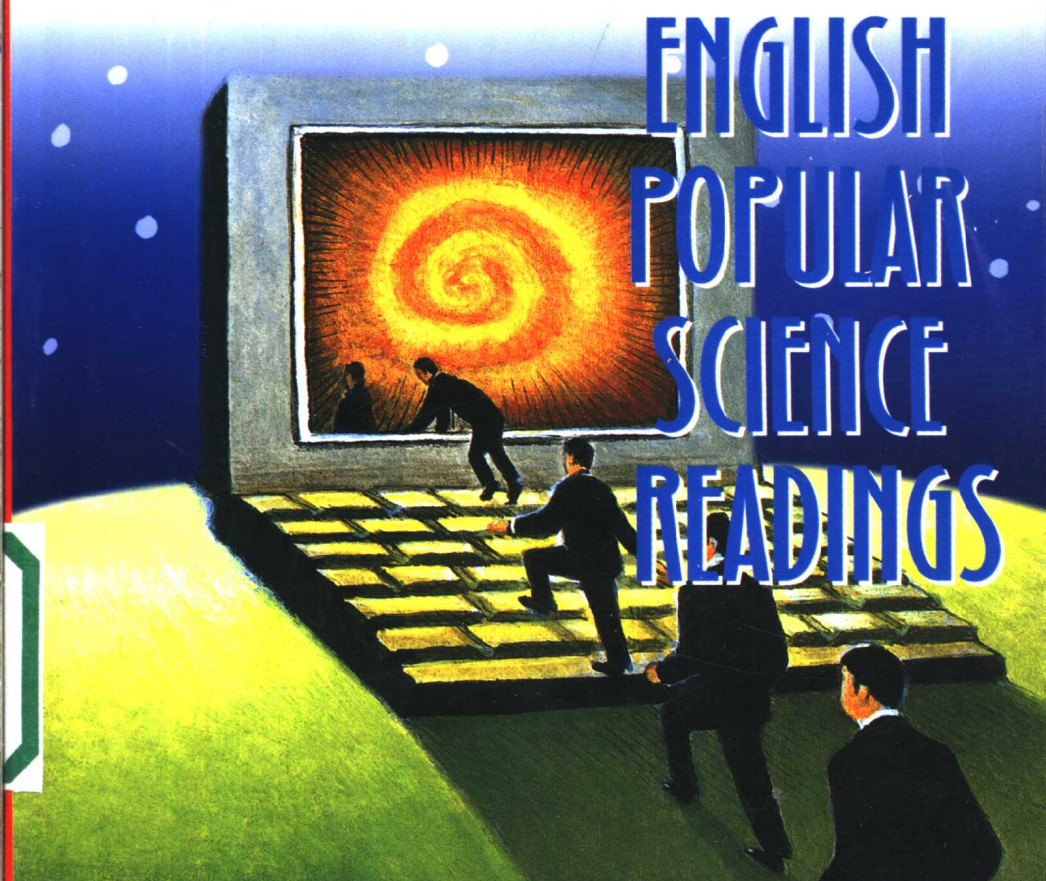


最新

英语通俗科普读本

ENGLISH  
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# 最新英语通俗科普读本

韩文盛 相 莉 编译  
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## 前 言

为了英语学习者和科技爱好者进一步提高英语阅读能力,增强用英语这一工具来吸取科技知识的能力,我们特地挑选了一些短文编辑成册,供献给读者。文章题材较广,涉及到宇宙、生命、环境、医学、气候、动物、考古等各门学科的最新发展信息。以知识的深度来衡量,这些文章均属于科普读物;以英语语言水平来说,则可以归到高级英语读物的范围。我们认为这类读物对具有相当英语水平的读者来说是必要的。通过阅读这些英语原文的文章既可以了解世界科学发展的最新情况,同时也是对自己的英语水平的检验,有助于扩大词汇量和提高英语阅读水平。为了方便读者,我们不揣冒昧提供了词汇注解及中文译文以供参考。因知识和语言水平所限,错误及不当之处难免,敬请批评指正。

在本书得以付梓之际,我们谨向外文出版社及本书责任编辑王蕊女士表示衷心感谢,他(她)们为本书的出版付出了大量时间和精力,提出了宝贵意见和建议。

编译者

二〇〇三年一月

# CONTENTS

## 目 录

### Astronomy

- 1 **Stardust**  
星尘 ..... 3
- 2 **The Snows of Mars**  
火星上的雪 ..... 11
- 3 **When Galaxies Collide**  
当星系发生碰撞时 ..... 19
- 4 **Into the Depths of a Black Hole**  
黑洞深渊 ..... 25
- 5 **A Dying Comet Exposed Its Secrets**  
彗星临终吐真言 ..... 33

