

### SUMMARY OF THE LESSON

The International Conference of Astronomers and Space Scientists discussed the ways to prevent the comet from hitting the Earth. Manoj Dutta was also invited. The issue was kept secret from the press and the people.

The experts suggested two ways to meet the challenge. The defensive measure was that the people should live in underground bunkers for safety. But it was not much practicable. The other course was to take offensive action. It meant that the comet should be given a push and made to change its path a little. This could be done by using nuclear explosion in space.

Finally a time table was drawn for the operation. It was code-named 'Project Light Brigade'. On October 10, the spacecraft with nuclear material was to be sent. It would meet the comet on November 15 and try to destroy it. In case the experiment failed, the comet would hit the Earth on December 15. If it succeeded, this was the day the comet would pass by at a near but safe distance. Sir John Macpherson told Duttada that he would not buy any present for Christmas till 15 December.

Duttada returned home from England. He was welcomed warmly. But he was surprised to see some ceremony going on under a tent. Indrani Debi explained that they had arranged a peace *Yajna*. She called him first to get blessing of pundits because he had left the shores of India. Duttada's brother explained that the *Shanti Yajna* would pacify the evil spirit behind the comet and save the Earth. Duttada tried in vain to convince them that comets had no relation with the evil spirit or any calamity on the Earth.

Since his return from England, Duttada was in regular touch with Sir John. The letters contained subtle hints about the progress of the project. The threat seemed very much real. In mid-October

the operation began. Duttada kept constant watch on the comet. But he could not share his anxiety with any one.

On November 18, he received a message from Sir John that the operation was successful, and he was going to buy Christmas presents. On 15th December, the comet came closest to the earth, some 80,000 km. away. Millions saw it but no one knew the story.

Duttada told his wife with satisfaction that the comet had gone without causing any disaster. Indrani Debi gave all credit to the *Shanti yajna* performed by their grandson, eight-year-old Khoka on his behalf. Duttada now saw the gap between the scientific and the superstitious attitude. Perhaps human society would not grow out of blind beliefs and silly religious rituals.

### TEXTBOOK QUESTIONS SOLVED

#### COMPREHENSION CHECK

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1. "For a moment James wondered if he had done his sums right." Why was James doubtful about his sums and calculations?

**Ans.** James reached his hotel at 1 pm. He looked up from his window and saw the star-studded sky. He couldn't believe that any untoward event could happen on such a peaceful night. He became doubtful about his calculations.

2. What did the scientists at the conference say about James's 'sums'?

**Ans.** The scientists attending the conference came to the conclusion that James Forsyth's calculations were correct. The new comet would collide with the earth.

3. Immediate action was needed, the scientists decided. Give one example each of 'defensive' and 'offensive' action mentioned in the text.

**Ans.** The approaching comet needed immediate action. The scientists had two options. The defensive measure was that the people should live in bunkers. The offensive action was to do something to deflect the comet from its path. This could be done by exploding a nuclear payload near the comet.

4. "I am not buying any Christmas presents till December 15". What did Sir John mean by that?

**Ans.** Sir John was not quite sure about the safety of the earth. So he deferred the buying of Christmas presents till December 15. By that time the situation was sure to become clear.

#### COMPREHENSION CHECK

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1. What is Duttada expected to do on his return from London?

**Ans.** Duttada on the return was expected to take part in a *Shanti yajna* to pacify evil spirit behind the comet.

2. What is his reaction to the proposal?

**Ans.** Duttada was very angry. He called it just a silly superstition to think that comets have ill-effects.

3. (i) What does 'Project Light Brigade' refer to?

(ii) What does Sir John say about the Project in his letter to Duttada in October?

**Ans.** (i) 'Project Light Brigade' refers to the plan to divert the comet from its path. The plan was to launch a spacecraft and explode the nuclear device near the comet.

(ii) The charge of the light Brigade has begun. Let us hope for the best.

4. Did Sir John Buy Christmas presents on December 15? How did Duttada get to know about it?

**Ans.** Duttada got to know from the letter that Sir John had bought Christmas presents on Dec 15. It indicated that the Project Light Brigade was successful.

5. Why, according to Indrani Debi, had the comet not been disastrous? Do you agree with her?

**Ans.** Indrani Debi thought that Comet Dutta could not harm the earth because of the *Yajna* performed at their house. I don't agree with this.

6. Is Duttada's general outlook

(i) rational? (ii) moral? (iii) traditional?

Choose the right word. Say why you think it right.

**Ans.** Duttada's general outlook is rational because he had a scientific temper. He went by reason, not by custom or morality.

**EXERCISE**

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Discuss the following topics in small groups. Write your answers afterwards.

**1. Should a scientist's findings be suppressed if they seem disturbing? Give reasons for and against the topic.**

**Ans.** No, the scientist tries to discover the truth, the factual position. His findings are based on thorough research. Hence, these should not be suppressed or ignored. Copernicus put forward the theory that the earth moves round the sun. He disproved the belief that the earth was the centre of universe. And he was right. But Galileo had to pay the price of telling a truth with his life. Let truth come to light.

**2. Do you think ours is a traditional society? What are some of the things we do to be called traditional? Do you find these things useless or useful?**

**Ans.** Ours is a traditional and conservative society. It is because of ignorance of the people. Our priests have full traditional beliefs in rites and rituals. We try to pacify the evil spirits and please God with offerings. These are futile and foolish practices.

**3. Give two or three examples to show how science has been useful to us.**

**Ans.** Science is pure knowledge, a ceaseless search to know the truth and to make new discoveries. The research is a never ending process. Science has made life comfortable and protected us from fire, floods and diseases. If we misuse the discovery of atomic energy, it is our fault.

**4. Give one example to show how science has been misused, and has as a result been harmful to us.**

**Ans.** Science discovered gun powder and hydrogen bombs, lethal gases and other weapons of mass destruction. Instead of generating power from atomic reactors, we try to produce a bomb. Such misuse of science involves enormous loss of life and property.