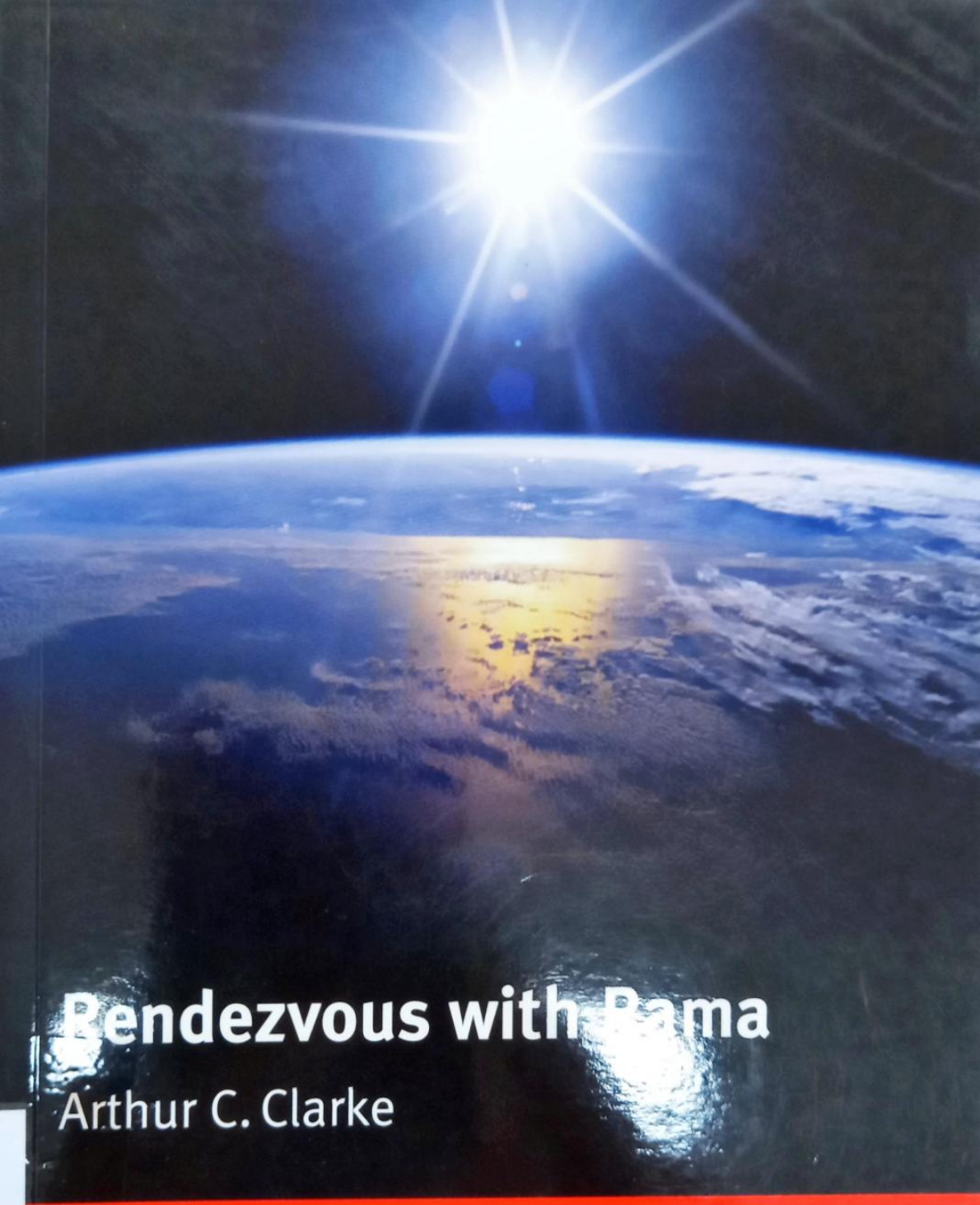

Rendezvous with Rama

Arthur C. Clarke

MACMILLAN READERS

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INTERMEDIATE LEVEL

ARTHUR C. CLARKE

Rendezvous with Rama

Retold by Elizabeth Walker

MACMILLAN

Founding Editor: John Milne

The Macmillan Readers provide a choice of enjoyable reading materials for learners of English. The series is published at six levels – Starter, Beginner, Elementary, Pre-Intermediate, Intermediate and Upper.

