英语科普阅读

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·西安·

内容简介

本书为系列英语科普阅读的第一册。全书收编了英美最新出版的科普文章80篇。本书题材广泛、新颖，涉及医学、生物、航空航天、计算机、通信、电力、电子、天文、经济文化、金融、核能以及名人生平等诸多领域，融知识性和可读性为一体。体裁涵盖了记叙文、说明文和议论文等。为了帮助读者理解，每篇文章都附有内容提示、注释和长难句翻译和分析。希望读者通过阅读该书能够巩固已学过的词汇，扩大科技英语的词汇量，进一步提高阅读理解能力，初步了解科技文体的特点。

本书可作为大学英语1～4级水平读者及其他同等水平的英语爱好者的阅读教材。

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前　言

顾名思义,《英语科普阅读》是汇集科普类题材的系列读本。编写本系列书的目的是通过精心编排的系列阅读材料,帮助读者熟悉科普文章的文体特点、科技英语常用表达法并掌握科技英语常用词汇和专业术语。同时帮助读者掌握正确的阅读方法和技巧,从而为能顺利阅读有关专业原版教科书、参考书及其他参考资料打下良好的基础。

本系列丛书由三册组成。词汇量依次为 4 200,5 000 和 6 000。第一册共有 80 篇文章,为初级读本。内容涉及科学技术领域中的基本概念和常规性知识及其某些技术的应用。第二册共有 70 篇文章,为中级读本。内容涉及科学技术在生活各领域中的运用及一些前沿科技成果的介绍。第三册共有 55 篇文章,为高级读本,内容涉及最新科技成果介绍及对未来科技发展的展望。这三本书可分别供学习大学英语四级、六级的学生以及非英语专业硕士生使用。

本系列书力求做到寓知识性、趣味性和思想性于阅读实践中。全书内容广博,题材广泛,涉及专业面宽,有利于激发读者的学习兴趣,拓宽知识面和开阔视野。书中所用材料经过反复筛选,择优采用。为了保证语言规范,文章均选自英美等国近年出版的书籍和刊物,以反映现代科学技术的最新成果和发展趋势。同时,文章在词汇、拼写和用法等方面保留了英国英语和美国英语的特点,使读者有更多的机会接触英语的这两种主要变体。文章编排力求做到从易到难,由浅入深和循序渐进。每篇文章都配有内容提示和

难点注释,以帮助读者读者拓宽思路,加深对文章的理解,领会作者的观点和态度以及就文章的内容进行预测、分析、推理、判断和综合概括。应该说明的是:某些热门话题(如计算机、网络等)可能在三册书中重复出现,但文章难度不一,内容各异。

阅读理解是中国学生学习外语必须掌握的一项重要技能。因此,读者应通过大量阅读实践,善于把握文章的大意、发现和利用文章的冗余信息(指作者传递信息时重复的旧信息)、掌握必要的英美文化背景知识和熟悉英美人独特的表达方式和惯用法等。本系列书对读者提高这方面的能力定有裨益。

由于编者水平有限,错误和疏漏之处在所难免,热诚欢迎读者批评指正。

编　者

2000 年 6 月

1. Blood and Heart

(血液和心脏)

内容提示:

人体有13品脱血液。血液可以将养料运送到身体的各个部位,并将废物排出体外。血液像一条溪流,细胞像植物和鱼一样从这条溪流中吸取身体所需的养料。每秒钟有3 000 000红血细胞死亡,又有同量的新细胞取代它们。推动血液在体内循环的是心脏。心脏是一个泵,有四个心室。它通过收缩改变心室的大小,推动血液不断在体内循环。血流像树枝一样,距心脏越远,血流就越细。

Blood is the red liquid which comes out of your finger when you cut it. A man's body contains about thirteen pints[1] of blood. It can give a pint of blood at a time to a blood bank for the use of other men who may need it. A healthy body absorbs the pint of blood quickly.

What does our blood do for us? It takes food to all parts of our body and takes waste away from them. For example, the cells all over our body need food all the time. The blood is like a stream. The cells take what they need, their food, from the blood stream, as plants and fish take their food out of water. The blood tream carries food and the oxygen which it has taken up in our lungs to all the cells in the body. Old cells die and give place to new cells in the body as plants and fish and other living things in the world about us die and give place to others. Three million of your red blood cells die every second and other cells take their place. The red cell population

of your body changes completely in about three months.

What makes the blood go on moving round the body in a stream?

