

# 大学英语四级机考

## IB CET-4

*Internet-Based  
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## 实战演练

主编 任勤



重庆大学出版社  
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## 内容提要

《大学英语四级机考实战演练》共编有大学英语四级机考模拟题8套,配套光盘中另补充5套,题型编排与全国大学英语四级机考真题完全一致;选材内容涉及科技、文化、教育、财经、社会等各个方面;题材形式多样,包括新闻、讲座、报告、对话、访谈等。每套模拟题由三个部分构成:listening comprehension, listening-based integrated tasks, reading comprehension;在每套模拟题后还配有试题答案分析及听力参考原文,方便学生更有效地进行自主学习,并且也给教师提供一定的辅导参考。本书适合于参加大学英语四级机考的考生使用,亦可作为学生提高英语水平的练习册。

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# 前言

2007 年教育部颁发的《大学英语课程教学要求》明确指出,大学英语的教学目标是培养学生的英语综合应用能力,特别是听说能力,使他们在今后的工作和社会交往中能用英语有效地进行口头和书面的信息交流,同时增强其自主学习能力,提高其综合文化素养,以适应我国社会发展和国际交流的需要。为满足这一需要,以凸显听说能力以及全面提高英语综合应用能力为目标的大学英语教学改革正在全国范围内不断深化。全国大学英语四、六级考试的考试内容、考试形式和考题的设计也随着教学要求的变化处于不断调整 and 变化中。

2008 年 12 月教育部选定全国了 54 所高校的近千名学生进行大学英语四级计算机考试(Computer Based Test),2009 年 6 月试点学校的数量扩大到 180 所。自此,大学英语四级考试进入了机考时代。从纸质考试到计算机考试,大学英语四级考试除了考试方式的改变,更多的变化体现在考试内容方面:首先,以听力为基础的考题占了 70%,其余 30% 是阅读理解;其次,考试的题型除了采用单项选择和填词等传统的听力测试形式外,增加了依据听力音视频材料进行跟读和写作等测试形式;再次,在考试选材方面,所有的听力材料均来自诸如 VOA、BBC 或 CNN 等外台,或 CCTV9、CRI 等中国电视台或中国国际电台的节目。参加机考的考生不仅仅面临着由原来的手写变为键盘录入的挑战,还面临着对他们的听力理解能力、知识面、词汇量等方面更高、更全面的挑战。

为了让考生顺利实现从纸质考试到计算机考试的平稳过渡,尽快熟悉计算机考试的题型和题材,编者编写了《大学英语四级机考实战演练》一书,并配以光盘和网络版,以帮助考生在大学英语四级计算机考试中取得令人满意的成绩。

本书编写原则:共编有大学英语四级机考模拟题 8 套,配套光盘中另补充 5 套。题型编排与全国大学英语四级机考真题完全一致;题材全部选自 CNN、VOA、BBC、CRI、NPR 等国内外电台、电视台,形式包括新闻、讲座、报告、对话、访谈等,内容涉及科技、文化、教育、财经、社会、时政、环境、娱乐、卫生医疗等各个方面。

本书内容安排:每套模拟题由两个部分组成。第一部分是模拟题;第二部分是试题答案分析及听力参考原文。

第一部分:

试卷构成	测试内容	测试题型	分值比例
Section A (Listening Comprehension)	新闻听力(音频)	多项选择	25%
	对话/访谈(音频)	多项选择	
	访谈/报道(视频)	多项选择	



Continued

试卷构成	测试内容	测试题型	分值比例
Section B (Listening-based Integrated Tasks)	听写填词(音/视频)	填空	45%
	语法选词(音/视频)	多项选择	
	跟读(音/视频)	句子跟读	
	写作(音/视频)	短文写作	
Section C (Reading Comprehension)	深度阅读	多项选择	30%
	快速阅读	多项选择/ 填空	

第二部分:

为了方便学生更有效地进行自主学习,并且给教师提供一定的辅导参考,这个部分提供了所有试题的参考答案、答案详解,以及听力理解部分的全部听力材料原文。

本书是教学第一线的老师积极应对大学英语计算机考试改革的成果。由于大学英语计算机考试改革仍处在探索阶段,书中疏漏之处在所难免,恳请各位专家、学者和广大读者提出宝贵的批评意见,以便我们不断改进完善。

《大学英语四级机考实战演练》编写组  
2010.6

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## Model Test 1

The test consists of 3 sections with different types of tasks to test your abilities of English listening, speaking, writing, and reading. It will take approximately 2 hours to complete.

