

The Adventure

Jayant Narlikar

Jayant Vishnu Narlikar (born 1938) is an Indian astrophysicist. He has worked with leading international scientists of his generation; real science, not fantasy or mythology, informs his work. A Padma Vibhushan laureate, Narlikar has keen interest in writing and he has written several fiction and non-fiction books. He believes that reading good science fiction will develop understanding of science and its relevance. Science has many interesting aspects that can be told to children through stories.

The story *The Adventure* is a science fiction. The protagonist Professor Gaitonde is looking forward to make public record of chairing one thousandth public function. However he had a catastrophic incident before this and as a result he had an experience of living in an alternate world. Gaitonde's friend Rajendra rationalises his condition on the basis of theories of science.

Read the story *The Adventure* by Jayant Narlikar carefully, take down notes such as;

- unfamiliar words
- statements/ sentences/ expressions which you think will help in understanding the story
- personal ideas/ thoughts / experiences that come to your mind while reading.
- Theories of science- catastrophe theory & quantum theory
- You may have more points to add!

Find answers to the notes taken.

Now write the experience of Prof Gaitonde in the story *The Adventure* based on the following statements from the text.

- By making a transition you were able to experience two worlds although one at a time. The one you live in now and the one where you spent two days.
- Of course, by the same token there must be many more different worlds arising out of

bifurcations at different points of time.

- You neither travelled to the past nor the future. You were in the present experiencing a different world.

Prof Gaitonde meets Rajendra and narrates his experience to him. He wanted to know the reason of his queer behaviour.

Read the text and find out:

- What questions did Rajendra ask Gaitonde?
- Why did Rajendra say that... "I had simply put your experience down to fantasy. But facts can be stranger than fantasies, as I am beginning to realize."

Read another story The Comet by Jayant Narlikar.

Find out what happens to a new comet that has appeared in the sky and is heading straight for the earth. Will there be a collision? Scientists and religious leaders react to this situation in two different ways. What happens to the comet?

THE COMET

JAYANT NARLIKAR

- IT WAS a moonless night in December. A burst of cool breeze from the window was enough to disturb the sleep of Indrani Debi. Half awake she felt for the adjoining pillow, although she knew the answer. Duttada was not there.

Again, she glanced at the door by way of confirmation. It was left ajar.

"So he has gone to hobnob with that wretched Dibya. At least he might have bothered to close the door." Even as she muttered her complaints, Indrani Debi could not repress her smile. She knew how utterly oblivious her husband was of the practical problems of living. Didn't his doctor tell him to take special precautions against the cold? But he wouldn't remember to put on a sweater even if it was lying on his bedside chair. How could he, when Dibya had put her spell

on him?

She picked up the white woollen pullover, wrapped herself in a shawl and made her way to the roof, to break up his tete-a-tete with Dibya.

She found them both huddled together eye to eye. At least Dut-tada was looking into Dibya's eyes.

Expressed in inches, Dibya's vital statistics were 8.64, that is, aperture eight inches, focal length 64 inches.

When Duttada acquired this telescope he was so thrilled that he called it Dibya-Chakshu — divine eyes — they were so much better than human eyes to look at the universe. To Indrani Debi the telescope was like a designing woman who had ensnared her husband. So she just called it Dibya and the name stuck

- To Duttada the telescope marked the fulfilment of the ambition of a lifetime. As an amateur astronomer he had longed for enough money to buy a good telescope with which to observe the heavens, and for enough spare time. He got them both when he retired with ample money.

The telescope was duly installed and long were the dark nights that Duttada spent in stargazing. At least Indrani Debi thought so.

"Here! Put on this sweater – or do you want Nabin Babu to order bed-rest tomorrow?" Duttada put on the sweater and turned back to his telescope. Although Indrani knew that her remarks would fall on deaf ears she could not help a repartee: "Same old stars." Same old stars? If Duttada had heard this remark he would not have been able to counter it. Why does a music lover like to listen to the 'same old raga' being sung again and again? Why does an art connoisseur stare at the 'same old picture' for so long? But Duttada knew that the spread above him wasn't the same always.

