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内 容 简 介

本书精心编选了地道、纯正的美国英语读物16篇，内容涉及到教育、心理、管理、生物、环境、医学、食品、计算机、天体及艺术等领域。这些读物题材广泛，语言通俗，结构严谨，情节生动，趣味盎然，可读性强。每篇文章后均包括难点注释、分类词汇和常用短语、练习以及参考译文。本书适合于广大英语学习者、教师、科研人员，以及TOEFL、GRE、大学英语四、六级考试考生阅读参考。

编 者 的 话

目前，书店里的英文书籍琳琅满目，各种应考复习，出国指南或教材辅导之类的图书俯拾皆是。但我们也发现，能集多学科信息为一体的、篇幅适中的中高级英语阅读读物却屈指可数。

为了丰富广大读者的阅读天地，满足大学生、研究生、TOEFL、GRE、EPT应考生及英语爱好者的需要，我们根据知识新、主题热、覆盖广、语言美、趣味强的原则，从英语教学实践中所积累的大量材料中，精选了十几篇文章，编写了这套《当代美国英语阅读精粹》。

本书每个单元编译结构如下：

1. 英语原文(正文)；

2. 注释(扼要介绍背景知识、专有名词、语言难点，写作常用句型等)；

3. 分类词汇(按照语意及相互关系将众多专业术语合并归类，该部分相当于某个专题的小百科，方便读者学习、记忆)；

4. 有用的短语和习语；

5. 练习(内容丰富、实用的词汇、阅读理解)；

6. 参考译文；

7. 书后附有总词汇表(不含分类词汇)。

在本书定稿前，特邀请北京林业大学外语系季健教授、邵

玉铮教授对部分译文进行了审阅。在专业技术知识方面我们还得到了北京林业大学撒潮等同志的指点和帮助。在此向他们表示衷心的感谢。

本书如有疏漏之处，期冀专家和读者不吝指正。

编　者

1996年1月

于北京林业大学

Contents 目录

1. LIFE ON OTHER WORLDS?

"Two large dark-colored eyes were regarding me steadfastly. The mass that framed them, the head of the thing, was rounded, and had, one might say, a face. There was a mouth under the eyes, the lipless brim of which quivered and panted, and dropped saliva."

Thus did the noted English writer H. G. Wells[1] describe a Martian in his famous novel *The War of the Worlds*, published in 1898. He told how the Martian invaders of the earth, octopuslike monsters with an intelligence far beyond man's, nearly destroyed human civilization.

Well's story, however fanciful, still reflects the thinking of many people about possible living beings on other worlds. Man has long regarded the stars, sun, moon and planets as the homes of gods and demons. In countless myths, man is either the victim of these creatures or is helped and civilized by them. In some tales, the extraterrestrial (nonearthy) beings are fully human, at least physically. These themes have survived in present-day science fiction and fantastic stories, including many flying-saucer reports. Many people believe that well-developed life exists somewhere in the universe besides here on earth. They believe that some of these possible living forms may be as intelligent as man, if not more so[2].

At the opposite extreme, many people, including a number of scientists, look upon worlds beyond the earth as lifeless. Or, at best, these worlds are thought to have only the lowest forms of life, such as bacteria, algae and lichens. These ideas are more correct than the others, at least in regard to our solar system.

The branch of biology that deals with the possibility of life on other worlds is called *exobiology*. It literally means "biology outside [of the earth]." Exobiology deals in addition with the fundamental question of the origin of life. In this article, we examine the prospects for life beyond the earth and describe some of man's attempts to communicate with extraterrestrial civilizations. First, however, let us consider the chemical foundations of life and how it may arise on a planet.

THE CHEMISTRY OF LIFE

The only life we know of at present is the kind that exists on the earth. This life is extremely varied and includes bacteria and protozoa, which are so small that they can rarely be seen without a microscope; millions of species of insects; giant sequoia trees, and whales; and, finally, man himself. The bodies of all these organisms are composed of chemical elements. Relatively few elements are found in living matter: carbon, hydrogen, oxygen, nitrogen, sulfur, phosphorus and some others, including certain metals. These elements are usually combined into biological compounds, or biochemicals. A number of biochemicals, such as proteins, contain all or most of the elements listed above. Other life-related molecules, such as water and carbon dioxide, contain only a few of these elements. Most bio-

Because so many biochemicals contain carbon, life on earth is said to be carbon-based.

There are three major reasons why exobiologists usually limit their work to carbon-based biochemical systems. First. these systems represent the only forms of life with which we are familiar. Second, astronomers have detected simple, earth-type organic compounds in outer space. This discovery has led many exobiologists to conclude that the chemical building blocks of life are the same everywhere in the universe. Third, these chemicals become part of planets when planets first form from the elements in a nebula, or cloud of dust and gas in space. The elements are present in proportion to their abundances in space: hydrogen, helium, carbon, oxygen, nitrogen and so on, with a huge excess of hydrogen. In the atmosphere of a primitive planet, compounds such as methane, water and ammonia have been formed from many of the elements.

