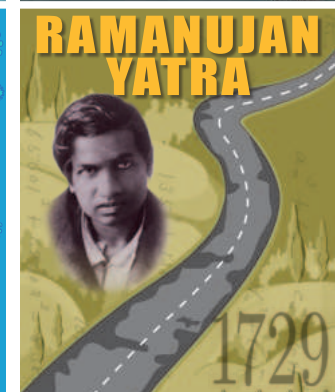
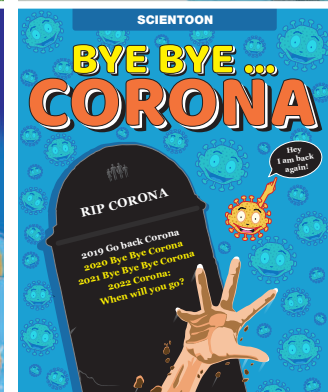
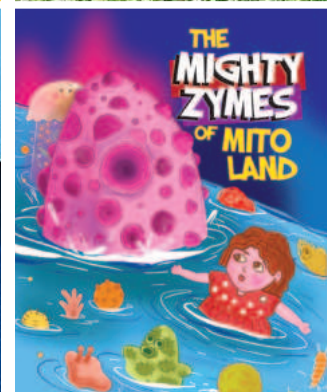
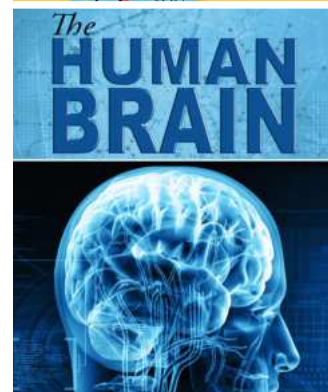
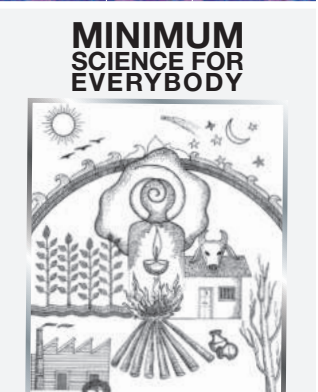
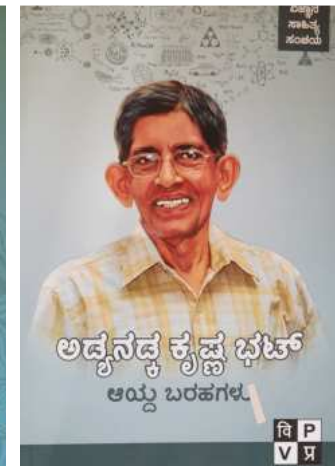
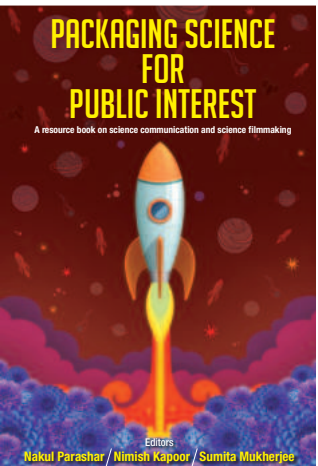
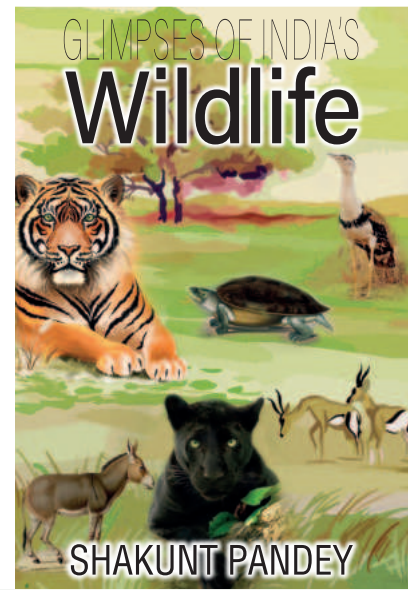
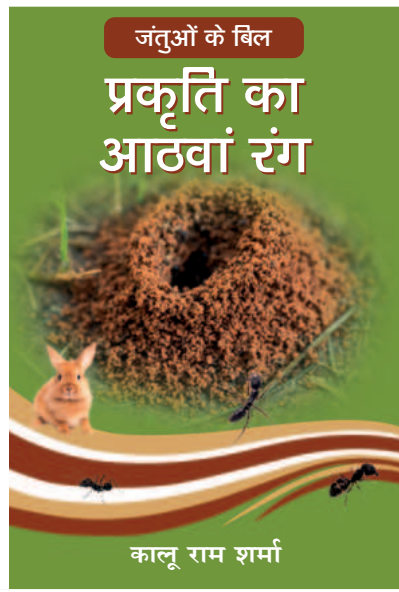
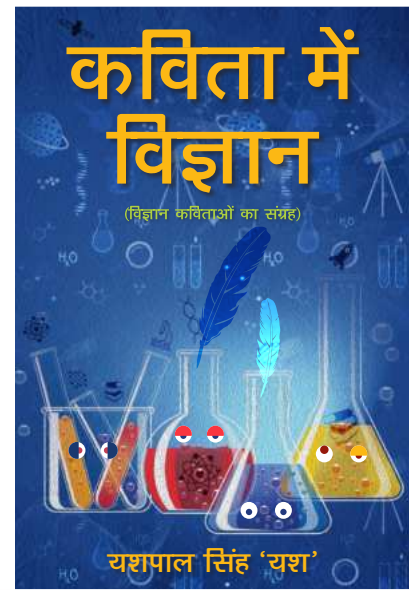
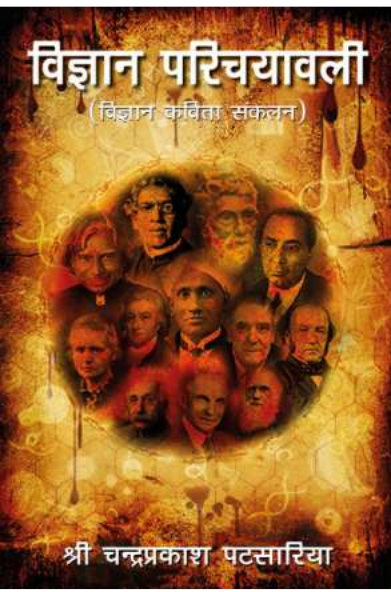
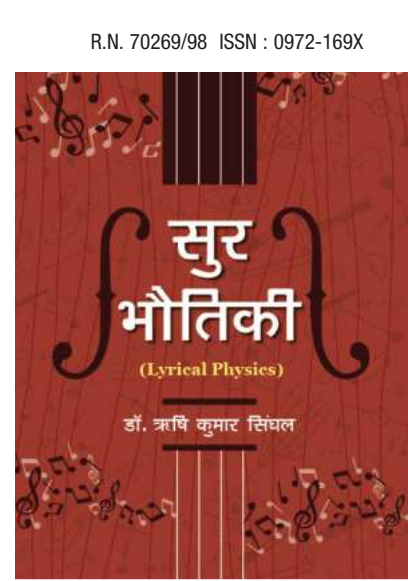
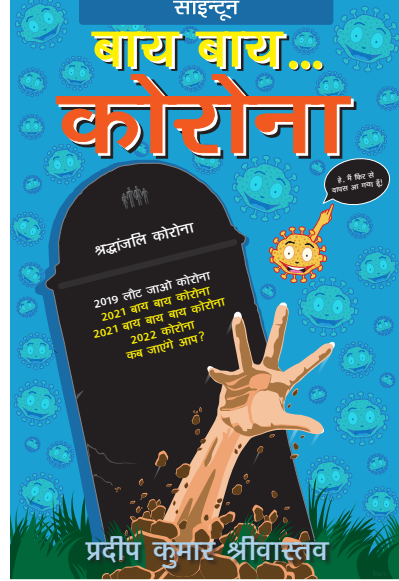
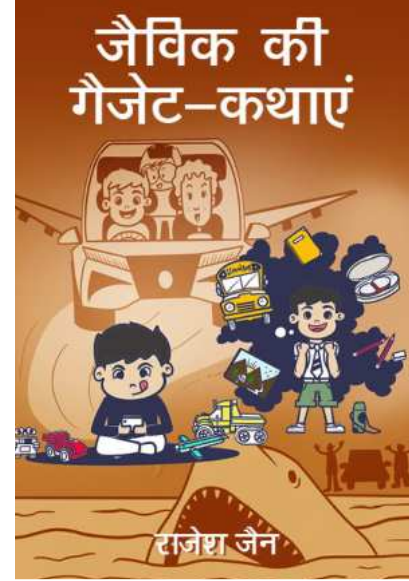
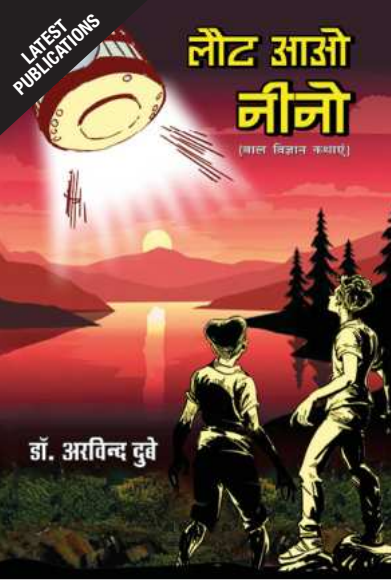
renowned women scientists in India. Dr. Krishan Lal (Former Director, NPL), Dr. A. K. Grover (Chairman RC, CSIR-NPL), Dr. Nupur Bahadur (Senior Fellow & Associate Director of the Environment and Waste Management Division, TERI) are some of the key speakers of the event.

⊙ On **21st April**, there will be one day **Skill Conclave**. The prime focus of the conclave is to sensitize/educate masses about CSIR-NPL's skill program and inspire locals by hosting various expert lectures and skill demonstrations in the fields related to all aspects of our lives, such as the concept of science, technology, and skill for experimental demonstration, the skill development requirements in measurements and indigenous technology, science communication skill, and the role of CSIR-NPL Technology for Skill Development, skill to manage waste plastic, interdisciplinary R&D approach

between CSIR-NPL & other institutes and a demo and training for avoiding the imitation in Indian Currency notes for common people and many more. The demand and supply of skilled manpower, building the vocational and technical training framework, skill up-gradation, building of new skills, and innovative thinking not only for existing jobs but also for jobs that are to be created are essential for the growth of the country. To fulfil, the gap between skilled manpower demand in the country by different industries, academia, and society, CSIR-NPL is doing many such events frequently to promote and train skilled manpower for the nation.

The One week One Lab program at CSIR-NPL will end with the valedictory session after the Skill Conclave

**For more details** about CSIR-NPL and One Week One Lab program, pls explore NPL website: <https://www.nplindia.org/>



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A-50, Institutional Area, Sector 62, Noida-201309

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