The spread does change because the earth goes round the sun which itself changes its position. Why, even the Pole Star is not fixed... And how about planets and their satellites wandering across the "same old stars"? And comets?

Comets... Like every other amateur astronomer, Duttada had the secret ambition that he would one day discover a new comet. For, comets can be new, coming as they do from the remote corners of the solar system. Like planets, comets also orbit round the sun but their orbits are highly eccentric. So once in a while a comet comes close to the sun, has a longish tail that is lit brilliantly by the sunlight and then it recedes into darkness not to be seen again for years, or

for centuries.

Duttada recalled the excitement generated by Halley's Comet in 1910, a comet that comes near the sun every 76 years. He knew that comets with much longer orbit periods exist and a comet with no previous recorded history is considered new, and that it is named after its discoverer. To discover a 'Comet Dutta' was Duttada's secret ambition.

What chance did he stand with his eight-inch Dibya? Didn't professional astronomers have gigantic telescopes with electronic gadgetary?

Duttada was optimistic... he knew that the professionals with their pre-assigned observing programmes would be looking at faint stars and nebulous galaxies. They might miss such an insignificant thing as a comet which they were not expecting to see anyway! Indeed, amateurs had often discovered new comets which the professionals had missed.

And, it looked to Duttada that tonight was going to be the big night.

For against the background of the "same old stars" Duttada had detected a faint stranger. He re-examined the charts with him, checked his Dibya for any smudges on the optics, did some calculations on his pocket calculator in torchlight ... for, though absent-minded about daily chores, he was meticulous in his observations.

Yes, there could be no mistake. What he was looking at had not been there earlier and it did look like a new comet. Still he went on checking past 2 A.M.

A sense of excitement kept him going till the pre-dawn sky made it impossible to proceed. Not far from him, the Dakshineswar temple began to show signs of human activity. Belur Math followed suit. Soon the sprawling urban life of Calcutta would take over the stage from the heavens above.

Duttada wound up Dibya and descended. Should he wake up Indrani and give her the big news? He looked at the serene face of his wife deep in sleep, and decided otherwise. Even he knew how hard she worked all through the day to make their lives tick. Duttada quietly occupied his portion of the big bed.

And soon the snores of a satisfied man resounded in the room.

Two days later the Ananda Bazar Patrika came out with the news:

CALCUTTA MAN DISCOVERS NEW COMET

- "Shri Manoj Dutta, a resident on the northern outskirts of Calcutta has claimed to have

discovered a new comet. He has seen the comet on the last two nights and has informed the Indian Institute of Astrophysics at Bangalore of its whereabouts. The HA runs a 90 inch telescope, the biggest in Asia, at Kavalur. If it confirms Dutta's findings it will be the high point in his lifelong career as an amateur astronomer. Duttada, as he is affectionately called by his friends and admirers, estimates that the comet would be clearly visible to the naked eye in the next few months. He gives all credit for his discovery to his' eight-inch telescope which he calls Dibya."

Thereafter it took just one week for 'Comet Dutta' to be recognised and so named. For the HA confirmed the findings and communicated it worldwide and in conformity with the accepted practice the new comet was named after its discoverer.

This brought in unwelcome publicity to the introvert Duttada. There were numerous receptions and congratulatory functions to attend, at which persons who did not know what a comet was and who mistook astronomy for astrology, made long speeches. Returning from one such ceremony Duttada muttered to himself in disgust, "I almost wish I had not discovered this comet."

To his surprise Indrani Debi agreed. "I wish the same, though not for the same reason. I know why you made this statement. You hate public functions, don't you?"

"Right! Of course I appreciate the honour and recognition I am getting and am grateful to my friends and well wishers. But don't you think we Indians overdo these things? Whether in science, sports or the arts, excellence must of course be admired and appreciated but not by losing perspective.

"Our society has not yet acquired the maturity to assimilate greatness. However, there are very few like me who feel this way. May I ask why you wish I had not discovered this comet?"

"Comets bring ill-luck and I wish a good man like you were not associated with the discovery of one." Indrani Debi was worried. Duttada laughed.