MATTER IN OUTER SPACE

Outer space contains a variety of matter, ranging in size from subatomic particles to cosmic dust and larger bodies. But by earth standards, outer space is a vacuum. Its average density of matter is very low, perhaps as low as one molecule per cubic centimeter. In comparison, the atmosphere of the earth is millions of times denser.

Like all matter, cosmic matter exists in various states of energy. Therefore it emits different wavelengths of electromagnetic radiation. If the electromagnetic waves are in the radio range of frequencies, they can be received by radio telescopes on earth. Scientists analyze these waves to identify the chemical nature of the atoms and molecules that emitted them.

Among these cosmic molecules, scientists have already identified a number of chemicals that are related to life on earth. That is, they are identical to elements and compounds that are part of living systems, that help life to exist or that are produced by organisms. The substances discovered in space include water, ammonia, methane, formaldehyde, cyanogen, hydrogen and methyl alcohol. These compounds, except for ammonia and water (and excluding the element hydrogen), all contain carbon.

How did these chemicals originate? Most scientists believe that these substances are of inorganic, or nonliving, origin. That is, the biological chemicals evolved from nonliving chemical systems. This theory is called the chemical evolution of life. It is closely related to the origin and development of planets and the origin of life, in that it seems to be the same kind of chemistry believed to have occurred in the early history of a planet, preceding the appearance of life there. The question in some scientists' minds is whether these biological compounds do lead to the formation of living things.

CHANGING CHEMISTRY OF PLANETS

Chemical evolution begins even before the appearance of stars and planets in a particular part of space. Simple organic compounds are formed from elements in the cosmic matter. Slowly, cosmic matter of all kinds comes together to form stars and planets. As this happens, many of the organic compounds become part of the planets. Thus, at this early stage of development, the planets have a composition much like that of the space matter from which they formed. Later the chemistry of the planets changes as they develop through the ages.

Many scientists believe that a typical early planet, just after its formation, has an atmosphere with large amounts of hydrogen, methane, ammonia and possibly water vapor and oxygen. If it is distant from the star (sun) around which it revolves, the planet is cold. Therefore, much of its atmospheric gases may be condensed into clouds of droplets or snow; some gases may even be frozen in layers on the surface of the planet. Our solar-system's large outer planets—Jupiter, Saturn, Uranus and Neptune[4]—exist under such conditions. Many scientists are convinced that such planets contain, and are still producing, biological chemicals.

In comparison, the earth's atmosphere is rich in nitrogen and oxygen. It supports life very well, as we know. Did our earth once resemble Jupiter or Saturn? A number of scientists believe it did. About 4,000,000,000 to 5,000,000,000 years ago, they say, the earth had a hydrogen-ammonia-methane atmosphere in which living systems eventually developed. Other authorities disagree: they think that at least some free oxygen was also present in the earth's early atmosphere.

PLANETS FIT FOR LIFE

What are the chances that chemical evolution will lead to life on a planet? How many planets in the universe are suitable homes for living things? Astronomers estimate that there are 10^{20} (1 followed by 20 zeros) stars in the universe. Most of these stars probably have planets circling them, just as our sun does. (So far, we have been unable to see any planets outside our solar system). Astronomers estimate that life could have arisen on some 100,000,000,000 planets. Of these, many resemble the earth and could support the kind of life with which we are familiar.

We know that life is very adaptable. Nearly every place on earth is the home of some organism. Certain bacteria and algae survive temperatures close to the boiling point of water; others endure temperatures far below freezing. Therefore planets we think hostile to life may harbor living things of some kind, no matter how simple.

Discovering life of any sort on other worlds would do more than satisfy our curiosity. It would also shed light on the evolution of the earth and of the organisms that inhabit the earth. If planets and life systems are forming now in other parts of the universe, many of them may be at a stage that the earth passed through several thousands of millions of years ago. Other planets and life systems may be older than the earth; these could show us what our future may be.

As we develop the ability and instruments to investigate other planets closely, we will obtain important clues to the earth's past and future. Even lifeless worlds may tell us something. If, for example, an otherwise earthlike planet[5] is found to be barren of life, it would cast serious doubt on present theories of the chemical origin and evolution of life.

At present, we have direct knowledge only of planets in our own solar system. These have been studied colsely for well over three centuries, since the invention of the telescope.

ARE WE ALONE?

The search for extraterrestrial intelligence (SETI) has been compared to[6] finding a needle in the "cosmic haystack." In spite of the enormous difficulties involved, scientists have attempted to listen for intelligent signals from outer space. In 1960—61 Dr. Frank Drake, at the National Radio Astronomy Observatory at Green Bank, West Virginia, used a radio telescope for this purpose. He directed the telescope's 26-meter antenna at two nearby stars that emit radio waves. This experiment was named Project Ozma. Dr. Drake failed to discover any intelligent patterns in the radio noise he received from these stars.

