

名师导航

精辟实用

高等理工教材

精选科技英语阅读教程

SELECTED READINGS IN SCIENTIFIC ENGLISH

主编 秦荻辉



西安电子科技大学出版社
<http://www.xduph.com>

高等理工教材

精选科技英语阅读教程

SELECTED READINGS IN SCIENTIFIC ENGLISH

秦荻辉 主编

图书在版编目(CIP)数据
精选科技英语阅读教程 / 秦荻辉主编. — 西安: 西安电子科技大学出版社, 2008.2

高等理工教材

ISBN 978-7-5606-2014-2

I. 精… II. 秦… III. 科技—英语—阅读—高等学校—教材 IV. H319.4

中国版本图书馆CIP数据核字(2008)第036036号

责任编辑 高维岳

责任校对 高维岳

出版发行 西安电子科技大学出版社(西安市太白南路2号)

电 话 (029)88242882 88201467 邮 编 710071

http://www.xdpuh.com E-mail: xdpuh001@163.com

经 销 新华书店

印刷单位 西安市鄠邑县白鹿厂

版 次 2008年2月第1版 2008年2月第1次印刷

开 本 787毫米×1092毫米 1/16 印 张 11

字 数 324千字

印 数 1~4000册

定 价 16.00元

ISBN 978-7-5606-2014-2/H·0129

XDP02306001-1

西安电子科技大学出版社

2008

如有印刷质量问题

本社图书封面为激光防伪图案, 谨防假冒。

内 容 简 介

本书侧重于提高读者的英语语言能力,书中一般不涉及很具体的科技知识,目的在于使读者熟悉有一定难度的各类科技英语文章,了解其不同的文体格式,为今后进一步阅读语言上比较难懂的原版科技书刊打下良好的基础。

本书所选内容丰富,难易兼顾。全书共分12个单元,内容选自科技报告或科技评述、科技书籍中哲理性的章节以及科技书籍的序言、科技杂志主编所写的社论或评论等,涉及航天、英特尔网、通信、计算机、信息、测量、克隆、气候、医学等领域。本书教学时数约为30学时。

本书适用于理工科大学高年级学生及研究生,也可供科技人员及广大读者使用。

图书在版编目(CIP)数据

精选科技英语阅读教程/秦荻辉主编. —西安:西安电子科技大学出版社,2008.5
高等理工教材

ISBN 978-7-5606-2014-5

I. 精… II. 秦… III. 科学技术—英语—阅读教学—高等学校—教材 IV. H319.4

中国版本图书馆 CIP 数据核字(2008)第 036036 号

策划编辑 高维岳

责任编辑 高维岳

出版发行 西安电子科技大学出版社(西安市太白南路2号)

电 话 (029)88242885 88201467 邮 编 710071

<http://www.xduph.com> E-mail: xdupfxb001@163.com

经 销 新华书店

印刷单位 西安市高陵县印刷厂

版 次 2008年5月第1版 2008年5月第1次印刷

开 本 787毫米×1092毫米 1/16 印 张 11

字 数 254千字

印 数 1~4000册

定 价 16.00元

ISBN 978-7-5606-2014-5/H·0129

XDUP 2306001-1

*** 如有印装问题可调换 ***

本社图书封面为激光防伪覆膜,谨防盗版。8005

前 言

本书是专门为理工科高年级学生和研究生选编的,主要侧重于提高读者的英语语言能力,书中一般不涉及很具体的科技知识,目的在于使读者熟悉有一定难度的各类科技英语文章,了解其不同的文体格式,为今后进一步阅读比较难懂的原版科技书刊打下良好的基础。

本书所选内容比较丰富,难易兼顾。内容选自科技报道或科技评述、科技书籍中哲理性的章节以及科技书籍的序言、科技杂志主编所写的社论或评论等,涉及航天、英特网、通信、计算机、信息、测量、克隆、气候、医学等领域。全书共分12个单元(每个单元有一篇课文,供精读用,另外有两篇短文供泛读用;短文英译汉练习中有些句子是比较难的,教师可以适当加以讲解),本书教学时数约为30学时。