"I see that even an M.A. degree has not cured you of your superstitions! There is no correlation whatsoever between the arrival of a comet and the calamities of the earth. On the contrary, comets have been scientifically studied and their composition is well understood. There is nothing harmful about them. They are inert systems moving involuntarily under the force of gravity — let alone their having any divine or demoniac power over us humans! Well, you will soon see this comet of mine pass harmlessly by, causing no anxiety to anybody."

In this last comment, however, Duttada was not going to be exactly right

- The spacious dining hall of King's College, Cambridge, had been just emptied of all diners, students and fellows. The former, having finished their nondescript self service meals had left for their studies and recreations long ago; the Fellows had taken longer over their elaborate High Table menu and left for the Wine Room.

The beautiful wine trolleys had hardly completed one round of the long table when the butler whispered deferentially in the Provost's ear and handed him an envelope on a silver tray. The Provost beckoned James and passed on the envelope saying, "Well, you are going to miss the claret tonight, Jim. it seems you are wanted urgently in your room."

As he made his way towards the beautiful building built by James Gibbs, James opened the envelope. It contained a brief note:

Dear Dr Forsyth,

The bearer of this note has been instructed to bring you to my office in London tonight. Please come without delay. I am making arrangements for your overnight stay in London.

I regret the inconvenience caused to you and request you to keep your visit strictly confidential. Believe me, it is absolutely essential.

Yours sincerely,

(John Macpherson)

The signature carried the designation underneath: 'Defence Science Adviser, Her Majesty's Government.'

A bowler-hatted man near the mantelpiece greeted him as James entered his sitting room. "I am Johnson, sir. Security officer at Whitehall." He showed his identity card and continued: "I presume you know why I am here, sir."

"To the extent that is conveyed in this note," replied James. He knew that it would be useless to ask Johnson for further details. "I won't take long. Would you care for a sherry?"

"No thank you, sir! Not while I am driving"

James hurriedly filled an overnight bag and set out with Johnson. As they crossed the front lawn the clock on Great St. Mary's Church struck nine.

Taking the MB Motorway to London, Johnson's Ford Cortina brought them to Whitehall in less than 90 minutes. It took them another ten minutes to cross the corridors of power and

reach the chambers of Sir John Macpherson. Having introduced James to Sir John, the quiet but efficient Johnson slipped out.

"Dr Forsyth, my apologies for this imposition on your time!" Sir John advanced with outstretched hands to relieve James of his coat and scarf "To avoid any further delay, I will come to the point right away." Sir John handed him a typescript.

"Why! It is my paper to Nature. How did you get this original manuscript?" James was surprised and somewhat uneasy Was he under surveillance?

"No, it is not a case of Big Brother watching you," Sir John rightly perceived his anxiety and continued. "Taylor, the editor of Nature is a friend of mine. We were at Trinity together, and often meet in the Reform Club." Although Sir John did not explicitly say so, James knew that by 'Trinity' he meant Trinity College, Cambridge.

"Sir John, may I know how you got hold of this manuscript? I had asked Nature to publish it without delay since it is very important." James was still puzzled.

"I agree that it is important. So important in fact that it must never be published — that is, if what you say is correct." Sir John lit his pipe.

James would never have tolerated aspersions on the accuracy of his work, or the implied order that it must be suppressed. But he knew Sir John to be a respected scientist and was willing to hear him out. Sir John proceeded after two puffs.

"Please do not misunderstand me, Dr Forsyth. I met Taylor today at lunch in the club where he showed me your paper — I still retain enough interest in astronomy you know — and he asked for my opinion before sending it to a professional referee. I immediately realised that your result has profound implications, if it is correct."

"Let me assure you Sir John that it is correct. I stake my reputation on it." James could not contain himself any more. "Great though your reputation is in celestial mechanics, I wish you were wrong on this count. Do you realise what will happen if Comet Dutta collides with the earth, as you predict it will?"

"The effects will be catastrophic! That is why I have taken extra care to verify my calculations. Barring rare circumstances, the collision is inevitable." James was quiet but confident. But Sir John picked out the one qualifying phrase: "What are those rare circumstances?"

"Well, it might collide with some asteroid before reaching here. Or it might just split up

when near the sun, or it might evaporate..."

