Accelerated Learning 丛书

8000 热词频繁闪烁　纵横驰骋英语世界

通向英语8000词

3

主编　王炳炎

编者　马继红　张　萱　赵蔚彬

西安交通大学出版社

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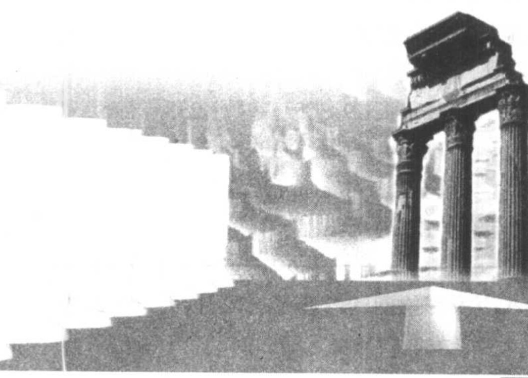

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内容提要

《通向英语 8000 词》是为已经掌握大学英语 1～6 级词汇并力图把词汇量扩大到 8000 词的读者而编写的系列读物。全套书共分 3 册：第 1 册为一般性故事；第 2 册为社科类文章；第 3 册为科普类文章。所选文章均为原文，文字拳颖流畅、题材广泛且趣味性强。每册共分 20 单元、由课文、注解、推荐词汇、阅读练习和词汇练习 5 部分组成。每册还有推荐词汇表和练习参考答案 2 个附录。推荐词汇是根据 8000 词汇表、排除 1～6 级词汇后精选出来的，同时又是词汇练习编写的依据。推荐词汇及词汇练习中的派生词对所要掌握的词汇达到较高的覆盖率。本书注释详尽，练习充足、具有较高的针对性和实用性。

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前　言

《通向英语 8 000 词》是为已经掌握大学英语 1～6 级词汇并力图把词汇扩大到 8 000 词的读者编写的系列读物。本套书共分 3 册:第 1 册收集一般性故事;第 2 册是社科类文章;第 3 册则是科普类文章。第 1 册略比其它两册容易一些,读者可以根据自己的情况从任何一册入手,再向其它方向发展。

每册共有 20 单元,其结构为:课文、注释、推荐词汇、阅读练习和词汇练习 5 个部分组成。每篇课文长度约 1 500 字,长短略有不同;注释 20～30 个;推荐词汇和表达方式 20～30 个;阅读理解练习 5 个;词汇练习中给出派生词、同义词或反义词的练习 5 个;词汇填空选择题 10 个;词汇解释选择题 10 个。书后附有推荐词汇总表和练习的参考答案。

课文思想性强,文字新颖流畅。选择推荐词汇和表达方式的原则是:根据 8 000 词频率词表,排除大学英语 1～6 级规定要学的约 5 300 个词汇后,剩余部分则为推荐词汇的主要组成部分,再补充少量短语。词汇练习是根据推荐词汇编写的。

本书的特点是针对性强。所推荐的词汇是根据日本梶木隆一的 8 000 词频率词表和大学英语 1～6 级词汇表,并参考《英语专业 4 级词汇表》、《英华大辞典》和杨福全主编的《大学英语 6 级考试词汇手册》而精心筛选出来的。推荐的词汇表明,具有大学英语 6 级水平的读者力图扩充词汇至 8 000 词,必须分别从纵向和横向发展,一方面要补充出现频率较高的普通词汇,同时又要向纵深推进。每课推荐的词汇和表达方式 20～30 个,加上派生词、同义词、反义词练习中约 900 字,因而对所要掌握的词汇已经达到较高的覆盖率。

本书具有较高的实用性。推荐的词汇(课文中已用黑体字标出)是要求掌握的,练习是紧紧围绕这些词汇编写的。通过练习,本书可以帮助读者有针对性地达到这个目的。少量考察理解状况

的练习是为了帮助读者对课文有一个正确理解，熟悉语言环境，便于掌握词汇。练习中的填空式选择题要求读者选择一个直接可以填入题干的词汇或表达方式，使上下文通顺。解释性选择题中有一个选项，只是对句中相关部分进行解释，并不要求替换。题后的数码为课文中的段落号，读者可以参考原文上下文的意思答题。

全书由解放军外国语学院王炳炎教授主编。第 1 册由张淑静和刘孜群编写；第 2 册由王炳炎、周红和陈德金编写；第 3 册由马继红、张萱、赵蔚彬和王炳炎编写。王炳炎负责全书定稿。书中肯定会有不当之处，望读者批评指正。

编　者

1999 年 12 月于洛阳

通向英语8000词

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How to Build a Body Part?
如何制造人体器官

Need a hand, or perhaps a liver? Scientists are finding ways to help you grow your own.