科技英语突出的特点之一是句子的语法结构复杂,越是理论性强的文章或书籍,其句子越冗长,而且不少句型是其特有的(也就是说,有些语法现象及句型在普通文章或科普文章中很少见或根本不出现),这给读者理解带来了困难。根据我们多年的教学实践,体会到不少同学对这一点并不注意,他们认为英语四、六级考试通过后英语就学得差不多了,因此对高年级的“科技英语阅读”课不太重视(尽管许多学校大纲上规定这是一门必修课)。从已开设“双语教学”课程的班级来看,许多同学阅读速度很慢,对有些句子不能准确理解,甚至根本看不懂,特别是对于一些哲理性强的文章更是感到束手无策,不少硕士研究生和博士生也是如此,因为这些文章不是通过对科技概念的猜测就可以理解的。正是针对这些情况,我们编撰了本书,以便为读者走向阅读专业书籍发挥桥梁作用,希望读者通过对本书的学习能够提高阅读各类科技英语文章的能力,并为今后学习科技英语写作打下良好的基础。

同样,从本科生及硕士研究生写的毕业论文的英文文摘也可以看出其中的错误很多,有的连句子都不成型;许多博士生用英语撰写的论文类似错误不少,归根到底是他们的英语语言基础薄弱所致。根据上述情况,本书着重注释了文章中的各种语法现象、特殊句型、词汇用法等(在阅读时先不要看这些注释,应该经过思考后再去看它们,以检验自己的语言理解能力),同时要求回答文章中的一些语法、词汇问题,使同学们能熟练掌握那些重点内容。由于所选文章一般并不是讲具体的科技内容,所以对理解语言点是很有用的;而用于“英译汉”的文章也是经过精选的,都是从英美科技书刊中选出来的地道的科技文,其语言现象比较丰富,对提高科技文的阅读能力很有帮助。我们建议,该书最好与教育部高等教育“精品教材”——《科技英语语法》(秦荻辉编著,外语教学与研究出版社出版)一书配套使用。

本书适用于理工科大学高年级学生及研究生,也可供科技人员及广大读者使用。

本书由秦荻辉主编,参加编写的还有洪卫、王燕萍、仝文宁和李长安同志。选编本书是编者多年教学与研究的实践探索,能否获得预期的效果尚待实践的检验,恳切希望读者随时提出宝贵意见和建议。

编 者

2007年10月

于西安电子科技大学科技英语研究中心

Contents

Unit Five.....	1
Theme: Communications(通信)	
Text: Communicating in the New Age.....	1
Unit One.....	1
Theme: Spaceflight(航天)	
Text: Shenzhou VI Spacecraft.....	1
New Words.....	3
Notes.....	4
Exercises.....	4
Reading Passages.....	6
Passage A: Space Shuttle: the Next Generation.....	6
Passage B: Shuttle Lands, Safely Ending First Mission Since Columbia.....	10
Unit Two.....	14
Theme: Medicine(医学)	
Text: What Your Mouth Can Tell Your Dentist.....	14
New Words.....	15
Notes.....	16
Exercises.....	17
Reading Passages.....	18
Passage A: Your Mouth Is a Good Indicator of Your General Health.....	18
Passage B: Cold Therapy in Heart Attacks Endorsed as Lifesaver.....	22
Unit Three.....	26
Theme: The Internet (英特尔网)	
Text: The Ancient History of the Internet.....	26
New Words.....	29
Notes.....	30
Exercises.....	31
Reading Passages.....	33
Passage A: The Internet: Bringing Order from Chaos.....	33
Passage B: Hackers Are Enemy Number One on the Internet.....	35
Unit Four.....	40
Theme: Computer Technology(计算机技术)	
Text: Safe Sex for Your Computer.....	40
New Words.....	41
Notes.....	42
Exercises.....	43