"But, one can't count on these fortuitous circumstances. We have to proceed on the assumption that Comet Dutta will collide with the earth. Cometary collisions are expected to occur once in ten million years. But now we know that the next one will occur in a year."

"Ten months, to be precise," interjected James.

"Thank you, for the correction! So you realise that we have only ten months of survival left for the entire living species on the earth? For, in a headon collision it is not the case that the part facing the comet alone would be destroyed. There will be large scale evaporation of the atmosphere and the resulting lack of atmospheric protection will spell death even to those spared the direct hit... Don't you think we have to do something to stop all this?"

A fleeting smile crossed James' face. Just like a civil servant! As if we are facing here a minor breakdown of law and order, he thought to himself. Aloud, he said, "How, may I ask, can we prevent this natural catastrophe?"

"I don't know; but we have no option but to try. I think we need more than two brains to handle this situation. It is essential to call an urgent meeting of experts from all over the world to think of a counter measure and, of course, in top secret. Think of the panic in the world if this dreadful news leaks out." Sir John glanced at the manuscript in James' hand.

"My suppressing this paper will not hide the truth? Sir John!" James said. "There are others who will arrive at the same conclusion sooner or later."

"No. Do not suppress it but tone it down. Add many ifs and buts to make your conclusion appear not so certain... I will exert all my influence with friends in other countries to make them exercise similar restraint for awhile."

"For how long?"

"Until this wretched comet is safely out of the way. Let us spend sometime now to plan the details of this international conference. Shall we call it in a week's time, here?"

A week to plan such an important secret conference of international experts? James thought it an impossible task, but Sir John disagreed, and began to spell out details.

- By the time they finished their deliberations and Sir John dropped him at his hotel off Regent Street, it was 1 A.M. There was hardly any crowd on the street but when James looked up from his window a star-studded night sky greeted him. Somewhere amongst these stars was

Comet Dutta heading for a collision with the earth. It was hard to believe the calamity of the future on such a peaceful night. , For a moment James wondered if he had done his sums right.

Whatever doubts James may have had about Sir John's efficiency were quickly dispelled⁸ when he reported for the conference and found that all the experts listed by him were there. Astronomers, computer scientists, nuclear physicists, space technologists, biologists, all were there. And as Sir John's special invitee was present the man who had started it all — Manoj Dutta.

The conference lasted one week and went on under total cover of secrecy... First, the experts checked and rechecked James Forsyth's calculations with the latest observations of Comet Dutta. He was right, there was no escape from the direct hit predicted by him. There was a small chance that the comet may just graze the atmosphere of the earth and not collide. In that case the loss of life and property would not be total. But this slight respite⁹ was hardly reassuring enough for taking no action.

Having decided that some action was needed, what form should it take? The experts dismissed defensive measures like living in underground bunkers. It was simply not a practical proposition technologically, biologically or politically. So the only course was to take offensive action. After considerable deliberations, the experts agreed on what could be done. Comet Dutta could be marginally deflected from its path by giving it a push.

The experts calculated that the bulk of the destructive nuclear power available on the earth would be needed to achieve this mammoth task A gigantic nuclear explosion suitably placed, suitably directed and suitably timed could do the trick. This could be done by placing the nuclear payload in a spaceship, sending it to intercept the approaching comet and detonating it by remote control. Warned the experts: there is a very narrow range of parameters for achieving success — if they cannot be met, the whole operation would be futile. Success or failure, secrecy must be preserved. Finally, a time-table was drawn up for operation. The important dates in it were:

October 10: Despatch the spacecraft with the payload unless by then the comet is already destroyed by natural causes or has changed its path due to unforeseen reasons.

November 15: Rendezvous' with the comet and detonation of the payload.

December 15: If the experiment failed this would be the' day the comet would hit the earth. If it succeeded, the comet would pass by at a near but safe distance.

The success of the experiment depended on how massive the comet was. Nobody could estimate; everybody hoped that it was not very massive.

"Do you think we will succeed?" Duttada asked Sir John Macpherson for his opinion. During the week the two had developed considerable affinity for each other.

"Mr Dutta, I will give you an honest answer! I am not buying any Christmas presents till December 15."