### Section A Listening Comprehension ( Questions 1-18; 25-30 minutes )

**Directions:** This section contains 18 multiple choice questions based on four audio and one video clips. You should select the best answer to each question. All audio and video clips will be played twice. When they are played for the first time, you should pay attention to the main idea and answer some general comprehension questions. When they are played for the second time, you should focus on the important details and answer some specific comprehension questions.

**Question 1 will be based on the following news item.**

Glossary	
1) adhere to: 坚持	2) cardiologist: 心脏病科医师

**Question 1**

According to the news item, which factor can cut the heart risks by half?

- [ A ] Adhering to four or more healthy habits.      [ B ] Going to bed and getting up early.  
[ C ] Staying away from alcohol and cigarettes.      [ D ] Keeping a normal weight.

**Now listen to the item again and answer Question 2.**

**Question 2**

According to the news item, those who had none of the six healthy habits had about a \_\_\_\_\_ risk of developing heart failure at some point in their lives.

- [ A ] 14%      [ B ] 20%  
[ C ] 10%      [ D ] 11%

**Question 3 will be based on the following news item.**

Glossary
snap up: 抢购

**Question 3**

What is the best title for this news item?

- [ A ] Electric bikes competing with regular bikes.      [ B ] Sales of electric bikes surge.  
[ C ] Electric bikes appealing to baby boomers.      [ D ] Americans welcoming electric bikes.

**Now listen to the item again and answer Question 4.**

**Question 4**

How many electric bikes were sold in the U. S. last year?

- [ A ] 12,000.      [ B ] 20,000.  
[ C ] 120,000.      [ D ] 200,000.

**Question 5 will be based on the following news item.**

Glossary	
1) calling: 天职	2) clergy: 教士

**Question 5**

What do we learn from the news?

- [ A ] Different people like different jobs.  
[ B ] Not everyone can have a satisfying career.  
[ C ] A job helping others can make people feel happy during the work.  
[ D ] A job with good pay can help people feel good about themselves.

**Now listen to the item again and answer Question 6.**

**Question 6**

According to the text, what job gives people the greatest satisfaction?

- [ A ] Clergy.      [ B ] Firefighter.  
[ C ] Roofer.      [ D ] Waiter.

**Questions 7 to 8 will be based on the following long conversation.**

Glossary	
1) the House: 美国众议院	4) the Senate: 美国参议院
2) mandate: 命令	5) premium: 奖金; 保险费
3) agitate: 使不安	6) constitutionality: 符合宪法

**Question 7**

What is the best title for this news item?

- [ A ] Americans are to buy health insurance.  
[ B ] Health care reform benefits the poor.  
[ C ] Health care reform is a total success.



[ D ] Confronting the affordability gap in health care bill.

**Question 8**

What is the key to health care reform in the US?

[ A ] Subsidies.

[ B ] Affordability.

[ C ] Health insurance.

[ D ] Universal coverage.

**Now listen to the program again and answer Questions 9 to 12.**

**Question 9**

What is the major difference between the House bill and the Senate bill?

[ A ] Whether to give subsidies to the poor.

[ B ] Who should receive subsidies.

[ C ] How much subsidies should be given.

[ D ] How many people should receive subsidies.

**Question 10**

Under the House bill, how much could a family with a sick child pay for health care a year?

[ A ] \$1,500.

[ B ] \$1,800.

[ C ] \$2,000.

[ D ] \$2,200.

**Question 11**

What was true about Representative D. Edwards 17 years ago?

[ A ] She worked in a grocery store.

[ B ] She slipped, fell and hurt herself.

[ C ] She had health care insurance.

[ D ] She paid for her medical treatment easily.

**Question 12**

Is the House bill likely to pass in the Senate?

[ A ] Absolutely yes.

[ B ] No.

[ C ] Very likely.

[ D ] Not clear yet.