Reading Passages	45
Passage A What's New in the Computer World?	45
Passage B An Introduction to Computer Aided Circuit Design.....	50
Unit Five	54
Theme: Communications(通信)	
Text Communicating in the New Age.....	54
New Words.....	56
Notes	57
Exercises	58
Reading Passages	60
Passage A The Second Information Revolution.....	60
Passage B Introduction to Data Communications.....	64
Unit Six	70
Theme: Information(信息)	
Text Information: Abstraction or Reality?	70
New Words.....	73
Notes	74
Exercises	74
Reading Passages	76
Passage A Forms of Human Information and Its Communication.....	76
Passage B Biological & Inorganic Information Systems and	
Non-human Information Processing	80
Unit Seven	85
Theme: Cloning Technology(克隆技术)	
Text Why Cloning of Humans Must Forever Be Seen as Unethical.....	85
New Words.....	87
Notes	89
Exercises	90
Reading Passages	91
Passage A Multiplicity's Perils.....	91
Passage B Copy or Counterfeit	96
Unit Eight	101
Theme: Meteorology(气象)	
Text New Evidence Supports Global Warming Theory.....	101
New Words.....	103
Notes	104
Exercises	105
Reading Passages	107
Passage A El Nino, La Nina Cause Floods	107

Passage B	Independent NASA Satellite Measurements Confirm El Nino Is Back and Strong.....	110
Unit Nine.....		115
Theme: Measurement(测量)		
Text	The Role of Measurement.....	115
New Words.....		117
Notes.....		118
Exercises.....		119
Reading Passages.....		121
Passage A	Measurement.....	121
Passage B	The Units of Measurement.....	125
Unit Ten.....		129
Theme: Conceptualization(设计方案的确立)		
Text	Cultural Blocks to Creative Conceptualization.....	129
New Words.....		131
Notes.....		132
Exercises.....		133
Reading Passages.....		136
Passage A	Environmental Blocks to Creative Conceptualization.....	136
Passage B	Introduction to Concept Formulation.....	139
Unit Eleven.....		144
Theme: Prefaces to Science Books(科技书的序言)		
Text	Foreword.....	144
New Words.....		145
Notes.....		146
Exercises.....		147
Reading Passages.....		149
Passage A	Preface (1).....	149
Passage B	Preface (2).....	152
Unit Twelve.....		155
Theme: Comments in Technical Journals(科技杂志的评论)		
Text	The Emperor Has No Clothes.....	155
New Words.....		157
Notes.....		158
Exercises.....		159
Reading Passages.....		161
Passage A	Three Down—Two to Go.....	161
Passage B	No Longer a Space Race.....	164

Unit One

Theme: Spaceflight(航天)

Text

Shenzhou VI Spacecraft^[1]

SZ-6 mission marks start of manned space experiments

China's planned launch of Shenzhou VI vessel, its second manned space mission⁽¹⁾, signals that the country begins to carry out aerospace experiments with real human participation, said a senior space engineer here Sunday. Wang Yongzhi, chief general designer^[2] of China's Manned Spaceflight Program, said that the Shenzhou VI vessel will enable astronauts to do scientific experiments in space, which⁽²⁾ offers a unique vacual, highly radiant and low gravity environment to carry out scientific studies.

China became the third nation to succeed in manned space flight when it launched the Shenzhou V in October 2003, carrying sole astronaut Yang Liwei around the earth 14 times, who did not leave his seat in the return module during his one-day flight. Wang said that following Shenzhou VI's flight, China has greater plans such as astronauts' space walk, the docking of capsule with space module, launch of space lab and setting up a permanent space lab. "Manned space flight, the most complicated and difficult aerospace project, demonstrates a nation's scientific research and economic strength," he said. "It's a major means to expand human living space and tap and use space resources." "China will never be a superpower, but as the world's biggest developing country with 1.3 billion people, it should have a place in aerospace development and make due contributions."

Successful Launching

China sent its second manned spacecraft, Shenzhou-6 carrying⁽³⁾ astronauts Fei Junlong and Nie Haisheng, into space on Wednesday morning for a spaceflight that lasted several days. At 9:00 a.m., Shenzhou-6 blast off from the Jiuquan Satellite Launch Center in northwest China atop a Long March II F carrier rocket. The launch was declared a success⁽⁴⁾ 39 minutes later. Chinese

