

Rendezvous with Rama

ARTHUR C CLARKE

- 1**
- 1 At the earlier date, humans lived only on Earth. But by 2131, there were people living on some of the other planets and moons of the Solar System.
 - 2 Asteroids spin as they travel through space. The irregular shape of an asteroid causes changes in the amount of the Sun's light which it reflects as it spins. When viewed by an astronomer with a telescope, the light will grow stronger and weaker as the asteroid spins. When an astronomer sees an object reflecting light in this irregular way, he or she knows that the object is an asteroid.
 - 3 They are able to find out its size and its weight. The object is not heavy enough to be solid, therefore it must be hollow.
- 2**
- 1 If Norton lands close to Rama's axis, *Endeavour* will not be thrown off Rama's surface by the speed of its rotation. So he must land at the centre of the north end or at the centre of the south end. The north end of Rama is in the full light of the Sun, so Norton is able to see what he is doing when he lands. These are his reasons for choosing to land at the centre of the north end.
 - 2 He sees a circular groove at his chosen landing-place. He guesses that the groove might be the edge of the door of a large airlock. An airlock here would be a way for smaller spaceships to enter and leave Rama. Norton is worried that if something inside Rama tries to use this airlock, his own spaceship will be damaged.
 - 3 Because he has seen something like a wheel with spokes which probably controls a door into Rama. He guesses that the Ramans' hands must be similar to human hands in order to turn this wheel.
 - 4 Norton has been thinking about Howard Carter, the man who discovered wonderful things in the tomb of Tutankhamen, in Egypt. He wonders whether Rama might also be a tomb.
- 3**
- 1 Norton has already found three upright cylinders, which are entrances to Rama. Inside the one he and the team entered, there were three airlocks, leading to a long corridor. Now he has discovered three more airlocks at the end of this corridor. Norton thinks about the significance of the number three when he passes this second group of airlocks. The student could add that later in Chapter Three, Norton sees further groups of three things – ladders, stairways, and six (2x3) spikes surrounding the huge central one at Rama's southern end.
 - 2 Because the island is covered with many tall shapes, which look like the tall buildings, or skyscrapers, on Manhattan Island in New York, in the USA.
 - 3 Perera knows the track Rama has taken and the speed at which it has been travelling. At this speed, it will have taken Rama 200,000 years to travel from the nearest star on its track. If Rama started its journey from a planet near this star, then it has been travelling for 200,000 years. But if it began its journey earlier, and simply passed this star on its way, then it has been travelling for much longer.
- 4**
- 1 He guesses that though the Ramans probably have legs (and since there is a handrail, arms) like humans, they must have longer legs than humans. This is because the steps on the stairway are higher than those on stairs built for humans.
 - 2 Because the breathing equipment which the explorers are carrying is heavy and they will be able to move more easily without it.
- 5**
- 1 *Student's own answer. The student will probably guess that because the level of the surface of the Cylindrical Sea is below the 'floor-level' of both ends of Rama's Central Plain, the thinnest part of Rama's wall will be between the bottom of the sea and the outside of the cylinder.*

- 2 *The student will probably quote from among:* 'It doesn't look as if anything or anybody has ever been here before. Everything here looks new and unused' (page 37), 'He still thought that Rama looked new and unused' (page 39), 'No one lives here, and no one has ever lived here' (page 45). The student might also be reminded of Norton's sentence, 'Perhaps Rama is also a tomb' (page 24), because it now seems that this guess was wrong.
- 6
- 1 Because in order to breathe they have to put on helmets and carry heavy oxygen bottles. And because the searchlight's beam cannot reach the hub, they must climb in the dark until the lights inside Rama start to work.
 - 2 Boris is a religious person and he believes that God has sent Rama to rescue good men from disaster. He thinks that Rama is like Noah's ark in the Bible. Noah's ark was a boat which rescued a few good people (and many breeds of animals) when the whole surface of the Earth was covered by water.
- 7
- 1 He discovers that there is now enough oxygen in the air for people to breathe without using helmets and bottles.
 - 2 That the chemicals in the Cylindrical Sea have reacted with the light from Rama's six suns, and this has made the extra oxygen.
- 8
- 1 120 degrees.
 - 2 Because there is no gravity at the axis, and a little gravity is needed to control the sky-bike.
- 9
- 1 Because the scientists want to know if the spike is hollow. Jimmy has fixed a microphone to the spike. If he now hits the spike with his hand, people at Hub Control will know if the spike is hollow from the sound they hear through the microphone.
 - 2 The hairs on his head and on the skin of his hands are standing up. This happens when there is static electricity in the air.
- 10
- 1 Because the water in the hole seems to be about 500 metres below the ground. This is also the height of the Sea at the southern cliff.
 - 2 Norton has told him to use the shirt like a parachute. He will not fall as fast as he would if he was on Earth, because Rama's gravity is only about half of Earth's gravity, and the shirt will slow his fall even more. By using it, he will avoid injury when he hits the sea.
- 11
- 1 (a) *Student's own answer.* (b) They have long legs and they can run at great speed. (c) Real spiders have eight legs, not three.
 - 2 'To spy' is an old word meaning 'to see'. The noun 'spy' means a person who gathers information (usually a spy does this illegally). These Raman creatures gather information by running about, looking at everything they find (except the humans). So 'spy' is a good description of the spiders. Also the word 'spy' is pronounced the same as the first syllable of the word 'spider'.
- 12
- 1 The change in Rama's speed of rotation makes him think that it will make a change of direction. He thinks that the best explanation for this is that Rama is being sent into orbit around the Sun.
 - 2 Because they are like robots in some ways but they are also living beings – they have a biology. 'Biot' is a word made up from the two words 'biological robot'.
- 13
- 1 Because the gravity on Mercury is low, and people born there have developed to live in that gravity. The stronger gravity of other parts of the Solar System – e.g., Earth – is too strong for the Hermians to survive there.
 - 2 He thinks that they don't want friendship. He thinks that they want to destroy the Hermians by going into orbit as a new member of the Solar System and taking over the Hermians' world.
- 14
- 1 The radio transmissions from the cameras on the Hermian missile will take about ten minutes to reach Mercury. By the time the Hermians see the pictures of Rodrigo beginning to disarm the missile, he will have really finished disarming it. It will be too late for them to stop him.
 - 2 When Boris is 25 kilometres from Rama, he is half-way to the Hermian missile. The complete journey will take four minutes, therefore Boris's shuttle flies at 12.5 kilometres per minute.
- 15
- 1 Norton thinks that the biots cannot see any difference between humans and Ramans because both humans and Ramans breathe oxygen. He thinks the biots probably believe that the humans are Ramans, and so they ignore them.

- 2 The student should guess that it is because churches and temples on Earth are often beautiful buildings constructed with rows of tall cylindrical columns to hold up their roofs.

16

(a) The Hermian Ambassador thought that Rama would go into orbit around the Sun, and destroy life in the Solar System. He was wrong, because Rama flew through the Solar System and off into space beyond it. (b) Boris thought that the Ramans had come to the Solar System to save the lives of good people there. He was wrong too. The Ramans were not interested in humans.