1 There's a human liver sitting in a lab dish in Madison[1], Wisconsin. Also a heart, a brain and every bone in the human body — even though the contents of the dish are a few cells too small to be seen without a microscope. But these are stem cells, the most **immature** human cells ever discovered, taken from embryos before they had decided upon their career path in the body[2]. If scientists could only figure out how to give them just the right **kick** in just the right direction, each could become a liver, a heart, a brain or a bone. When a team from the University of Wisconsin[3] announced their discovery last fall, doctors around the world looked forward to a new era of medicine — one without organ-**donor** shortages or the tissue-rejection[4] problems that **bedevil** transplant patients today.

2 Doctors also saw obstacles, though. One of them was a U. S. Congress skittish about research on stem cells taken from unwanted human embryos and **aborted** fetuses[5]. Indeed, last week 70 lawmakers asked in a firmly worded letter that the Federal Government ban all such work.

3 Yet the era of "grow your own" organs is already upon us, as researchers have **sidestepped** the stem-cell controversy by making

clever use of ordinary cells. Today a machinist in Massachusetts[6] is using his own cells to grow a new thumb after he lost part of his in an accident. A teenager born without half of his chest wall[7] is growing a new cage of bone[8] and cartilage[9] within his chest cavity. Scientists announced last month that bladders, grown from bladder[10] cells in a lab, have been implanted in dogs and are working. Meanwhile, patches of skin, the first "tissue-engineered" organ to be approved by the U. S. Food and Drug Administration[11], are healing sores and skin **ulcers** on hundreds of patients across the U.S.

4 How have scientists managed to do all this without those protean stem cells? Part of the answer is smart engineering. Using materials such as **polymers** with **pores** no wider than a toothbrush **bristle**, researchers have learned to **sculpt scaffolds** in shapes into which cells can settle[12]. The other part of the answer is just plain cell biology. Scientists have discovered that they don't have to teach old cells new tricks, given the right framework and the right **nutrients**, cells will organize themselves into real tissues as the scaffolds dissolve. "I'm a great believer in the cells. They're not just lying there, looking stupidly at each other," says Francois Auger, an infectious-disease specialist and builder of artificial blood vessels at Laval University in Quebec City[13]. "They will do the work for you if you treat them right."

5 **FLESH AND BONES**. Treating bone cells right is what Charles Vacanti, an anesthesiologist and director of the Center for Tissue Engineering, has been doing at the University of Massachusetts Medical Center in Worcester[14]. When that machinist **lopped** off the top of his thumb, Vacanti took some of the victim's bonecells, grew them in the lab and then injected them into a piece of **coral** fashioned

into the shape of the missing **digit**. "Coral's got lots of **interconnected** channels for the bone cells to grow in," says Vacanti. It also degrades as bone replaces it. The patch was **implanted** back on the thumb a few months ago[15]. "It looks like he's growing good bone," Vacanti reports. "He could get most of his function back."

6 Moving from the thumb to other hand parts, Charles' brother Joseph Vacanti, a transplant surgeon and tissue-engineering pioneer **in his own right**, has grown human-shaped fingers on the back of a mouse, demonstrating that different cell types can grow together. He and colleagues at Boston's Massachusetts General Hospital shaped a polymer to resemble the end and middle finger bones. These shapes were seeded with bone, cartilage and tendon[16] cells from a cow. Then the medical team assembled the pieces under the skin of the mouse — "just like you'd assemble the parts of a model airplane," says Vacanti.

7 **VEINS AND ARTERIES.** Blood vessels present a special challenge: they must be strong yet flexible enough to expand and contract with each heartbeat. Joseph Vacanti's group has grown a tube of sheep-muscle cells around a polymer, added closely packed lining cells to the inside and stitched it into a sheep's pulmonary-**artery** circuit[17]. Blood pulsing against the walls gradually strengthens the muscle cells, just as weight training builds biceps[18]. To make smaller vessels, Laval's Auget bends a sheet of muscle cells around a plastic tube and reinforces it with an outer layer of stiffer cells. Then he removes the tube and seeds the inside with lining cells, which soon grow together. The vessels have worked well in animal tests and in the lab have withstood blood pressure 20 times

normal.