**Questions 13 to 14 will be based on the following video clip.**

Glossary	
1) plead: 答辩	6) stoic: 坚韧的
2) count: 罪名	7) denial: 否定
3) address: 处理	8) bless: 赋予(才能)
4) steroid: 类固醇	9) doping: 服用兴奋剂
5) taint: 玷污	

**Question 13**

What's the video mainly about?

[ A ] Marion Jones admitted to lying about taking steroids.

[ B ] Marion Jones apologized for taking performance-enhancing drugs.

[ C ] Marion Jones didn't admit to taking steroids.

[ D ] Marion Jones didn't admit to taking flax seed oil.

**Question 14**

What do you learn about Marion Jones through the video?

- [ A ] Marion Jones made an apology to the public and wanted to get forgiveness.
- [ B ] Marion Jones said she took steroids knowingly.
- [ C ] People never doubted if Marion Jones had taken steroids.
- [ D ] Marion Jones insisted she did take drugs before trial.

**Now watch the video again and answer Questions 15 to 18.**

**Question 15**

The phrase “let down” in the video most probably means \_\_\_\_\_.

- [ A ] take down                      [ B ] angry with                      [ C ] forgive                      [ D ] disappoint

**Question 16**

With Jones exposed, what happens to her Olympic medals?

- [ A ] She can keep the five Olympic medals.
- [ B ] It is possible for her to keep the five Olympic medals.
- [ C ] She must return all Olympic medals.
- [ D ] She mustn't return all Olympic medals.

**Question 17**

How long may Marion Jones go to prison?

- [ A ] 6 months                      [ B ] 16 months                      [ C ] 6 years                      [ D ] 16 years

**Question 18**

The phrase “second to none” most probably means \_\_\_\_\_.

- [ A ] in the first place                      [ B ] in the second place                      [ C ] a good second                      [ D ] get a second

**Section B Listening-based Integrated Tasks ( Questions 19-49; 45-50 minutes )**

**Directions:** In this section, you are going to complete a number of tasks based on the audio or video clips you have listened to (or watched) in Section A.

**Task 1 Listening and Dictation ( Questions 19 to 28 )**

**Directions:** In this task, part of the video clip will be replayed twice and you are required to fill in the blanks numbered 19 to 28 with the exact words you've heard from the clip. At the end of this task, there will be a pause for you to check what you've written.

Just a short time ago tonight a 31-year-old woman approached the microphones in front of the federal court house in suburban New York and did something very unusual. She Question 19 lying about performance-enhancing drugs as an athlete. More than that, she was an Olympic athlete. And that's why Marion Jones, the best female athlete of her time Question 20 for letting down her country along with those around her.

“And so it is with a great amount of Question 21 that I stand before you and tell you that I have Question 22 your trust. I want all of you to know that today I pled guilty two counts of making false Question 23 to federal agents. Making these false statements to federal agents was an incredibly stupid thing for me to do. And I am Question 24 fully for my actions. I have no one to blame, but myself for what I have done. To you, my fans, including my young supporters, I want you to know that I have been Question 25. And you have the right to be angry with me. I have let them down. I have let my country down and I have let myself down. I recognize that by saying that I am deeply sorry, it might not be enough and Question 26 to address the pain and the hurt that I’ve caused you. Therefore I want to ask for your Question 27 for my actions. And I hope you can find it in your heart to forgive me.”

The Question 28 statement by Marion Jones at White Plains New York earlier this evening. Our own Mike Taibbi was in court for all of this today. He’s with us from the court house now.

## Task 2 Use of Grammar and Structure ( Questions 29 to 38 )

**Directions:** There are ten blanks in the following passage. For each blank there are four choices. You are required to choose the ONE that fits best into the context.

Mike, good evening.

Good evening, Bryan. You know, even with her admission, her plea, a guilty plea Question 29 about taking steroids; Marion Jones still insists she never took them knowingly. Now whether she’s believed or disbelieved Question 30 that account, an extraordinary athletic career is now Question 31 for ever.

In court, a stoic Jones has said, “I knew what I did was illegal.” But she was only admitting to lie about taking steroids after she learnt that Question 32 her coach had told her was flax seed oil was in fact the then undetectable steroid called the Clear. It Questions 33 provided by a California Laboratory called Balco. In her guilty plea, Jones did not admit that. Only that she lied years later once she learnt that it was steroid she’s been taking, not flax seed oil.