Level control
Information, structure and vocabulary are controlled to suit the students' ability at each level.

The number of words at each level:

Starter	about 300 basic words
Beginner	about 600 basic words
Elementary	about 1100 basic words
Pre-Intermediate	about 1400 basic words
Intermediate	about 1600 basic words
Upper	about 2200 basic words

Vocabulary
Some difficult words and phrases in this book are important for understanding the story. Some of these words are explained in the story and some are shown in the pictures. From Pre-Intermediate level upwards, words are marked with a number like this: …[3]. These words are explained in the Glossary at the end of the book.

Contents

A Note About the Author

Arthur Charles Clarke was born on 16th December, 1917, in Minehead, a town in the southwest of England. When he was nineteen years old, he moved to London where he became interested in studying astronautics – the science of travelling through space. He joined the British Interplanetary Society and he also started to write science fiction stories.

During the Second World War (1939–1945) Arthur C. Clarke was an officer in the British Royal Air Force. He worked in a department that was developing radar. This new invention found out the positions of the enemy's ships and planes.

After the war, Arthur returned to work at the British Interplanetery Society. He later became president of this society.

In 1945, he published a technical paper called 'Extra-terrestrial Relays'. It describes his ideas for communications instruments called satellites, which would remain at a fixed height above the surface of the Earth as they travelled on an orbit[1] around it. His invention brought him many awards and made him famous. Today the fixed orbit at 42,000 kilometres above the Earth is named 'The Clarke Orbit'. In 1948 Arthur C. Clarke obtained a first class degree[2] in Physics[3] and Mathematics from King's College, London. As well as studying science, Arthur Clarke continued to write science fiction stories and his first story, *Rescue Party*, was published in 1946.

In June 1953, he married Marilyn Mayfield, an American, but they separated in December 1953.

Arthur C. Clarke first visited Colombo, Sri Lanka, in December 1954. At the time, the country was called Ceylon. He became interested in diving underwater and he studied the plants and animals that lived in the ocean. He went to live in Colombo in 1956 and has lived there ever since.

In 1964, he worked with the American film director, Stanley

Kubrick. They wrote a science fiction film together. Four years later, he and Stanley Kubrick received an award nomination from the U.S. Academy of Motion Picture Arts and Sciences for the film *2001: A Space Odyssey*.

Arthur C. Clarke is one of the most famous and respected science fiction writers of the twentieth and twenty-first centuries. More than 50 million copies of his books have been sold all over the world. He has won very many awards for his writing.

His bestsellers include: *The Sands of Mars* (1951); *Childhood's End* (1953); *2001: A Space Odyssey* (1968); *Rendezvous With Rama* (1973); *The Fountains of Paradise* (1979); *2010: Odyssey Two* (1982); *The Songs of Distant Earth* (1986); *2061: Odyssey Three* (1987); *Rama II (1989)*; *The Garden of Rama* (1991) (with the writer, Gentry Lee); *The Hammer of God* (1993); *Rama Revealed* (1993) (also with Gentry Lee) and *3001: The Final Odyssey* (1997). He has written many short stories. Among them are: *Tales of Ten Worlds* (1962); *The Wind From the Sun* (1972) and *The Sentinel* (1983). He has also written a large number of scientific papers and essays and non-fiction books. Arthur C. Clarke was the presenter of the very popular TV series: *Arthur C. Clarke's Mysterious World* (1981) and *Arthur C. Clarke's World of Strange Powers* (1984). He worked with famous American TV news broadcasters during NASA's Apollo 11, 12 and 15 space missions[4]. He is a member of the International Academy of Astronautics, the Royal Astronomical Society and many other scientific organisations.

On 26th May, 2000 in his home in Sri Lanka, he received a knighthood during a special ceremony. Sir Arthur C. Clarke continues to write and he uses phones, faxes and the Internet to discuss science fiction, astronomy, space travel and astronautic technology with his many friends all over the world.

[1 billion = one thousand million (1,000,000,000)]

Our **Solar System** began about 4.6 billion years ago. The Solar System – the word solar means of the Sun – was formed from a cloud of dust and gas which started to contract[5] and get hotter and hotter. As the cloud became smaller, the inside became dense and heavy because gravity pulled the outer layers inward. Gravity is an invisible power called a force. This force attracts things – it pulls them together. Gravity affects every object in the Solar System.

