

科技英语系列读物 EST Reading Series

第三级 第二分册

GRADE III BOOK 2

Man Against Space

〔人类征服宇宙〕



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上海外语教育出版社

科技英语系列读物

第3级 第2分册

Man Against Space

人 类 征 服 宇 宙

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编写说明

为了开创公共外语教学的新局面，使理工科学生更快更好地掌握外语，机械工业部部属各院校，在机械工业部教育局的直接领导下，根据近年来教学的初步经验总结，经过调查研究，决定编写一套供全日制理工科大学及业余高等学校基础英语阶段使用的课外阅读教材。全书按照词汇量、语言结构和文体的难易分为四级，每级三个分册，共十二分册，分级编排，循序渐进。

本读物每册包括课文、注释、练习三部分：课文选自国外科普读物，选材原则强调思想性、科学性、知识性和趣味性；注释旨在帮助读者理解课文，掌握新的语言现象；练习力求多样化，以巩固所学的语言材料，提高英语实践能力。此外，每册之后附有词汇表，便于读者自学查阅。

本读物以培养学生阅读能力为主要目标。各分册根据选材内容，各有其书名；级与级之间，分册与分册之间，相互连贯呼应，成为一个系列，所以定名为《科技英语系列读物》。

本读物由机械工业部部属院校英语学科协作组统筹安排，组织部属院校分工负责选注，由马泰来、卢思源、李国瑞、柯秉衡、谢卓杰、戴炜华、戴鸣

钟等同志(以姓氏笔划为序)组成的审编小组负责审订, 陈开明同志担任审编小组秘书。总审为戴鸣钟教授。由于编写时间匆促并受选材来源和编写水平的限制, 全书未尽完善, 希广大外语教学工作者和读者予以指正。

编 者

1983年7月

本分册在编写过程中, 承美国英语专家 Martha Kuhlman 提供宝贵意见, 谨此致谢。

Introduction

In July 1969 men landed on the moon for the first time.

Three American astronauts climbed into a spacecraft, and an immense rocket shot them into space. The rocket carried them about 160 kilometres above the earth. The spacecraft reached a speed of 40,000 kilometres an hour. Then it left the rocket and flew to the moon alone.

For four days the astronauts travelled through space on their long, lonely and dangerous journey.① At last, they reached the moon. The spacecraft then divided into two separate sections. One of the men stayed in the main section and flew round and round the moon. The other two men dropped down in the smaller section and landed. A few hours later, these two astronauts got out of their spacecraft and walked on the moon—the first men on the moon.

The astronauts were nearly half a million

① travelled ... dangerous journey: travel on a journey: go on a journey or make a journey, 意为进行旅游。

kilometres from the earth. But people were able to see them on television. They could see and hear the men during their journey and they could also watch their actions on the moon.

The two astronauts stayed on the moon for about twenty-one hours. Then they took off and joined their companion^② who was travelling round the moon. The three men then made the long journey home again. They returned safely to earth three days later.

Since man's attempt to conquer space began in 1957, scientists and engineers had been planning and preparing for this great event.

Exercises

I. Find the main idea of the passage.

The main idea of this passage is

- a. how American astronauts travelled through space.
- b. how men landed on the moon for the first time.
- c. how the Americans prepared to land a man on the moon.
- d. how the first spaceship flew to the moon.

II. Choose the best phrase to complete the following sentences.

② joined their companion: 与他们的伙伴相会合。join 与人称代词或表示人的名词连用, 作“与...一起”解。例: I'll join you in a few minutes.

1. The first men walked on the moon
 - a. in 1957
 - b. for about twenty-one hours.
 - c. in July 1969.
 - d. when they got out of their spacecraft.
2. The first journey to the moon and back to the earth took the American astronauts
 - a. three days.
 - b. four days.
 - c. nine days.
 - d. eight days.
3. The first three American astronauts travelled to the moon
 - a. in a spacecraft.
 - b. in an immense rocket.
 - c. in the main section of the rocket.
 - d. in the smaller section of the spacecraft.
4. To land the astronauts on the moon, the spacecraft divided into
 - a. two sections.
 - b. three sections.
 - c. four sections.
 - d. two equal sections
5. The period from the beginning of man's attempt to conquer space to his landing on the moon lasted
 - a. twelve years.
 - b. ten years.
 - c. eight years.
 - d. five years.

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1. The First Problems

The moon has always been a mystery to men. How old is the moon? Where did it come from? What is it made of? Since early times, scientists have been trying to find the answers to these and many other questions.

It is not possible to solve these mysteries from the earth. Men must explore the moon and gather information which may help scientists to discover its secrets. This had been the dream of scientists for a very long time. But few people thought that it would ever be possible to send men to the moon.