The heart sends it round. The heart is between the lungs. A man's heart is the size of his shut hand. The heart is a pump which has four rooms with doors between them. It pumps blood in and out through these doors by changing the size of the rooms so that the doors open and shut. It can do this because it is made of muscle. The heart keeps a stream of blood going all round the body and back again to itself.

The journey of our blood all round the body is the circulation of the blood. The branches of the blood stream are like the branches of a tree which get smaller and smaller the farther they are from the roots. The small branches go to all parts of the body. They go to the ends of your fingers and toes, to all the muscles (those parts by which you move your arms, legs, head and other parts of the body.

注释：

1. pint n. 品脱(=0.5 夸脱;英制 0.568 升;美制液量 0.473 升，美制干量 0.55 升)

2. The Fuel That Makes Mass Media Work

(大众媒体运行的燃料——广告)

内容提示:

在西方国家,广告是大众媒体运转的燃料。因为许多电视台、报纸、杂志和广播电台都是私营的,没有广告就没有这些私营企业。广告是广告客户通过各种媒体向人们介绍其商品、服务和思想。做广告首先是要付费的,但广告客户不必直接面对公众。广告必须有说服力,必须让人们知道谁在做广告。

When you turn on the radio, you hear an advertisement. When you watch television, you hear and see an advertisement. If you turn the pages of a newspaper or magazine, again you find an advertisement. If you walk down the street, you see one advertising board after another. All day, every day, people who want to sell you something compete to catch your attention. As a result, advertisements are almost everywhere.

In the West, advertisements are the fuel that makes mass media work. Many TV stations, newspapers, magazines, radio stations are privately owned. The government does not give them money. So where does the money come from? From advertisements. Without advertisements, there would not be these private businesses.

Have you ever asked yourself what advertising is? Through the

years, people have given different answers to the question. For some time it was felt that advertising was a means of " keeping your name before the public". And some people thought that advertising was "truth well told". Now more and more people tend to define it in this way. Advertising is the paid, non-personal, and usually persuasive presentation[1] of goods, services and ideas by identified sponsors through various media.

First, advertising is usually paid for. Various sponsors pay for the ads we see, read, and hear over the various media. Second, advertising is non-personal. It is not face to face communication. Although you may feel that a message in a certain advertisement is aimed directly at you, in reality, it is directed at large groups of people. Third, advertising is usually persuasive. Directly or indirectly it urges people to do something. All advertisements try to convince people that the product, idea, or service advertised can benefit them. Fourth, the sponsor of the advertisement must be identified. From the advertisement, we can see if the sponsor is a corporation, or a committee, or an individual. Fifth, advertising reaches us through traditional and nontraditional mass media. Included in the traditional media are newspapers, magazines, radio, television, and films. Nontraditional media include the mail, matchbox covers, and billboards[2].

注释：

1. presentation n. 介绍，陈述，赠送，表达
2. billboard n. 广告牌

3. The Life Circle of the Stars
(星辰的生命周期)

内容提示:

星星像人类一样有其生命周期。星星诞生于大量的尘埃和气体,然后逐渐形成天体。在收缩过程中,这个新的天体变得越来越热,直到其中心温度达到数百万度。在星星内部高温进行核聚变的过程中,会释放出大量的能量,使星星发光。从此,星星将进入孩童期、中年期和老年期。星星的生命周期是漫长的。

Like human beings, stars have their life circles. They pass through a series of stages during their lifetime. The star is born from great clouds of dust and gas. The tiny particles of the clouds pull at one another, causing the clouds to contract.

Gradually a new heavenly body takes shape. In the course of contraction, the new body gets hotter and hotter until the temperature at its center reaches millions of degrees. The great heat inside the star starts a process of nuclear fusion[1]. Hydrogen atoms begin to fuse to form helium[2] atoms. Large amount of energy is set free in the process and the star begins to shine. That might be called the early period, or the childhood of the star.

The end of contraction marks the end of the childhood and the beginning of the manhood[3] of the star. Manhood is the longest period of a star's life. It is usually several hundred times longer than the childhood. Nearly 90 percent of the stars we see today are passing through their manhood. Manhood is the best time of the star. Most of the stars enjoy a

rather peaceful and balanced life during this stage, pouring out energy year in and year out, The sun is a typical middle-ager in the big family of stars. It is already five billion years old, but it is likely to stay in this stage for another five billion years.