### Earth

- 6 **Climate of Uncertainty**  
不确定的气候 ..... 43
- 7 **How Climate Change Kills Societies**  
气候变化如何使社会灭亡 ..... 51
- 8 **Is Global Warming Harmful to Health?**  
全球变暖会危害人体健康吗? ..... 59
- 9 **Damburst**  
溃堤 ..... 67

<b>10 Space Case</b>	
宇宙中的生命细胞 .....	75

## Environment

<b>11 The Test Tube Forest</b>	
试管森林 .....	83
<b>12 The Glass House in the Desert</b>	
沙漠中的玻璃屋 .....	91
<b>13 Protecting St. Vincent Amazon Parrots</b>	
保护圣文森特亚马逊鹦鹉 .....	99

## Technology

<b>14 Bioagent Chip</b>	
生物制剂 .....	111
<b>15 Scientists Unveil the Ratbot</b>	
科学家们揭开老鼠机器人的面纱 .....	119
<b>16 Could Tiny Fuel Cells Run Your Next Telephone?</b>	
你的下一部电话机能使用微小的燃料电池吗? .....	127
<b>17 Dentistry by Laser Light</b>	
激光医治牙齿 .....	135
<b>18 AGE Breakers</b>	
返老还童 .....	143
<b>19 Scar No More</b>	
伤疤不再 .....	151
<b>20 Fight the Blight</b>	
枯萎病防治 .....	161
<b>21 Nanodreams</b>	
纳米梦 .....	167

<b>22 Breakthroughs That May Save Your Life</b>	
能挽救生命的医学突破 .....	175

## Gene Engineering

<b>23 Good Gene, Bad Gene</b>	
好基因,坏基因 .....	189
<b>24 Clone</b>	
克隆 .....	197
<b>25 Does the Human Genome Project Affect the Moral Standards of Society?</b>	
人类基因组计划是否影响社会的道德标准? .....	205
<b>26 Designed for Life</b>	
生命设计 .....	213
<b>27 Will We Follow the Sheep? ( I )</b>	
我们要效仿克隆羊多利吗? ( I ) .....	221
<b>28 Will We Follow the Sheep? ( II )</b>	
我们要效仿克隆羊多利吗? ( II ) .....	331

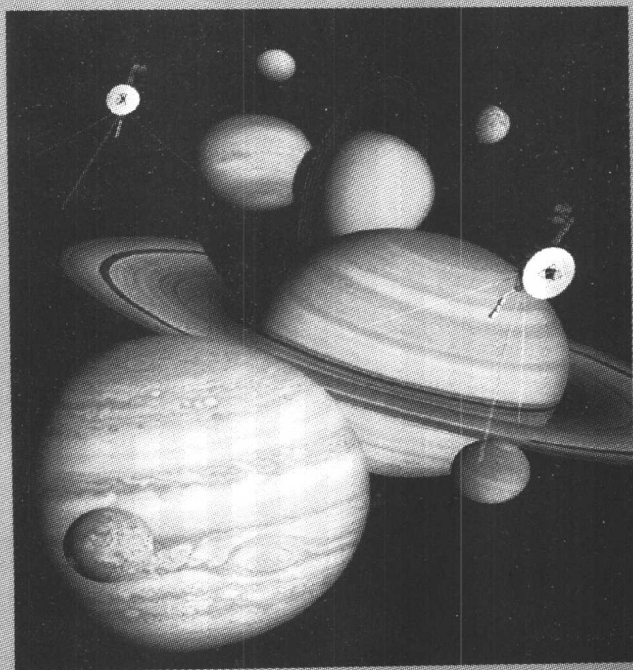
## Human Life

<b>29 The Great Giveaway</b>	
大奉送 .....	241
<b>30 It's No Laughing Matter</b>	
决非玩笑 .....	247
<b>31 Marijuana Special Report</b>	
大麻特别报道 .....	257
<b>32 Asthma Worldwide</b>	
哮喘 .....	265

<b>33</b>	<b>Meanings of Meow</b>	
	猫咪叫声的含义 .....	271
<b>34</b>	<b>Classical Castoffs Reclaimed from the Sea</b>	
	海底文物重现人间 .....	279



# Part One



# Astronomy

# 天文





# Stardust



星 尘

This special issue of *The Sciences*, *The Frontiers of Life*, began its own life when Davide S. McKay and his coworkers announced that they had evidence for ancient life on Mars. The early details **conveyed** the credibility of the announcement: the suspects were microorganisms, not **little green men**, and the source was a team of respected investigators writing in the peer-reviewed journal *Science*. One is exceedingly **wary about** claims for **extraterrestrial life**, of course; the history of the subject is replete with wishful thinking masquerading as **tough-minded** empirical science. But here at last, it seemed, was a claim that **had the ring of truth**: A meteorite, certifiably from Mars, carried the chemical signature of what could be the by-products of Martian **metabolisms**. Furthermore, as all the world could see, within that four-pound rock from Mars were **microscopic** rodlike objects that seemed to be the fossilized remains of extremely simple bacteria. No question: We at *The Sciences* owed you, our readers, an account of the matter that went **substantially** beyond the scope of a single article.