- Duttada toured the British Isles for two weeks after the conference, and he had a pleasant time visiting observatories and exchanging views with amateur as well as professional astronomers. On his return he was greeted by the inevitable vast crowd of friends, social leaders, students and the usual hangers-on. Loaded with garlands and bombarded by questions from the press he somehow made his way to the waiting car.

Arriving home he found another crowd gathered under a pandal. He glanced questioningly at Indrani Debi. Surely she knew how he hated crowds. Indrani, obviously uneasy, offered the explanation: "I have arranged a yagna and called priests to bless you."

"But why? Just because I left the shores of India? You know it is no longer taboo! And in any case you know my views on these meaningless rituals."

Indrani Debi looked at Sibaji babu, the younger brother of her husband. Sibaji babu coughed and explained, "We have all been very disturbed since you discovered the comet. Gururaj recommended a shanti yagna to pacify the evil spirit behind the comet. We are all waiting for you to perform the yagna"

"May I know what specific advantage there is in this ceremony?" Duttada was outwardly calm.

"The comet you have discovered will not cause any ill effects on the earth."

At this remark Duttada blew up. "Don't you know that this is all superstition? It could be condoned in the olden times when man did not know what comets were. Not so in modern times! Comets are known for what they are, their movements are forecast precisely by mathematical calculations and it is clearly established by statistical studies that their visits have no correlations with disasters on the earth... It is of course futile on my part to explain — you and the likes of you never read even the elementary books on science."

Sibaji babu gently interjected, "But our wise forefathers recommended such yagnas,"

"Sibaji, I sometimes feel we do the greatest injustice to our wise forefathers by blindly following such rituals. Go back to the days of the Upanishads and you will find in them a questioning attitude that a modern scientist is proud to share. They wanted to know about nature, about creation and did not accept anything on faith. We lost that scientific attitude somewhere along the line and are paying for it today. But what is the use of my arguing? I give you my answer right now. No, I will not take part in your silly rituals because I do not believe they serve any purpose."

Duttada went off to his study which served as his inner sanctum.

Since his return from London, Duttada was in regular correspondence with Sir John Macpherson. Their friendship had grown out of their appreciation of each other's virtues. Sir John admired Duttada's scientific outlook while the latter admired the former's discipline and efficiency. Their correspondence never mentioned the Project Light Brigade although once in a while Sir John would hint at its progress in a subtle manner that Duttada would understand.

Meanwhile, Comet Dutta was following its predicted path. In due course it developed its tail. It circled round the sun without breaking apart; nor did it evaporate. No fortuitous collision had disturbed its trajectory. The scientists on Project Light Brigade therefore knew that the threat of collision was now very much real.

But they managed to keep this danger a strict secret. Even their close colleagues who were not on the project did not know of the danger. Everyone thought that it would pass by the earth presenting a spectacular sight to the layman and a wealth of data to the probes launched by the experts.

Of course, this did not stem the tide of superstitious fears that comets in general cause amongst the masses, fears that were fuelled by astrologers and so called religious leaders all over the world. Even the developed countries of the West had their share of irrationality. So far as India was concerned, there was one indirect advantage. Many couples, even educated ones, put off child conception during the period the comet was in view, thereby putting a gentle brake on the country's population growth.

In the middle of October, Duttada got a letter from Sir John. In the midst of descriptions of the meeting of the Royal Astronomical Society, the unseasonably warm weather, the opening matches of the football season and a recent bye-election, Dutta babu spotted the sentence he was eagerly looking for: "The charge of the light brigade has begun. Let us hope for the best." So the spacecraft had been launched on time.

But will it achieve the rendezvous in time and at the right place? Will the remote control

detonation work? What if the gigantic nuclear pile fails to fire?

Duttada could not share his anxieties with any one around him. He had to participate and outwardly enjoy the Puja ceremonies, the Diwali celebrations and other festivals. His sole daytime relaxation was in the company of Khoka, his eight-year-old grandson, and of course at night in looking through Dibya.

The comet was now clearly visible even to the naked eye. On November 16 he looked with special care. Had its position changed? He thought so; but then had to admit that this was wishful thinking. Even if the blast had succeeded, the displacement of the comet from its original path would be hardly noticeable. How would he know the • outcome?