But the star is getting older and older all the time as human beings are. When the hydrogen at its center is being used up, the outer layer of the star begins to expand and redden. The star is entering upon its old age, the stage of the red giant. The sun, for example, will expand during this stage nearly 250 times in diameter and increase a thousand times in brightness. Its hot breath may have melted several of its planets. It would have grown so big as to drive the earth out of its orbit even if it still existed.

Then comes the last stage. The red giant begins to explode, throwing off a greater part of its outer layer. But its core remains and hardens. The star has become very dense, and is nearing its death. It breaks up and becomes cold dark cinders[4] in the unlimited universe.

But it is not the end of the star. The great explosions accompanying its death have filled the space with stardust[5]. Together with the last remains of the star, they form the material out of which a new generation of stars will be born. Stars change like everything else in the world, but they change so slowly that we could hardly see any difference in most of them.

注释：

1. fusion n. 聚变
2. helium n. 氦(化学元素，符号为 He)
3. manhood n. 成年
4. cinder n. 煤渣，灰烬
5. stardust n. 星团，星尘

4. Telescopes
(望远镜)

内容提示:

望远镜使我们能看到远处的物体,通过望远镜我们能看到看上去比实际小得多的物体,尽管这些物体比我们自己要大几百万倍,但他们离我们太遥远了。在过去的二三十年里,望远镜的设计和放大能力都有了长足发展,现在已经有了大功率望远镜。通过望远镜我们可以观察到太阳系以及太阳系以外的世界。

A telescope, like a microscope, enables us to see things which we could not see without it. A microscope magnifies[1] things (or features of things) which are so small that they are invisible to the naked eye[2]. They may be as small as a cell or small group of molecules. Micro- in Greek, and in several English technical words, means "small". But tele- in Greek means distant or far away. The word "television" is also derived from[3] this Greek word. In England, Australia, and New Zealand we call a television set the "telly", which is almost the same as the Greek word. In the United States people call it a TV.

A telescope enables us to see objects which, though millions of times larger than ourselves, appear much smaller because they are so far away.[4] Even the images of stars which we see through a telescope are, of course, greatly reduced in size. But a telescope enables us to see stars which are invisible to the human eye as well as giving us a brighter, clearer image of those which are visible.

In the last twenty or thirty years there has been a great improvement in the design and magnifying power of telescopes. There are now some very large and powerful telescopes in existence.

When you see the sun rise in the morning you are eight minutes late. What is the meaning of this strange statement? The fact is that it takes eight minutes for the light to travel from the sun to the earth. The speed of light is approximately 186, 000 miles per second. When you see a planet with or without the help of a telescope you are again too late to see the planet as it exists when you look at it. You see it as it was some time earlier[5].

What happens when you observe stars beyond the solar system? Light from these stars takes a much longer time on its journey. In many cases it takes millions of years to reach our planet. Perhaps you believe that when you see a particular star, you and the star exist simultaneously[6]. But this cannot be true. Between you and the star there are many millions of miles in space, and this means that there is also a long history of several million years between the star and you; in other words, the star which you are looking at now no longer exists in the form in which you see it. Perhaps at this moment there is no star at that particular point in space. Stars, like human beings, are born and die.

注释:

1. magnify vt. 放大，扩大
2. invisible to the naked eye 肉眼看不见的
3. be derived from 来源于
4. 望远镜使我们能够看到看上去小得多的物体。尽管这些物体比我们自己大几百万倍，但他们离我们太遥远了。though millions of times larger than ourselves 在定语从句中充当让步状

语从句。这是为了行文严谨，与其关系紧密的 object(which)靠近，但却分隔了定语从句的主语和谓语，给阅读理解造成困难。阅读时要注意排除这种分隔干扰。该句的正常语序是：A telescope enables us to see objects which appear much smaller though millions of times larger than ourselves because they are so far away.

5. 你所看见的是它早些时候的状态。

6. simultaneously adv. 同时地

5. Sir Isaac Newton

(伊萨克·牛顿爵士)

内容提示:

运动规律仅仅是牛顿对自然科学所做的部分贡献。全世界都公认,他是整个时代最伟大的科学家之一。本文简要介绍了牛顿的生平以及他对自然科学所做的贡献。

The laws of motion are only part of Newton's contribution to Physical Science. He is universally recognised as one of the greatest scientists of all time, and for intellectual power his work has never been surpassed[1].

Newton was born in 1642 (the year in which Galileo died) in Lincolnshire. As a boy he went to King's School, Grantharn, where his name cut with his own hands upon a window-sill, is still proudly shown today. At school he was taught Latin and grammar and showed few signs of his future genius. Indeed, he was considered dull until having been kicked by a bigger boy who was above him in class, he gave the fellow a good beating and set to work to beat him in his studies too. We are told, however, that he was very mechanically minded and fond of making windmills and model machines. This is of special interest in view of[2] his experimental skill in later years.