The famous French writer Jules Verne (1828—1905) wrote an exciting book called *From the Earth to the Moon*. Most people who read the story considered it impossible, but some men gave serious thought to^① the subject.

They studied the way the planets move round the sun. The sun has nine planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus,

① gave serious thought to: 对...进行认真的思考。give (a) thought to: think about.

Neptune and Pluto. They are natural satellites of the sun and they travel round the sun in separate paths or orbits. The planets are controlled by the sun's gravity and also by their own speed. The gravity is very strong and pulls the planets towards the sun. If the sun had no gravity, the planets would shoot towards the distant stars and disappear. Instead, they travel round the sun in an almost circular path, and they cannot escape. If the planets were not moving, they would fall into the sun. But this cannot happen because they are travelling too fast. The speed of the planets balances the pull of the sun. All the planets are different distances from the sun, and for this reason they all travel at different speeds. The nearer a planet is to the sun, the stronger the pull of gravity is. Therefore, the faster it must travel in order to balance the sun's pull.

The moon moves round the earth in the same manner.

The laws of science which control the natural satellites—the planets and the moon—must also apply to artificial satellites. An artificial satellite in space is also controlled by gravity and speed.

Men soon worked out the theory, but they still did not know how to send a spacecraft into

space.

A Russian schoolteacher, Konstantin Tsiolkovsky,^② first suggested the use of rockets, in 1903. At that time, rockets used solid fuels and they had not much power. Tsiolkovsky suggested using liquid fuels to increase their power. A few years later, an American scientist, Dr. Robert Goddard,^③ made the first experiments with liquid fuels and built the world's first liquid fuel rocket. It climbed nearly fourteen metres and stayed in the air for two and a half seconds. Goddard tested different engines and fuels and built bigger and more powerful rockets. His last rocket climbed 2,250 metres and reached a speed of nearly 1,200 kilometres an hour.

Meanwhile, a German scientist, Hermann Oberth,^④ was also making experiments with rockets; and in 1930 he wrote a book called *The Way to Space Travel*. His book attracted much attention. As a result, German scientists and engineers formed a society to study rockets and

② Konstantin Tsiolkovsky [kɒnstəːn'tɪn tsjɔːl'kɒfski:] [俄]: 康斯坦丁·齐奥尔科夫斯基(1857—1935), 苏联火箭动力学及星际飞行理论的创始人。 ③ Dr. Robert Goddard ['rɒbət 'ɡɒdəd]: 罗伯特·戈达德博士(1882—1945), 美国物理学家, 研究火箭理论并首先制成液体燃料火箭。 ④ Hermann Oberth ['hɜːmən 'ɒbət]: 赫尔曼·奥伯特(1894—?), 德国火箭专家, 参加 V2 火箭研究。

space—the German Society for Space Travel.^⑤

One member of the society was Wernher von Braun^⑥, a clever young engineer who had watched some of Oberth's experiments. Space was von Braun's greatest interest in life, and he had one great ambition: he wanted to build a rocket that would be able to send men to the moon. He was a very confident young man. He told nearly everybody he met: "One day men will land on the moon."

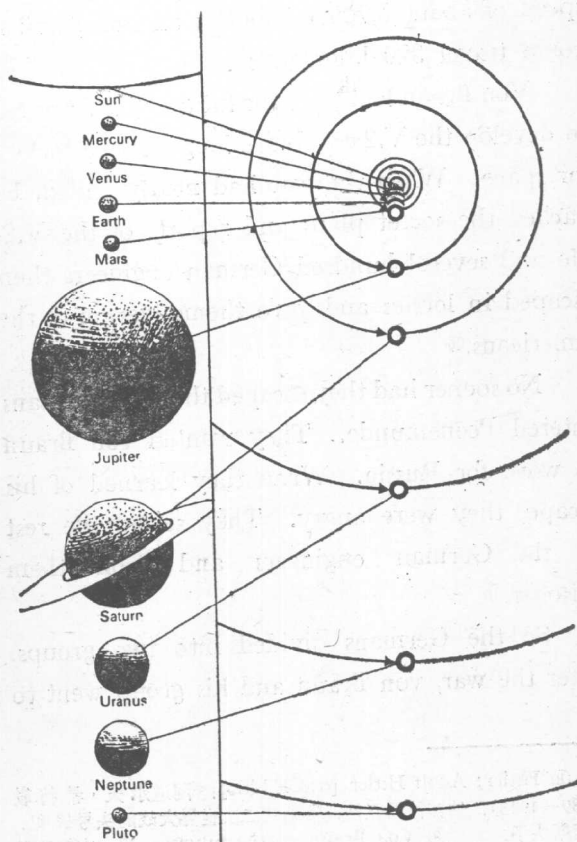
Von Braun and his companions tried to solve a very difficult problem. They had to build a rocket with enough power to overcome the pull of gravity and break away from the earth's atmosphere. The atmosphere consists of various gases, water vapour and dust. The air is heavy and dense near the surface of the earth. It then gets gradually lighter and less dense further away, until there is no air at all.