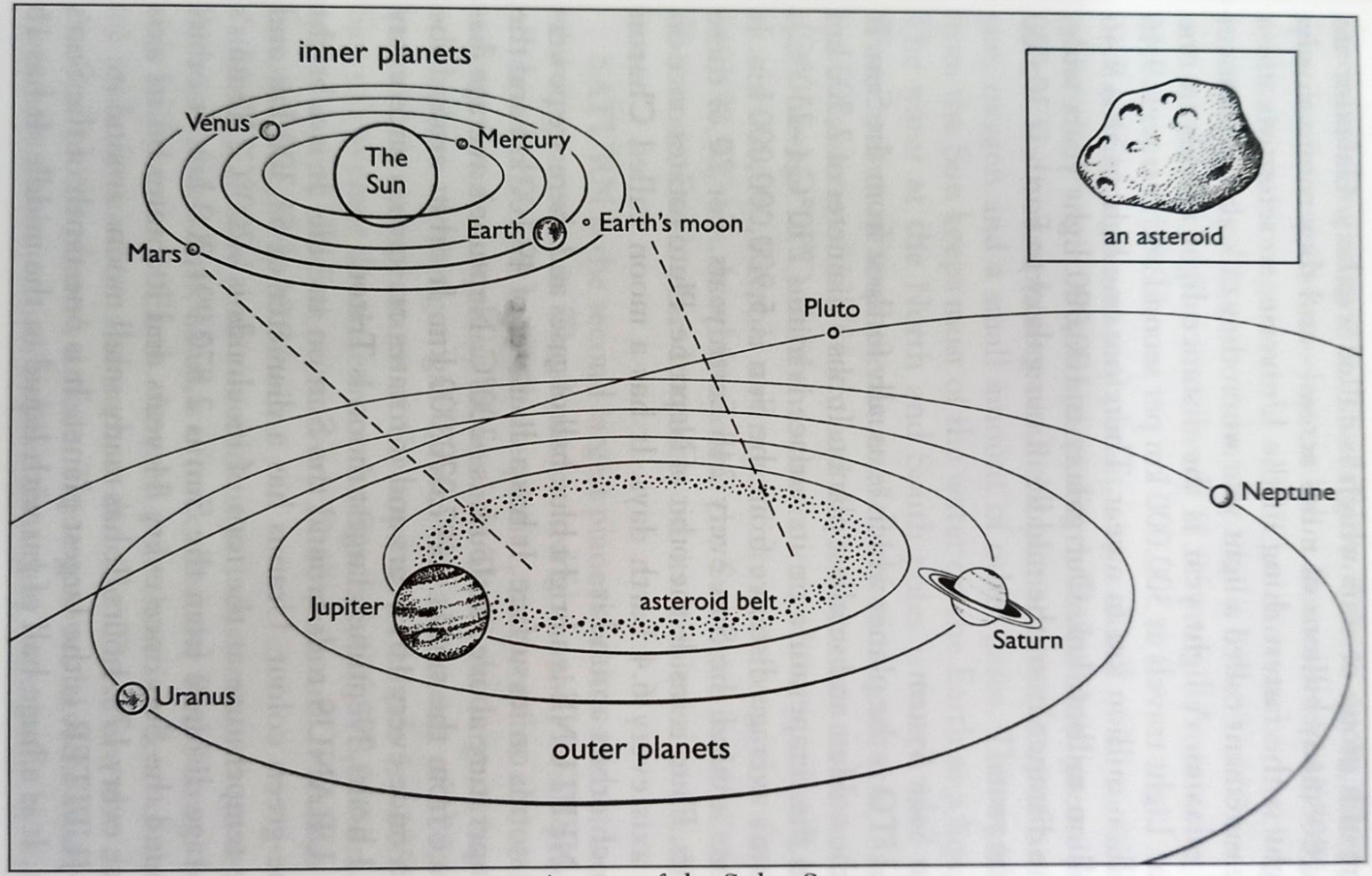
The pressure inside the cloud of gas and dust increased over a long period of time – maybe a million years. Then the heat, which was trapped by the gases, exploded. These enormous explosions made the material spin[6] round and round. Then this hot material contracted and the star at the centre of our Solar System – the **SUN** – was born.