Similar experiments in the Soviet Union had no conclusive results. For a time, one investigator detected signals coming with some regularity from a part of the sky. But this event was not confirmed by other radio astronomers.

Scientists, however, did not give up hope. Since the end of Project Ozma, more than 20 radio-telescope searches have been conducted, mostly in the United States and the Soviet Union. A study named Project Cyclops was undertaken by the Ames Research Center of NASA[7] and by Stanford University. Its purpose was to determine the possibilities of receiving messages from outer space. Project Cyclops suggested establishing a vast array of radio telescopes: up to 10,000 dish-shaped radio telescope antennas, each 30 meters in diameter, would be spread over an area 16 to 32 kilometers wide.

Such an array would be able to detect radio and microwave leakages from planetary civilizations as much as 100 light-years from earth. Leakage results when some of the waves used for radio, television, and radar escape into outer space. This leakage may travel many light years. Similar waves escape from the earth daily; it is possible that some distant civilization is even now tuning in the earth's electronic leakage.

Although NASA supported the SETI concept, federal funding became a serious problem in the United States Senate action in 1981 withdrew financial support for NASA's involvement in the SETI effort. In December 1981, however, a SETI conference in Tallinn, U.S.S.R[8]., enabled world scientists to establish plans for an international approach to the search for life in space. A further step in encouraging the search was taken in August 1982, when the members of the International Astronomical Union voted to create a commission on the search for extraterrestrial life.

Yielding to arguments that there might be useful by-products from the work, the U.S. government renewed some of its financial support for NASA's SETI involvement. That organization then made plans to use several of its large radio telescopes in the search, including its 91-meter Gold-stone dish in the Mojave Desert[9] and 300-meter Arecibo antenna in Puerto Rico[10].

In addition, new equipment enabled scientists to broaden their search efforts. At Harvard University in 1983, a four-year search for signals from space began, using a 25-meter-wide radio antenna linked to a compact multichannel receiver and to a computer that can analyze a signal for the patterns that might mean a message. In 1985, the receiver was upgraded so that it could monitor 8.4 million channels. The project was renamed the Megachannel Extraterrestrial Assay. With advanced computer and data processing techniques, scientists also reduced from weeks to seconds the time necessary to scan millions of frequencies.

Notes

1. H. G. Wells: Herbert George Wells (1866—1946)，英国作家。是科学幻想小说的早期倡导者。著有 The Time Machine (1895) 和 The War of the Worlds (1898)等科幻小说。
2. if not more so: 这是省略句式(= if these possible living forms are not more intelligent than man)。这里，so 作代词，指上面重复的内容。
3. or: 句中 or 不作"或者"解，应作"即"、"换言之"解。例：The egg should be hard-boiled, or cooked until the inside is firm. 鸡蛋需煮老，即一直要煮到蛋黄变硬。
4. Jupiter, Saturn, Uranus and Neptune: Jupiter, 木星，是太阳系中最大的行星，距太阳 778 340 000 公里(其位置按顺序排在第五位)，表面温度 −125℃。Saturn, 土星，太阳系中第二大行星，距太阳 $1\,427 \times 10^6$ 公里(排在第六位)，每

29.5 年环绕太阳一周。Uranus，天王星，1781 年首次发现，距太阳 2 870 × 10^6 公里(排在第七位)，每 84 年绕太阳一周。Neptune，海王星，距太阳 4 500 × 10^6 公里(排在第七位)，其质量是地球的 17 倍，每 165 年环绕太阳一周。

5. an otherwise earthlike planet：这里 otherwise (adv.)意为“在其他方面”。在此指(除没有生命这一点)其他方面与地球相似的行星。

6. …has been compared to：当 compare 与介词 to 连用时意为“将…比作”，“将…比喻为”。例：Shakespeare compared the world to a stage. 莎士比亚曾把世界比喻成舞台。

7. NASA：National Aeronautics and Space Administration (美国)国家航空和宇宙航行局。

8. Tallinn，U. S. S. R.：泰林，前苏联爱沙尼亚共和国首府。U. S. S. R. = Union of Soviet Socialist Republics (苏维埃社会主义共和国联盟)。

9. the Mojave Desert：莫哈维沙漠，位于美国加利福尼亚州南部。面积 38 850 平方公里。北至死谷，南临莫哈维河。Mojave 有时拼作 Mohave.

10. Puerto Rico：波多黎各。波多黎各岛是由大安地列斯群岛所组成的山脉之一部分。古时是沉没在海里的山地顶部。因此除海岸外，没有肥沃的平原。岛上大部分为险峻的山地。

Classified Words and Phrases

alga([复]algae)	海藻，藻类
lichen	地衣