8 **LIVERS AND BLADDERS.** Anthoby Atala, a surgeon who makes bladders at Boston's Children's Hospital, has taken muscle cells from the outside of dog bladders and lining cells from the inside and grown them in his lab. The cells, fed the proper growth-prompting chemicals, happily go forth and multiply[19]. "In six weeks we have enough cells to cover a football field," Atala says. He placed a few muscle cells on the surface of a small polymer sphere and some lining cells on the inside. When he inserted the sphere in a dog's urinary system, the artificial bladder began to function like the real thing. Bioengineer Linda Griffith at nearby Massachusetts Institute of Technology[20] is doing similar work with rat-liver tissue.

9 **THE HEART — AND BEYOND.** One drawback with all these techniques is that it takes time, usually several weeks, to grow organs using the patient's own cells. Although using these cells sidesteps the rejection problem, time is a luxury many patients, particularly heart patients, can't afford. So Michael Sefton, who directs the tissue-engineering center at the University of Toronto, has proposed building a "heart in a box" — complete with chambers, valves and heart muscles — from cells genetically engineered to block the signal with which the body marshals cells to attack **invaders**. Sefton **envisions** spin-offs along the way — like immune-system-resistant replacement valves — to justify the project's $5 billion cost[21].

10 Replacement hearts — or even replacement heart parts — are at least a decade off, estimates Kiki Hellman, who monitors tissue-engineering efforts for the FDA. "Any problem that requires lots of

cell types 'talking' to one another is really hard," she notes. Bone and cartilage efforts are much closer to **fruition**, and could be ready for human trials within two years. And what of those magical stem cells that can grow into any organ you happen to need — if the law, and biologists' knowledge, permit? "Using them," says Sefton, "is really the Holy Grail[22]."

Notes

1. Madison, Wisconsin　美国威斯康星州首府麦迪逊（美国北部）
2. But these are stem cells, . . . before they had decided upon their career path in the body.　但这些干细胞——迄今发现的最不成熟的人体细胞——在未决定其在人体中发挥的作用之前就从胚胎中采集出来。
3. University of Wisconsin　威斯康星大学(建于1848年,总部在麦迪逊,下设13个分校)
4. tissue-rejection　组织排斥
5. aborted fetus　流产的胎儿
6. Massachusetts　马萨诸塞州(美国东北部)
7. chest wall　胸壁
8. cage of bone　骨架
9. cartilage　软骨
10. bladder　膀胱
11. the U.S. Food and Drug Administration　美国食品及药物管理局(FDA)
12. Using materials such as polymers with pores no wider than a toothbrush bristle, researchers have learned to sculpt scaffolds in shapes into which cells can settle.　研究者们已经学会用气孔不大于牙刷毛的聚合物等材料雕刻成骨架的形状,以便使

细胞随着生长。

13. Quebec City　魁北克市(加拿大东南部港市,魁北克省省会)

14. Worcester　伍斯特(美国马萨诸塞州中部城市)

15. Coral's got lots of interconnected channels... a few months ago.　珊瑚有许多互相连接的通道,骨细胞可以在里面生长。珊瑚降解,骨逐渐将它替换。这小块组织在几个月前被移植到大拇指上。

16. tendon　腱

17. Joseph Vacanti's group... and stitched it into a sheep's pulmonary artery circuit.　约瑟夫·凡肯蒂小组在一种聚合物周围培养出了一块绵羊肌肉细胞,在其内加入排列十分紧密的内壁细胞,再把它镶嵌到一只绵羊的肺动脉上。

18. biceps　二头肌

19. The cells, ... happily go forth and multiply.　用适当的促进生长的化学品培植的细胞会很容易开始繁殖生长。

20. Massachusetts Institute of Technology　麻省理工学院

21. So Michael Sefton... to justify the project's $5 billion cost.　因此,指导多伦多(加拿大东南部港市)大学组织工程中心的迈克尔·塞夫顿提议使用基因基础上建立的细胞制造一个"盒子里的心脏"——具有心室、瓣膜和心脏肌肉——以阻止出现使身体指令细胞进攻外来者的信号。塞夫顿展望了在这一研究过程中的副产品——如抗免疫系统的瓣膜替换品——以此证明50亿美元的花费是完全值得的。