At the age of nineteen he entered Trinity College Cambridge[3], where he began the study of mathematics and science, in which his great discoveries were made. In accordance with the tradition which

he founded, Cambridge has maintained to the present day its position as the home of British science.

While still an undergraduate he discovered the Binomial Theorem in algebra[4]. Just after he had taken his B. A. degree, he did some famous experiments on the breaking up of white light into colours, and invented a new branch of mathematics known as the calculus[5].

At the age of twenty-six he became professor of mathematics, a post which he held until he was fifty-four. During this period his greatest discoveries were made. In 1696 he became Master of the Mint[6], and gave up his scientific work. He was knighted[7] by Queen Anne in 1705. In 1727, at the age of eighty-five, he died and was buried in Westminster Abbey[8].

It was customary in Newton's time for the great mathematicians of Europe to spend months on solving a problem and then offer it as a challenge to all others. Newton always solved such problems within twenty-four hours.

He never sought fame, and many of his discoveries had to be drawn from him years after they had been made. His chief work, the *Principia*[9] (written in Latin), was published by the persuasion of his friend Halley, who paid the cost.

Many stories are told of his absent-mindedness. On one occasion a friend ate his dinner, and Newton remarked, "Dear me, I thought I had not dined, but I see have."

On another occasion he is said to have left his guests at dinner to fetch more wine, and when after a long interval he did not return, the guests went to seek him. They found him hard at work in his study, having entirely forgotten their presence in his house.

One of his most quoted sayings is his own criticism of his

discoveries: "I know not what the world may think of my labours, but to myself it seems that I have been but as a child playing on the sea-shore; sometimes finding some prettier pebble[10] or more beautiful shell than my companions, while the unbounded ocean of truth lay undiscovered before me."

注释:

1. surpass vt. 超越,胜过
2. in view of 由……看来,考虑到,由于
3. Trinity College Cambridge 剑桥大学三一学院(剑桥大学是一所综合性大学。英国的综合性大学通常有若干个学院组成。三一学院是剑桥大学最大的一个学院。);trinity 意为"三位一体,三人一个组,三个一组的(物)"(教会中的三位一体指的是"圣父"、"圣子"和"圣灵")。
4. the Binomial Theorem in algebra 代数的二项式定理
5. calculus n. 微积分学
6. Master of the Mint 造币厂厂长
7. knight n. (欧洲中世纪的)骑士,爵士,武士; vt. 授以爵位
8. Westminster Abbey 威斯敏斯特教堂(英国著名的基督教堂。1050 年由英王爱德华开始兴建,后又重建多次。该教堂是英国国王加冕和历代国王及著名人物埋葬之地。)
9. *Principia* 《自然哲学的数学原理》(1687 年由哈雷资助出版。该书将自然界的各种现象用数学的规律加以说明。书中的自然哲学就是自然科学的意思。)
10. pebble n. 小圆石,小鹅卵石

6. How Hurricanes Get Their Names

(飓风名字的由来)

内容提示:

先给飓风取名的是位于佛罗里达州沿海西印度群岛的波多黎各人。波多黎各人每年以飓风到达那天的圣徒纪念日来给飓风起名。用女孩的名字给飓风取名源于斯图尔特写的故事《暴风雨》。第二次世界大战期间,美国军队的气象员采用了这种方法。只要他们一测定飓风的位置,就根据飓风出现的顺序,按A到W的字母顺序给它取一个女孩的名字。这种按字母顺序给飓风取名的方法成为美国气象局1950年采用的预报系统模式。

The first people who gave names to hurricanes were those who knew them best — the people of Puerto Rico. The small island of Puerto Rico is in the West Indies[2], off the coast of Florida. This is where all the hurricanes begin and then strike the east coast of the United States. Often they pass near Puerto Rico or cross it on their way north. The people of Puerto Rico expect some of these unwelcome visitors every year. Each one is named after the saint's day on which it arrives.

Two of the most destructive storms were the Santa Ana in 1825 and San Ciriaco in 1899.

Giving girls' names to hurricanes is a fairly new idea. It all began with a story called *Storm*, written by George Stewart in 1941. In it a weatherman amused himself by naming storms after girls he knew. He named one Maria. The story describes how Maria grew and developed, and how she changed the lives of people when