As we began to gather material, though, the life-on-Mars hy-

pothesis was **flagging** under the rigors of continued scientific scrutiny. The evidence cited by McKay et al. was admittedly **circumstantial** from the start. But McKay had argued that, taken as a whole, his evidence pointed strongly toward a biological origin. Today, however, a **consensus** seems to be building that the reverse is true: the various clues add up not to animal or vegetable, but mineral.

Was our story dead? On the contrary. According to the buzz at the annual meeting of the American Association for the Advancement of Science, held fully six months after the announcement, the Martian meteorite debate was having a **galvanizing** effect on a broad spectrum of scientific initiatives. At **NASA**, planned missions to Mars had acquired new urgency. Students of the earth's mid-ocean ridge were closely following the incoming data from the **Galileo** mission to Jupiter, looking for more hints that an ocean of water-and with it, undersea volcanoes-could exist under the ice that covers **Jupiter's** moon Europa. Future interplanetary missions to Europa and other promising sites seemed far more likely to find support than they had before McKay's announcement. In short, for the first time in many years there was widespread and genuine willingness to commit funds and reputations to exploring a range of issues related to the search for extraterrestrial life.

We, too, decided not to focus on Mars alone, and instead to expand our coverage to a much wider **canvas**. And once we did, we found a remarkable body of new evidence emerging from **disparate** disciplines that was **pertinent to** the questions raised by McKay. Biological interest in genetic self-repair led investigators to **sequence** the genome of the **radiation-tolerant** bacterium *Deinococcus radiodurans*. That work constitutes an important step in understanding

an **ingenious** biological mechanism that might enable an organism to survive a long ride through space on a meteoroid. The **serendipitous** discovery of bacterial blooms following undersea volcanic eruptions led **oceanographers** to suggest that life might have originated on the seafloor, where it would have been protected from the lethal **ultraviolet radiation** and meteorites that bombarded the surface of the early earth. The U. S. Department of Energy, in its effort to clean up **toxic** chemicals, drilled deep into the earth's crust to prove that bacteria could live there and, perhaps, be trained to digest chemical contaminants. Weapons testing with high-speed **projectiles** helped prove that material exchange between the planets is not so limited as had once been thought: in fact, some 500 kilograms of rock from Mars are estimated to land on the earth each year. Finally, as Laurence A. Marschall reports in *Planetary Prospecting*, a clever program to hunt for periodic changes in the spectra of stars has confirmed the existence of numerous giant planets orbiting stars beyond our solar system.

And so, to the question: Is there life beyond the earth? **The jury**, of course, **is still out**. But with planets aplenty; with creatures that can live without the energy of a nearby star; with abundant cosmic sources of hydrogen and oxygen to make water; with several natural ways for planets to generate internal heat; with the possibility that life could originate in undersea volcanoes and propagate varieties hardy enough to spread their seeds to other worlds; and with rocky meteorites that could serve as vehicles for interplanetary exchange, the idea that life has evolved elsewhere in the universe seems less daunting than it did just a few years ago. The singer and songwriter Joni Mitchell had it right, when she wrote years ago:

We are stardust  
(Billion-year-old carbon)  
We are **golden** ...  
And we've got to get ourselves  
Back to the garden.  
(Peter G. Brown)

## Words & Expressions

1. convey *v.* 传播, 传递
2. little green man *phr.* (假想的) 外星人
3. wary about *adj.* 谨防的, 唯恐的
4. extraterrestrial life *phr.* 地外生命
5. tough-minded *adj.* 意志坚强的, 讲究实际的
6. have the ring of (truth) *phr.* (在听者耳中激起的特有声音效果) 听起来很真实
7. meteorite *n.* 陨石, 流星
8. Martian *n.* 火星的
9. metabolism *n.* 新陈代谢
10. microscopic *adj.* 微观的, 极小的
11. substantially *adv.* 实质地, 本质地
12. flag *v.* 衰退, 低落, 失去吸引力
13. circumstantial *adj.* 与条件有关的, 依环境而定的
14. consensus *n.* 意见一致, 舆论一致
15. galvanize *v.* 刺激; 使振奋, 激动
16. NASA *n.* National Aeronautics and Space Administration 国家航空和宇宙航行局(美国)
17. Galileo 伽利略
18. Jupiter *n.* 木星
19. canvas *n.* 画面, 背景