22. Holy Grail　(传说耶稣在最后晚餐时用的)圣杯,圣盘

Recommended Words and Expressions

Give the Chinese equivalents to the following

1. immature	2. kick	3. donor
4. bedevil	5. abort	6. sidestep

7. implant
8. ulcer
9. polymer
10. pore
11. bristle
12. sculpt
13. scaffolds
14. nutrient
15. lop off
16. coral
17. digit
18. interconnect
19. in one's own right
20. artery
21. invader
22. envision
23. fruition

Comprehension Exercises

Choose the best answer

1. Some lawmakers demanded that the Federal Government ban the research on stem cells because ______.
   a. stem cells were taken from unwanted human embryos and aborted fetuses
   b. scientists couldn't figure out how to give the stem cells the right kick in the right direction
   c. scientists have to face the tissue-rejection problems that bedevil patients
   d. stem cells are the most immature human cells ever discovered
2. Researchers have sidestepped the stem-cell controversy by ______.
   a. organ donations
   b. making clever use of ordinary cells
   c. doing research secretly
   d. obtaining the support of FDA
3. How have scientists managed to build a body part without stem cells?
   a. By using materials such as polymers.
   b. By right framework and nutrients.
   c. By sculpting scaffolds in shapes.

d. By smart engineering and plain cell biology.

4. What is the challenges facing scientists when they build blood vessels?

   a. Blood vessels must be strong yet flexible enough to expand and contract with each heartbeat.

   b. Blood vessels are too fragile to make.

   c. Blood pulsing against the wall will damage the artificial blood cells.

   d. The artificial blood vessels didn't work well in animal test.

5. What can many patients not afford when they need a body part to be built?

   a. Money. b. Strength.

   c. Time. d. Patience.

Vocabulary Exercises

I. *Give derivatives to the following words*

1. stupid, ____________, ____________.
2. infect, ____________, ____________.
3. abort, ____________, ____________.
4. special, ____________, ____________.
5. multiply, ____________, ____________.

II. *Choose the best expression*

1. It is not wise to trust all your valuables to the boy who is ______ for his age.

   a. inexperienced b. undersized

   c. immature d. insufficient

2. The heart transplant will take place as soon as a suitable ______ can be found.

a. donor b. contributor
c. patient d. victim

3. Feeling ashamed of herself, the unmarried girl killed herself in an attempt to ______ an unborn baby.
   a. kill b. abort
   c. abandon d. bear
4. In this operation the surgeons ______ a new lens in the eye.
   a. manufactured b. replace
   c. implanted d. buried
5. Having run around the track for an hour, the boy was sweating through every ______.
   a. hair b. point
   c. part d. pore
6. Your toothbrush is losing its ______; you'd better buy a new one.
   a. vitality b. bristles
   c. flexibility d. interest
7. He had his arm ______ by an electric saw, and has been out of work since then.
   a. lopped off b. amputated
   c. sliced off d. dislocated
8. An ordinary person can not be isolated from other people because people ______ each other.
   a. appreciate b. depend upon
   c. show sympathy to d. interconnect with
9. He is a distinguished scholar of international renown in ______.
   a. his own qualification b. his own right
   c. his own ability d. his own power
10. The company ______ opening the sides of two mountains to ex-

tract coal.

a. enveloped
b. decided
c. settled
d. envisioned

Ⅲ. *Choose the best explanation*

1. If scientists could only figure out how to give them just the right *kick* in just the right direction... (1)

a. blow
b. stimulation
c. punch
d. stroke

2. ...or the tissue-rejection problems that *bedevil* transplant patients today. (1)

a. afflict
b. exasperate
c. confuse
d. inflict

3. ... as researchers have *sidestepped* the stem-cell controversy by making clever use of ordinary cells. (3)

a. settled
b. escaped
c. dissolved
d. evaded

4. Using materials such as *polymers* no wider than a toothbrush bristle, ...(4)

a. compounds
b. complex
c. mixture
d. composure

5. ... researchers have learned to *sculpt* scaffolds in shapes into which cells can settle. (4)

a. chop
b. engrave
c. carve
d. construct

6. ... researchers have to learned to sculpt *scaffolds* in shapes... (4)

a. scarf
b. frame
c. platform
d. scale