Question 34 in fact, even when she’s winning more medals in a single Olympics than any woman ever had, five in the Sydney Games in 2000, the suspicions Questions 35 her use of performance-enhancing drugs had begun along with an unbroken string of denials.

“I never have, I never will. I’ve been blessed with an incredible amount of talents. My work ethic is second to none.”

“There exists no one who can truefully testify Question 36 I have ever used performance-enhancing drugs simply for the reason that I never have.”

With Jones now exposed, what about her Olympic medals.

“The chance that Marion Jones is going to be able to keep the five Olympic medals she won in Sydney slim, very very slim.”

Jones' personal story coming to an end, part of a larger story about how the game has changed for athletes looking to cheat, to win.

"What's different now is you have the sports authorities and the federal authorities, not just in United States but around the world working in concert together to try to stop Question 37 in sports."

Just last summer, Jones was competing again, winning races again and talking about harvesting more Olympic golds in Beijing next summer. Now she said she's officially retired from track and field, effective immediately. And she's been telling friends Question 38 she's sentenced next January, she may instead go to prison for as long as 6 months. Bryan.

Mike Taibbi outside court tonight. Mike, thanks.

- |             |                |               |                |                     |
|-------------|----------------|---------------|----------------|---------------------|
| Question 29 | [ A ] lie      | [ B ] lying   | [ C ] lied     | [ D ] lies          |
| Question 30 | [ A ] on       | [ B ] for     | [ C ] in       | [ D ] by            |
| Question 31 | [ A ] tainting | [ B ] tainted | [ C ] to taint | [ D ] to be tainted |
| Question 32 | [ A ] which    | [ B ] how     | [ C ] what     | [ D ] why           |
| Question 33 | [ A ] is       | [ B ] was     | [ C ] being    | [ D ] were          |
| Question 34 | [ A ] As       | [ B ] And     | [ C ] But      | [ D ] Or            |
| Question 35 | [ A ] of       | [ B ] on      | [ C ] upon     | [ D ] about         |
| Question 36 | [ A ] if       | [ B ] as      | [ C ] that     | [ D ] whereas       |
| Question 37 | [ A ] dope     | [ B ] to dope | [ C ] doping   | [ D ] being doped   |
| Question 38 | [ A ] which    | [ B ] what    | [ C ] who      | [ D ] when          |

### Task 3 Listening and Repeating ( Questions 39 to 48 )

**Directions:** In this task, you are going to listen to 10 sentences selected from the listening materials in Section A. You will hear each sentence twice. After hearing the sound of a bell, you are required to repeat the sentence exactly as you hear it.

- Question 39
- Question 40
- Question 41
- Question 42
- Question 43
- Question 44
- Question 45
- Question 46
- Question 47
- Question 48

**Task 4 Listening and Writing ( Question 49 )**

**Directions:** *In this section, you are required to write an essay of no less than 120 words based on one of the items you have heard in Section A.*

*Now watch the video clip again before you start writing.*

*Now you will have 30 minutes to write the essay based on the outline given below.*

1. Write an essay, which should include:
  - the reasons why Marion Jones apologized to the public.
  - the reasons why some athletes take steroids in the competition.
2. State your opinion on the theme of role models to children.

**Section C Reading Comprehension ( Questions 50-69; 35 minutes )**

**Directions:** *In this section, you are going to read two short passages and one long passage, and answer some comprehension questions.*

**Task 1 In-depth Reading ( Questions 50 to 59 )**

**Directions:** *There are two passages in this task. Each passage is followed by five questions. You should read carefully the four choices following each question and decide on the best answer. If you finish the task before the time limit, you can click the SUBMIT button and move on to the next task.*

*Questions 50 to 54 are based on the following passage.*

**Passage One**

The bridegroom, dressed in a blue blazer and brown suede Adidas sneakers, nervously cleared his throat when his bride, in traditional white, walked down the classroom aisle. As the mock minister led the students—and ten other couples in the room—through the familiar marriage ceremony, the giggles almost drowned him out. But it was no laughing matter. In the next semester, each “couple” would buy a house, have a baby— and get a divorce.