The Sun is an enormous ball of glowing gas. The temperature at its centre is over 15 million degrees Centigrade. The temperature on the surface is 5,500°C.

After the enormous explosions which made the Sun, the material which orbited around it became planets and asteroids[7]. These planets do not stay at exactly the same distance from the Sun all the time. Each planet has its own orbit and each planet is a different distance from the Sun. Each planet's orbit has an oval shape – like an egg. It is not a perfect circle. Also, each planet rotates – spins round and round – as it moves along its orbit.

The length of a planet's 'day' is the time it takes to rotate one turn on its axis[8].

The Sun and all the stars that we can see in the dark sky are



A map of the Solar System

part of a group of stars which is called a galaxy. Galaxies are huge – many billions of miles across – and they rotate slowly. Light is the fastest thing in the Universe, so scientists use a measurement called a light year when they talk about distances in galaxies. A light year is the distance light travels in one year. Light travels at 300,000 km per second and it travels 9.46 million million km in a year. Therefore one light year is 9.46 million million km. Our galaxy is 100,000 light years wide. The distance from the middle of our galaxy to Earth is 30,000 light years.

Our Solar System

PLUTO is the planet which is usually furthest from the Sun. It is the coldest and smallest planet. It has a diameter of 2,300 km and the temperature on its surface is minus 230°C (–230°C). Pluto's average distance from the Sun is 5,900,000,000 km. It orbits around the Sun every 248 Earth years. For 20 of these years, Pluto is inside the orbit of Neptune. Pluto rotates once on its axis every 6.4 Earth days. It has a moon called **Charon** which orbits around it.

NEPTUNE is a bright blue ball of gases and there are powerful storms on its surface. It has a diameter of 49,100 km and the temperature above its clouds is –200°C. Neptune's average distance from the sun is 4,497,070,000 km. It orbits around the Sun once every 165 years and it rotates on its axis once every 16.1 hours. Neptune's largest moon is **Triton**.

URANUS rolls around the Sun on its side. It is a bright blue-green colour. Uranus has a diameter of 51,300 km and the temperature at the tops of its clouds is –200°C. Uranus's average distance from the Sun is 2,870,991,000 km. It orbits around the Sun once every 84 years and it rotates on its axis once every 17.2 hours. It has many small moons around it.

JUPITER is the largest planet. It is one-tenth of the Sun's size. It is a huge ball of gas with liquid in the middle. It has 16

moons circling around it. The largest of these are **Io**, **Europa**, **Ganymede** and **Calisto**. Jupiter has a diameter of 142,800 km and its surface temperature is –130°C at the tops of the clouds. Jupiter's average distance from the Sun is 778,833,000 km. It orbits around the Sun once every 11.86 years. It rotates on its axis once every 9.9 hours.

EARTH is the watery planet – two thirds of its surface is covered in water. From space, Earth looks blue, green and white. The atmosphere around the planet is made up of nitrogen, oxygen and a small amount of other gases. The warmth from the Sun keeps most of the water on the Earth as a liquid. The water at the North and South poles is frozen into ice. Water and an atmosphere are needed before life can exist. Earth has a diameter of 12,756 km and the temperature on its surface is on average 15°C. Earth has one moon, which is called **Luna** in this story. Earth's average distance from the sun is 149,597,900 km. It orbits around the Sun once in 365.2 days. This is an Earth year. It rotates on its axis once every 23.9 hours.

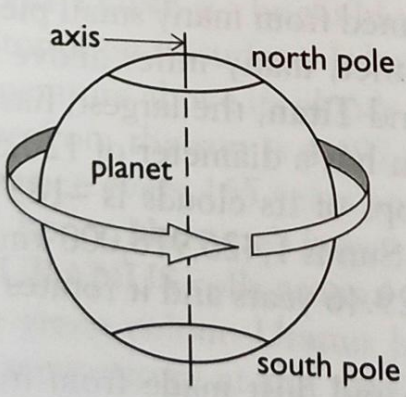
SATURN is the second largest planet and has a set of beautiful rings around it. These are formed from many small pieces of ice which orbit around the planet, many miles above it's surface. Saturn has many moons and **Titan**, the largest, has an atmosphere of nitrogen gas. Saturn has a diameter of 120,600 km and the temperature at the tops of its clouds is –185°C. Saturn's average distance from the Sun is 1,426,978,000 km. It orbits around the Sun once every 29.46 years and it rotates on its axis once every 10.7 hours.