注：本书文中左上角的[]为文后注释编号；()为课后练习中第2题的问题编号。

leaders, including President Hu Jintao and Premier Wen Jiabao, watched the launch. It^[3] is estimated hundreds of millions of^[4] Chinese people watched live TV broadcast, radio broadcast or Internet coverage of the launch, further proof of^[5] China's rapidly growing scientific and technological progress. With the launch of Shenzhou-5, China became the third country in the world to carry out a manned spaceflight after the former Soviet Union^[6] and the United States two years ago. Unlike the maiden manned spaceflight in October 2003, which carried astronaut Yang Liwei into space, this mission tested China's capability in conducting spaceflight that carried more than one person and lasted more than one day. It also involved "scientific experiments in space with true human participation" that enhanced the level of the experiments. The spacecraft had been in good condition since the launch. It changed the previous elliptical orbit to a circular at 3:50 p.m. The astronauts successively entered the orbital capsule^[7] from the return capsule^[8] to conduct experiments about two hours later.

In a brief speech at the Jiuquan Satellite Launch Center, Chinese Premier Wen Jiabao hailed the successful launch of Shenzhou-6, saying that "the achievement in the launch of Shenzhou-6 will be recorded in the country's glorious history." China's space program, which is purely for peaceful purposes, is a contribution to human's science and peace, Wen said, adding that China is willing to cooperate with other nations in the development of space science and technology. China has been implementing a three-stage manned space flight program, culminating in the establishment of a permanent space laboratory.

Shenzhou VI astronauts performed more space tests

Two astronauts aboard China's second manned space flight moved between the re-entry and orbital modules of the Shenzhou VI spacecraft on Thursday, as⁽⁵⁾ they continued tests designed to pave the way for an ambitious program of space walks, docking manoeuvres and a space laboratory. The transfer between the modules mainly tested the impact of movement on the spacecraft, the government's official Xinhua news agency said. Fei Junlong left the astronauts' space capsule and entered the orbital module for the first time on Wednesday. Fei's colleague, Nie Haisheng, performed similar work on Thursday on equipment mounted in the orbital module. The carrying of two astronauts and the movement into the orbital module marks new progress in China's space program.

Successful Landing

The re-entry capsule of China's second manned spacecraft landed safely early Monday in the remote Inner Mongolia region, after a five-day mission that was designed to push forward Beijing's ambitious space program. The Shenzhou VI capsule landed at 4:32 a.m. (2032 GMT^[9] Sunday), bringing astronauts Fei Junlong and Nie Haisheng back to heroes' welcomes after a flight lasting 115 and a half hours. Wu Bangguo, number two⁽⁶⁾ in the hierarchy of China's ruling Communist Party, said the success of the mission was "of great significance for elevating China's prestige in the world and promoting China's economic, scientific and national defence capabilities, and its national cohesiveness". The government spent 900 million yuan (110 million dollars)

on Shenzhou VI, Tang Xianming, director of China Manned Space Engineering Office, told reporters. Chen Bingde, the top military commander overseeing Shenzhou VI, declared the mission a “complete success”. Chen and Defence Minister Cao Gangchuan led a column of^[10] military leaders who welcomed Fei and Nie when they arrived by plane in Beijing, where their families also met them. The astronauts, both People’s Liberation Army colonels and former fighter pilots, said they were “in good condition”, the government’s official Xinhua news agency said. Fei climbed out of the capsule unaided⁽⁷⁾, followed by Nie, the agency said. Initial medical checks showed the astronauts had “normal physical indications”. The landing was about three hours earlier than originally planned. Before reentry, the astronauts separated their reentry capsule from the orbital capsule, the “nose” of the spacecraft that can remain in orbit for up to eight months as an electronic and optical surveillance satellite.