The German engineers had very little money; they could not afford wonderful workshops and expensive machines. They built their rockets in a humble hut in Berlin and then tested them in a field. During the Second World War (1939-

⑤ the German Society for Space Travel: 德国航天协会。

⑥ Wernher Von Braun [wə:nə von brɔ:n]; 沃纳·冯·布朗 (1912—1977), 德国火箭专家。

45), von Braun and his friends worked at the famous German rocket station at Peenemunde.^⑦ There von Braun designed the powerful V.2 rocket,



The orbits of the nine planets round the sun.

⑦ Peenemunde [ˌpeɪnəˈmuːndə]: 佩内明德, 德国城镇。生产 V-1 V-2 火箭的研究中心。

which Hitler^⑧ used to attack Britain. The V.2 was the first long-range rocket. It could climb to a height of over 160 kilometres; it could reach a speed of about 5,700 kilometres an hour; and it could travel 320 kilometres.

Von Braun looked to the future.^⑨ He wanted to develop the V.2 and build longer-range rockets for space. When the war had nearly ended, he packed the secret plans and reports of the V.2. He and several hundred German engineers then escaped in lorries and gave themselves up to the Americans.^⑩

No sooner had they escaped than the Russians entered Peenemunde. They wanted von Braun to work for Russia. When they learned of his escape, they were angry. They seized the rest of the German engineers and took them prisoner.^⑪

So the Germans divided into two groups. After the war, von Braun and his group went to

⑧ Hitler: Adolf Hitler [ɑ:dɒlf'hɪtlɜ:]; 阿道尔夫·希特勒 (1889—1945), 纳粹德国元首, 发动第二次世界大战的头号战犯, 法西斯头子。 ⑨ Von Braun ... the future: 冯·布朗寄希望于未来。 look to: direct one's expectations to. ⑩ gave themselves up to the Americans: give (oneself) up to sb. 向某人投诚, 委身于某人。 ⑪ took them prisoner: take (make) sb. prisoner: 逮捕某人, 俘虏某人。 prisoner 为宾语补足语。

America and the other group went to Russia. The Germans worked with the scientists in their different countries and helped them to build more powerful rockets. But neither America nor Russia could produce a rocket with enough power to launch a satellite.

Then both countries independently adopted the same idea. They decided to develop a rocket^⑫ with three or more separate sections called 'stages'. This was the answer to the problem. A single rocket has not enough power, but two or three rockets together can launch a satellite.

Let us see how a three-stage rocket works. The three sections are arranged in this way: the first stage forms the tail; the second stage is in the middle; and the third stage is in front. The satellite sits in the nose of the third stage. Each stage is like a separate rocket: it has its own engines and fuel system and works independently. The first stage drives the rocket first. It lifts the rocket into the air—a process called 'lift-off'.^⑬ The rocket shoots into the sky. After a few

⑫ develop a rocket: 研制一枚火箭。develop 可作“研制”，“设计”，“制定”，“开发”解。如：develop a device (a method, a plan). ⑬ lift-off: 发射；起飞。相当于 take-off, 但前者多指垂直起飞，后者指普通飞机起飞。两者有时也可通用。它们的动词形式分别为 lift off, take off.

minutes, the first section burns out^⑭ and falls away. The engines of the second stage then drive the rocket. Later this section burns out and falls away, and the third stage then does the driving. As each stage falls away, the weight of course gets lighter. Therefore the rocket travels faster. So it gains enough speed to break away from the earth's pull. When the last engines burn out, the launching is complete. The satellite travels in space by its own speed.

The three-stage rocket system solved the launching problem.

Meanwhile, American and Russian scientists had been designing satellites to send into space. They built satellites with thousands of electronic parts and instruments which worked automatically. There were 'solar cells' on the outside walls. In space, these cells would draw light from the sun and^⑮ produce the power for the electronic instruments.

The scientists also worked out a system to track and control satellites from the ground. A satellite automatically sends out 'tracking signals'^⑯ in space, and these signals show its position in

⑭ burns out: 因燃料用尽而停止燃烧。burn out 也常作“烧尽”、“烧光”解。

⑮ draw light from the sun: 吸收阳光。

⑯ tracking signals: 示踪信号。