MARS is cold and covered in red dust made from iron. Because of this dust, Mars is often called the Red Planet. It is only half the size of Earth. At each pole there is a layer of thick ice made from water and carbon-dioxide. There are also deep grooves[9] on the planet's surface. These grooves have no water in them now, but scientists believe that they were made by water

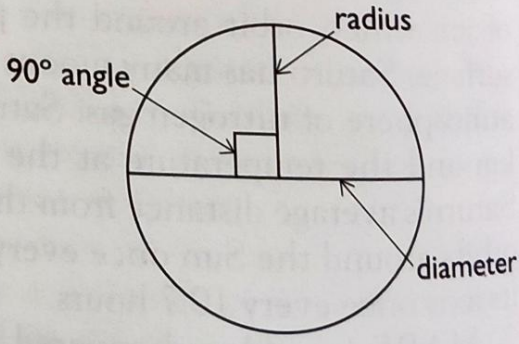
millions of years ago. The diameter of Mars is 6,787 km and the surface temperature is on average –50°C. The Red Planet's average distance from the Sun is 227,900,000 km. It orbits around the Sun once every 687 days and spins on its axis once every 24.6 days.

VENUS is the same size as Earth and the surface is covered in thick clouds. The temperature on the surface is hot (480°C). The pressure on its surface is nearly one hundred times greater than on Earth. Venus has a diameter of 21,100 km. It's average distance from the Sun is 108,208,900 km. Every 225 days it travels once around the Sun. It rotates on its axis once every 243 days.

MERCURY is the planet which is closest to the Sun. There is almost no air on this planet. Mercury's average distance from the Sun is 57,909,100 km. It has a diameter of 4,880 km and a surface temperature of 430°C on the side facing the Sun, and –180°C on the dark side, away from the Sun. It rotates on its axis once every 59 days and it orbits around the Sun once every 88 days.



a planet rotates around its axis



parts of a circle or sphere

The People in This Story

Commander William Tsien Norton – captain of spaceship *Endeavour*. Age: 54. Born 2077 in Brisbane, Oceania, Earth. He has a wife on Earth and three children.

Lieutenant Joe Calvert – crewmember of spaceship *Endeavour*. Best friend of Karl Mercer. Calvert has a wife on Earth and one child.

Lieutenant-Commander Karl Mercer – second officer of spaceship *Endeavour*. Best friend of Joe Calvert. Mercer has a wife on Earth and one child.

Technical Sergeant Willard Myron – crewmember of spaceship *Endeavour*. He is a very clever mechanic.

Surgeon Commander Laura Ernst – doctor on spaceship *Endeavour*

Lieutenant Boris Rodrigo

Lieutenant James (Jimmy) Pak

Sergeant Ruby Barnes

Sergeant Pieter Rousseau

Members of the Rama Committee:

Professor Olaf Davidson	– astronomer[10]
Dr Thelma Price	– archeologist[11]
Dr Carlisle Perera	– biologist[12]
Dennis Solomons	– historian
Conrad Taylor	– anthropologist[13]
Sir Lewis Sands	– historian of science
Dr Bose	– Chairman and Ambassador[14] for Mars
Sir Robert Mackay	– Ambassador for Earth
The Ambassador for Mercury	

1

Project Spaceguard

Earth and its people have always been in danger from deep space[15]. Millions of years ago, before there were men and women on Earth, meteorites[16] often fell on the planet. Some scientists believe that one of the biggest of these rocks caused the slow extinction[17] of the dinosaurs.

Long after the dinosaurs were extinct, humans developed on the Earth. And at first, humans were more fortunate than the dinosaurs. Meteorites did fall on the Earth sometimes, but they did little harm. They fell into the sea, or onto the land far away from people and their cities.

However, by the end of the twenty-first century, people were crowded together all over the surface of the planet. There were no more uninhabited spaces on Earth. Its millions of people lived anywhere that they could.

On a morning of September, in the year 2077, a huge ball of fire appeared in the sky over Europe. In a few seconds, the fire-ball – a huge meteorite – was brighter than the Sun.

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