New Words



- | | |
|----------------|-------------------------------|
| 1. manned | [mænd] <i>a.</i> 载人的 |
| 2. mission | ['miʃən] <i>n.</i> 飞行任务 |
| 3. aerospace | ['ɛərəʊspeɪs] <i>a.</i> 航空航天的 |
| 4. astronaut | ['æstrənɔ:t] <i>n.</i> 宇航员 |
| 5. vacual | ['vækjuəl] <i>a.</i> 真空的 |
| 6. radiant | ['reɪdɪənt] <i>a.</i> 辐射的 |
| 7. gravity | ['grævɪtɪ] <i>n.</i> 重力; 地心引力 |
| 8. sole | [səʊl] <i>a.</i> 唯一的 |
| 9. module | ['mɒdju:l] <i>n.</i> (飞船的)舱 |
| 10. dock | [dɒk] <i>vt.</i> 对接 |
| 11. capsule | ['kæpsju:l] <i>n.</i> 航天舱 |
| 12. tap | [tæp] <i>vt.</i> 开发 |
| 13. superpower | ['sju:pəpaʊə] <i>n.</i> 超级大国 |
| 14. due | [dju:] <i>a.</i> 应有的 |
| 15. blast | [blɑ:st] <i>vi.</i> 升空 |
| ~ off 被发射升空 | |
| 16. atop | [ə'tɒp] <i>prep.</i> 在……顶上 |
| 17. live | [laɪv] <i>a.</i> 实况转播的 |
| 18. maiden | ['meɪdən] <i>a.</i> 初次的 |
| 19. elliptical | ['ɪlɪptɪkəl] <i>a.</i> 椭圆的 |
| 20. circular | ['sɜ:kjulə] <i>a.</i> 圆形的 |
| 21. hail | [heɪl] <i>vt.</i> 向……欢呼 |
| 22. glorious | ['glɔ:riəs] <i>a.</i> 光荣的 |
| 23. culminate | ['kʌlmɪneɪt] <i>vi.</i> 告终 |

24. aboard	[ə'bo:d] prep. 在……上
25. manoeuvre	[mə'nu:və] n. 动作; 演习
26. agency	news ~ 通讯社 [eidʒənsi] n. 机构
27. mount	[maunt] vt. 安装
28. ambitious	[æm'biʃəs] a. 有雄心的; 有野心的
29. hierarchy	['haiərə:ki] n. 统治集团
30. elevate	['eliveit] vt. 提升
31. prestige	[pre'sti:ʒ] n. 威望
32. cohesiveness	[kəu'hi:sivnis] n. 凝聚力; 凝聚力
33. oversee	[əuvə'si:] vt. 监视; 看管
34. colonel	['kə:nəl] n. 上校
35. indication	[indi'keiʃən] n. 指示; 迹象; 指证

Notes

[1] “Shenzhou VI Spacecraft” 意为“神州 6 号飞船”。

[2] “chief general designer” 为“总设计师”。

[3] “It” 在此是形式主语，在“estimated” 之后省去了主语从句引导词“that”。通常这个主语从句引导词是不能省的，但当有形式主语时可以省去。又如：

It is assumed *the student has a basic understanding of mechanical drawing.*

(编者认为学生对机械制图已有了基本的了解。)

It seems clear *the expanding scope of the world of electronics must lead to more interchange with many other groups.*

(似乎很清楚，电子学领域的不断扩大必将导致与其他许多学科之间更多的交往。)

[4] “hundreds of millions of” 意为“几亿(的)”。

[5] “further proof of” 意为“这进一步证明了……”，这是对前面整个事件的说明。

[6] “the former Soviet Union” 为“前苏联”。

[7] “the orbital capsule = the orbital module” 为“轨道舱”。

[8] “the reentry capsule = the reentry module = the return module” 为“返回舱”。

[9] “2032 GMT” 意为“格林威治(平均)时间 20 点 32 分”。

[10] “a column of” 意为“一行列(纵队)……”。

Exercises

1. Choose the best answer for each of the following:

(1) From the text, we know that the attitude of the news reporter towards China's successful launch of the Shenzhou VI is _____.

- A. hostile B. objective C. friendly D. prejudicial

(2) The word "signal" in the first line of the 1st paragraph means _____.

- A. a signal giving information
B. to make a signal or signals
C. to order (someone) by signals to do something
D. to give information

(3) The phrase "Internet coverage of the launch" in the 3rd paragraph means _____.

- A. The reportage on the launch was done by the Internet.
B. The Internet did not report the event of the launch.
C. The Internet disclosed the event of the launch.
D. The Internet exposed the event of the launch.

(4) By "to heroes' welcomes" in the 6th paragraph is meant that _____.