20. disparate *adj.* 根本不同的, 异类的
21. pertinent to *phr.* 与...有关的
22. sequence *v.* 把...按顺序排好, 确定...的化学结构序列
23. radiation-tolerant *adj.* 抗射线的, 耐辐射的
24. ingenious *adj.* 制作精巧的, 巧妙的
25. serendipitous *adj.* 偶然发现的, 意外得到的
26. oceanographer *n.* 海洋学家
27. ultraviolet radiation *n.* 紫外线
28. toxic *adj.* 有毒的
29. projectile *n.* 抛射体, 弹射体
30. The jury is still out. 暗指事物不能确定(断定)
31. golden *adj.* 金光灿烂的, 朝气蓬勃的, 前途光明的



《科学》杂志的专刊《生命前沿》发行时戴卫斯·马凯和他的同事宣布已经掌握了火星上有古代生命的证据。从初步公布的情况来看此说有其可信性:他们只是怀疑火星上有微生物,而不是有什么小绿人。况且消息来自一组受人尊敬的研究人员发表在同行阅读的《科学》杂志上面。当然,人们总是对地外生命的说法持特别警惕的态度,过去一提到地外生命,人们就充满痴心与妄想,这个提法总是以讲究实际的实验科学的面目出现。现在终于有了听起来相当真实的说法:现已证实来自火星的一块陨石携带着一种化学物质,它们可能反映出火星上生命新陈代谢的某些特徵。世所共知,在那四磅重的陨石内部有微小的条形物质,可能是极原始的细菌化石。毫无疑问,我们《科学》杂志应用远比这篇文章更多的篇幅对这件事做出分析和解释。

当我们开始收集资料时,火星上有生命这一假设正在经受科学界不断的严格审查。马凯等人引用的证据从一开始就被认为是很难断定。但是马凯说从整体情况来看,他的证据明显表示陨

石上的物质属于生物。然而今天舆论趋于一致,认为相反的意见是正确的:各种线索加起来说明此物质既不属于动物,也不属于植物,而是属于矿物。

难道我们的故事就此结束了吗?正相反,在马凯的判断公布整整二个月之后,美国科学发展协会年会上传来的信息说有关火星陨石的辩论引起了一系列科学议题的提出。对美国国家宇航局来说火星登陆计划更显得特别紧迫。研究地球大洋洋底形成的海脊的学者也在密切注视探索木星的伽利略号飞船传回的最新信息:在木星的卫星欧罗巴表面冰盖下面是否存在海洋及海底火山的迹象,将来飞往欧罗巴及其他可能有生命的地点的星际航行任务可能会带来更多的新发现,支持地外生命这一假设。总之,多年来,第一次有更多的人真诚地希望对探索地外生命诸问题,应拨出更多的资金,给予更多的重视。

我们还决定不要只关注火星的生命现象,而要在更大的范围内进行研究探索。这样一来,我们便发现了数量惊人的新证据,他们分别来自与马凯假设有关的不同学科领域。生物界对基因自我修补的兴趣使探索者对耐放射线的细菌(*Deinococcus radiodurans*)的基因组的排列顺序进行了研究,这有助于理解小行星上有机物精妙的生理机制,这种机制能使它们在宇宙中长途跋涉后仍能生存下来。海底火山喷发后会有大量细菌滋生,因此,海洋学家提出生命可能来自海洋底部,那里可以保护生命免遭致命紫外线的辐射和小行星撞击地球表面带来的致命危险。美国能源部一直致力于清除有毒的化学物质。他们曾钻探到地壳深处,试图证明细胞有能力在那里生存,也许还能吞噬掉化学污染物。武器实验中发射的高速射弹也有助于证明行星际的物质交换并不像以前认为的那样有限:事实上,每年约有 500 公斤火星岩石溅落到地球上。最后,正如劳伦斯·玛舍尔在《行星勘探》一书中所说,一个搜寻恒星光谱周期变化的聪明计划证实太阳系之外有无数个大行星围绕



着恒星在做轨道运行。

所以,地球之外有生命存在吗?对这个问题目前还难以确定。然而空间行星多不可数;有些生物可以在没有恒星提供能量的地方生存;太空中有大量氧和氢,这些太空资源可以合成水;相当数量的行星内部存在着天然的热能;海底火山附近可能有生命存在,他们种类多,大量繁殖而且很难发展到其它地方繁殖,生长;陨石可能就是行星际物质交换的一个载体。考虑到以上因素,生命由宇宙中其它地方进化而来的想法就不会那么令人咋舌了。歌手及词作者约尼·米歇尔说得好,她在几年前写的歌词中说:

我们是宇宙中的尘埃,  
我们是有几十亿年龄的碳。  
我们朝气蓬勃,金光灿灿……  
我们要设法回到那乐园。