He did not have long to wait. On 18 November a special messenger on a scooter, from the British Council, had brought in an urgent telex message for him. The telex operator in Calcutta had wondered what was so special about it, to make it so urgent. But on reading it Duttada lost all his lethargy and rushed to his favourite rasagolla shop. The message read:

"I am confident now of buying my Christmas presents on December 15 .--- John Macpherson."

On December 15 Comet Dutta came closest to the earth — at a distance of some 80,000 kilometres. Millions saw it and admired it. Only a handful knew how close they had come to total annihilation .

- When the comet had gone far away and was seen no more, Duttada felt it safe to make the following comment to his wife: "Now that the comet has come and gone, are you satisfied that no major disaster took place that can be attributed to it?" "

I agree that there have been no major disasters; but there could have been some. Do you know how they were averted?" Indrani Debi replied with quiet confidence.

Duttada looked at her. Did she know? How could she? He had never mentioned Project Light Brigade to her. He probed cautiously, "I don't understand what you mean."

"It is very simple. There were no disasters because of the yagna at our house." "But I never performed the yagna. Don't you remember, I re-fused to have anything to do with it?"

"Of course I do. But we found a way out — at least Guruji did. He said that if you were unwilling to perform the yagna, it would be all right if a descendant of yours did it. So we got Khoka to deputise for you. And it worked! Isn't Guruji clever?" Indrani's voice held a ring of

triumph.

Duttada formed a mental picture of Khoka performing the yagna uttering words dictated to him which he did not understand, pouring ghee at specified intervals into the fire, offering flowers... And then the picture changed to an assembly of scientists at the conference analysing the problem, devising solutions and executing them rationally and efficiently.

It seemed hard to believe that both pictures were different aspects of contemporary human society. Duttada was aware of the gulf that separates the rich from the poor, the educated from the illiterate, the privileged from the unprivileged. But this gap between the rational and the superstitious seemed to him far wider, far more sinister. Will human society ever succeed in eliminating it?

Duttada did not know the answer.

1. Let us Reflect and Write

1a) Gaitonde explores different realities in the text *The Adventure* that brings a different dimension to the narrative.

- For instance Gaitonde finds a reality that is different from how he knows it to be for the third battle of Panipat.
- the reality that the professor knew and the reality that the professor experienced were different.

1b) Is there a possibility in the story 'The Comet' about the existence of another reality?

You could think along these lines:

- the comet's detour that the panel of experts planned.
- the logical and analytical skills of Duttada and James who believed the disaster was inevitable.
- the wife who planned a *yagna* hoping to reverse the ill-effects of Duttada's discovery.

2) Both Gaitonde and Duttada have a special connect with 'meetings'.

- Gaitonde's experience at Azad Bhawan.
- Duttada's aversion to media and meetings.

As a reader do you find any similar character traits between Gaitonde and Duttada?

Cues

- Their tenacity, perseverance....
- Belief in their findings...

Continue to add to the list

2. Let us Reflect and Write

A. The story *The Adventure* and *The Comet* are examples of science fiction. The protagonists of both the stories are scientists. The stories are about future and history maneuvered through science and fiction. Another important feature is that the stories emerge from India's unique culture and history.

Find instances in the texts in support of the above statement

Cues

- The stories are set in Indian cities.
- Description of Indian cities, people and their lives.
- Battle of Panipat
- Elements like Yagna, rasgulla shop etc.
- Catastrophe Theory
- Astronomy

Add more cues to the above.

B. Answer the following:

- *A scientist's findings should never be suppressed no matter how disturbing they may seem at first.* Give reasons for and against this argument.
- India is often referred to as a tradition driven country. Astrology is said to be a psychotherapeutic exercise. It gives solace to the troubled mind in moments of disappointment and sorrow. On such occasions logic is the last thing in the mind. The planets are held responsible for problems and suffering.
Write and share experiences based on the above statement with peers.

Discuss

Organise a discussion on the following

- In a country, which is trying to catch up with developed nations, a rational and efficient management of resources is essential.
- Take notes of the points raised during the discussion.
- Summarise the outcome of the discussion in the form of a Report.