- A. The two astronauts welcomed the heroes.
B. People welcomed the two astronauts like heroes.
C. The two astronauts were treated as heroes.
D. The two astronauts are real heroes.

(5) The meaning of the phrase "followed by Nie" in the last paragraph is that _____.

- A. Fei was followed by Nie.
B. Nie accompanied Fei.
C. Fei accompanied Nie.
D. Nie climbed out of the capsule after Fei.

2. Answer the following language questions:

- (1) "its second manned space mission" 是什么句子成分? 如何汉译?
(2) "which" 引导的定语从句是修饰什么的? 这个词如何汉译?
(3) "carrying……" 起什么作用?
(4) "a success" 在此是什么句子成分?
(5) "as" 在此引导什么从句? 如何汉译?
(6) "number two" 是什么意思?
(7) "unaided" 是什么句子成分? 如何汉译?

3. Topics for discussion:

- (1) What is China's three-stage manned spaceflight program?
(2) Why do we say that the carrying of two astronauts and the movement into the orbital module marks new progress in China's space program?

4. Translate the following into Chinese:

Part of a Preface

In the ten years since this book was first published significant changes have been seen in the general world situation, as well as in metalworking. Efficiency of production remains, as always, a dominant industrial theme, but it is increasingly being interpreted in terms of social and environmental factors in addition to its strictly economic sense. This can have considerable repercussions on metalworking practice. For example, the noise produced by a drop hammer may now be unacceptable. It can, to some extent, be reduced at source and its transmission can be minimized, but thought is also being given to replacement of drop forging by inherently quieter processes where possible. Major changes in lubrication and cooling systems may be needed in some other processes, to avoid potential dangers to health by contact or ingestion, and to reduce disposal problems.

Superimposed upon these considerations is the need to conserve energy and material resources. More efficient utilization of direct and indirect energy supplies has become essential, and the temporary and permanent shortages of certain raw materials demand greater flexibility in plant operation, as well as calling for substitute materials.

The main theoretical development in this decade has been in the widespread use of digital computers, and in the recognition that material properties should be included in analytical models. A new chapter outlining the numerical methods for solution of metalworking problems has been written, with critical guidance on their relative merits and applicability.

I am indebted to many colleagues in metallurgy and engineering for helpful comments and discussion. Among these it is a pleasure to record particularly Professor W. Johnson and Dr. J. A. Newnham. Finally I wish to thank my wife and family for their forbearance during the preparation of the manuscript.

Reading Passages

Passage A

Space Shuttle: the Next Generation

NASA reveals designs for a safer, cheaper and more reliable shuttle.

There may be a growing trend for space tourists to jet off to the International Space Station, but moving men and machines from Earth to orbit remains a risky and expensive business. At 1 in 500^[1] the chance of a fatal accident involving the Space Shuttle is like Russian roulette: the cost of reaching space is £ 15,000 for every kilo of weight it carries.

So it's hardly surprising that NASA is now actively planning to replace the Shuttle with a cheaper, safer, second-generation launch system. The result will be a fully reusable launch vehicle designed for ferrying people to and from the International Space Station and for launching scientific, commercial and military satellites more regularly and reliably than is currently possible. The aim is to make a vehicle that costs just £1,500 for every kilo of weight onboard.

NASA isn't developing the new Shuttle itself. Instead it's funding American firms to come up with^[2] concept designs, as part of a program called the Space Launch Initiative (SLI)^[3]. The SLI encompasses not just the vehicle itself, but everything else required to send it into space, including ways to transfer the Shuttle to the launchpad, ground-based operations centers and computer software. NASA aims to have all of this ready^[4] by 2012, the year the Shuttle is due for retirement.

The SLI began in earnest in June, 2001 when^[5] NASA contracted work out to a total of 22 companies and universities. In the engineering equivalent of Pop Idol^[6], in March 2002 hundreds of concepts were finally whittled down to just 15 designs. These will be further narrowed down to just two or three in November this year, with the winner finally being chosen in 2006^[7]. The total amount that NASA will spend on the project from start to finish is expected to be around £20.5 billion.

Safety first

All of the remaining concepts belong to three teams of contractors: Boeing, Lockheed Martin and a third^[8] that includes Northrop Grumman and Orbital Sciences, each of which has received about £1 billion for the program's current phase. Contracting will ensure that the launch system is tailor-made for industrial exploration^[9] of space. It also means that NASA can concentrate on its main goal of science and exploration and save money to boot.

NASA may not be designing the Shuttle's replacement itself, but that hasn't stopped it being ambitious with its minimum requirements^[10], not least of which is a quantum leap in safety. It wants to reduce the risk of a fatal accident to 1 in 10,000, partly by including more escape routes for the crew. In the new vehicle, astronauts will be able to escape at any time during the mission, not just on the ground or on the return flight.

Fuel without fire

Another safety improvement will involve the engines. The Shuttle's main engine burns liquid hydrogen, which is highly flammable, but some of the concept designs use kerosene instead. Lockheed Martin's SLI director Bob Ford says that kerosene is far safer. "Hydrogen is stored at -269°C so it is a very cold fuel, and it also has a tendency to leak. A minimal amount of energy is needed to ignite it. Kerosene is similar to diesel in your car, and you can almost throw a lighted match into it and it will not go off^[11]," he explains. As well as^[12] being safer, the new engines should be simpler, cheaper and crucially far more dependable, having a lifespan of around 50 launches. Today's Shuttle engines last for only about five.

The main engine may well have to lift far less weight off the ground. Lockheed Martin's designs show a vehicle that's far smaller than the Shuttle—one that has no cargo bay. The vehicle would carry either astronauts or a payload into space, but not both. Either way^[13], it would be piloted automatically by computer. Neural networking software^[14] will ensure that flight vehicles can think for themselves. If an engine isn't working properly, the software recalculates automatically to correct the desired thrust as well as adjust its speed, altitude and flight path. Similarly, the rocket boosters return automatically to their landing sites like a plane.

Made of metal

Other details of the new designs are hard to come by^[15], because the contractors are keeping their cards close to their chests^[16]. They are being^[17] particularly secretive about the material that will be used to build the vehicles. Like any aircraft, there's a balance to be struck between weight and strength^[18], although metal is the most likely winner according to Bob Ford. "We have moved away from composites because the technology isn't quite up to scratch for the environment. We are still pondering whether the right material is some grade of aluminum or an alloy of steel."

Words to Know

1. NASA = National Aeronautics and Space Administration

[ˈnæsə] *n.* (美国)国家航空航天局

2. jet [dʒet] *vi.* 乘喷气式飞机旅行

~ off 乘喷气飞船出发

3. fatal ['feɪtəl] *a.* 致命的

4. roulette [ru: 'let] *n.* 轮盘赌

5. ferry ['feri] *vt.* 运送

6. concept ['kɒnsept] *n.* 概念; 方案

7. encompass [ɪn'kʌmpəs] *vt.* 包括, 包含

8. launchpad [ˈlɔ:ntʃpæd] *n.* 发射台

9. due [dju:] *a.* 预期应到的

10. earnest [ˈɜ:nɪst] *n.* 认真

in ~ 认真地

11. contract [kɒn'trækt] *vt.* 承包

~ out 承包出去

12. whittle ['wɪtl] *vt.* 削减

~ down 削减

13. contractor [kɒn'træktə] *n.* 承包商[方]

14. phase [feɪz] *n.* 阶段; 方面

15. tailor ['teɪlə] *n.* 裁缝

~ -made 定做的; 定制的

16. boot [bu:t] *n.* 效用
to ~ 除此以外, 再者
17. least [li:st] *ad.* 最少
18. quantum ['kwɒntəm] *n.* 量子
~ leap 跃进, 重大突破
19. flammable ['flæməbl] *a.* 易燃的
20. kerosene ['kerəsi:n] *n.* 煤油
21. ignite [ig'nait] *vt.* 点燃
22. diesel [di:zəl] *n.* 柴油
23. crucially ['kru:ʃəli] *ad.* 决定性地; 关键地
24. dependable [di'pendəbl] *a.* 可靠的
25. bay [bei] *n.* (飞机或航天器的) 舱
cargo ~ 货舱
26. payload ['peiləud] *n.* 有效载荷
27. thrust [θrʌst] *n.* 推力
28. booster ['bu:stə] *n.* 助推器
29. secretive [si:kritiv] *a.* 守口如瓶的; 遮遮掩掩的
30. composite ['kɒmpəzɪt] *n.* 复合材料
31. scratch [skrætʃ] *n.* 起跑线
up to ~ 合格, 达到标准
32. ponder ['pɒndə] *vt.* 思考, 考虑
33. grade [greɪd] *n.* 等级
some ~ of 某种等级的

Notes

- [1] “At 1 in 500”意为“以1/500的概率”, “in”在此表示“比”的含义。又如: “a slope of 1 in 5”意为“1/5的坡度; 坡度为1:5”; “the 1-in-27 chance”意为“1/27的概率”。
- [2] “come up with”意为“提出; 提供”。
- [3] “the Space Launch Initiative (SLI)”可转译成“太空发射计划”。
- [4] “ready”在此作动词“have”要求的宾语补足语, 意为“把……准备就绪”。
- [5] “when”在此为关系副词, 引导定语从句修饰前面的“June, 2001”, 译成“当时”。
- [6] “Pop Idol”意为“流行偶像选拔赛”, 而“the engineering equivalent”意为“工程上类似的东西”, 可转译成“工程设计评比”。
- [7] “with the winner finally being chosen in 2006”为“with结构”作附加说明, 译成“最后优胜者将在2006年选出”。
- [8] “a third”表示“另外一方”, 也可译成“第三方”, 但不强调“顺序”, 所以用“a”而不用“the”, 表示“另一个”的意思。又如: “a second; a fourth”等。
- [9] “industrial exploitation”意为“产业化开发”。

[10] “it being ambitious with its minimum requirements”为动名词复合结构，作“stop”的宾语。“stop...”整个可意译成“并没有放宽其各项最低要求”。

[11] “go off”意为“爆炸”。

[12] “As well as being safer”意为“除了更安全外”，这里的“as well as”起一个介词的作用，它等效于“besides; in addition to”。

[13] “Either way”在此意为“不论运载上述两种载荷中的任何一种”。

[14] “Neural networking software”为“神经网络化软件”。

[15] “come by”意为“获得”，其逻辑宾语是句子的主语“Other details of the new designs”，这叫“反射式不定式结构”。又如：“This computer is easy to *operate*. ≈ It is easy to operate this computer.”。

[16] “keep their cards close to their chests”本意是“把自己的牌紧放在胸口，防人偷看”，这里应该转译成“保密”。

[17] “are being”是连系动词“be”的进行时态，表示一种暂时性的行为。又如：一个小男孩平时挺乖的，但来了客人后调皮了，我们可以说“The boy is being naughty.”（这小孩是人来疯）。

[18] “there’s a balance to be struck between weight and strength”意为“重量和强度必须兼顾”。“strike a balance”意为“作出被认为公平的处理(或调整)”。

Passage B

Shuttle Lands, Safely Ending First Mission Since Columbia

The space shuttle Discovery glided back to Earth to a pre-dawn landing here in the Mojave desert today, nearly 14 days after its 5.8-million-mile journey began. It was the first shuttle mission since the loss of the Columbia and its crew of seven astronauts in February 2003, which plunged the space agency^[1] into what Michael Griffin, NASA’s administrator, has called the “depths of despair”^[2].

Discovery’s mission, on paper^[3], was straightforward: it involved resupplying the International Space Station and testing new technologies and techniques for detecting, measuring and repairing damage from launch debris. But at the core^[4], the mission of discovery was to get the United States back in the business of launching humans into space.

NASA administrators were ecstatic about the successful return into space. “If you want to know how I feel, I feel fantastic,” the program manager, Bill Parsons, said at a post-landing news conference in Florida. “This is a wildly successful mission in so many ways.” The landing was originally planned for the shuttles’ home, Kennedy Space Center in Florida. But unpredictable weather along the Space Coast led mission managers to “wave off” four Florida landing opportunities in two days, and to finally call for a change of plans.

While the skies over the Florida landing site were clear, clouds threatened nearby. But the