In a most unusual course at Parkrose ( Ore. ) Senior High School, social-science teacher Cliff Allen leads his students through the trials and tribulations of married life. Instead of the traditional course, which dwells on the psychological and sexual adjustments young married must face, Allen exposes his students to the nitty-gritty problems of housing, insurance and child care. “No one tells kids about financial problems,” says Allen, 36. “It’s like sex—you don’t talk about it in front of them.”

Students act out in nine weeks what normally takes couples ten years to accomplish. In the first week, one member of each couple is required to get an after-school job—a real one. During the semester, the salary, computed on a full-time basis with yearly increases factored in, serves as the guideline for their life-style. The third week, the couples must locate an apartment they can

afford and study the terms of the lease.

Disaster: In the fifth week, the couples “have a baby” and then compute the cost by totaling hospital and doctor bills, prenatal and postnatal care, baby clothes and furniture. In week eight, disaster strikes: the marriages are strained to the breaking point by such calamities as a mother-in-law’s moving in, death, or imprisonment. It’s all over by week nine (the tenth year of marriage). After lectures by marriage counselors and divorce lawyers and computations of alimony and child support, the students get divorced.

Allen’s course, which has “married” 1,200 students since its inception five years ago, is widely endorsed by parents and students. Some of the participants have found the experience chastening to their real-life marital plans. “Bride” Valerie Payne, 16, and her “groom”, David Cooper, 19, still plan to marry in July, but said Cooper, the course pointed out “the troubles you can have”. The course was more unsettling to Marianne Baldrice, 17, who tried “marriage” last term with her boyfriend. Eric Zook, 18. “Eric and I used to get along pretty well before we took the course together,” Marianne said. “But I wanted to live in the city, he wanted the country. He wanted lots of kids, I wanted no kids. It’s been four weeks since the course ended and Eric and I are just starting to talk to each other again.”

50. This passage may be titled as \_\_\_\_\_.

- [ A ] An interesting social-science course      [ B ] Marriage preparation
- [ C ] Premarital agreement                      [ D ] Marriage in high schools

51. The traditional social-science courses \_\_\_\_\_.

- [ A ] expose students to the nitty-gritty problems
- [ B ] are warmly welcomed by students
- [ C ] do not focus on the psychological and sexual adjustments
- [ D ] do not adequately prepare young people for married life

52. The nitty-gritty problems include the following EXCEPT \_\_\_\_\_.

- [ A ] housing    [ B ] insurance
- [ C ] affection    [ D ] child care

53. Which of the following statements is TRUE?

- [ A ] One member of the “newlywed couple” must get a job.
- [ B ] Students in Cliff Allen’s course are required to marry, buy a house, and get a divorce.
- [ C ] By week nine, students are required to listen to some lectures.
- [ D ] Mother-in-law’s moving in contributes to the couple’s divorce.

54. Allen’s course \_\_\_\_\_.

- [ A ] is rejected by students and parents      [ B ] has no benefits for the students
- [ C ] makes many students get divorced      [ D ] is quite useful for the students

Questions 55 to 59 are based on the following passage.

### Passage Two

Baekeland and Hartmann report that the “short sleepers” had been more or less average in their sleep needs until the men were in their teens. But at about age 15 or so, the men voluntarily began cutting down their nightly sleep time because of pressures from school, work, and other activities. These men tended to view their nightly periods of unconsciousness as bothersome interruptions in their daily routines.

In general, these “short sleeps” appeared ambitious, active, energetic, cheerful, conformist (不动摇) in their opinions, and very sure about their career choices. They often held several jobs at once, or were workers full-or part-time while going to school. And many of them had a strong urge to appear “normal” or “acceptable” to their friends and associates.

When asked to recall their dreams, the “short sleepers” did poorly. More than this, they seemed to prefer not remembering. In similar fashion, their usual way of dealing with psychological problems was to deny that the problem existed, and then to keep busy in the hope that the trouble would go away.

The sleep patterns of the “short sleepers” were similar to, but less extreme than, sleep patterns shown by many mental patients categorized as manic(疯人).

The “long sleepers” were quite different indeed. Baekeland and Hartmann report that these young men had been lengthy sleeps since childhood. They seemed to enjoy their sleep, protected it, and were quite concerned when they were occasionally deprived of their desired 9 hours of nightly bed rest. They tended to recall their dreams much better than did the “short sleepers”.

Many of the “long sleepers” were shy, anxious, introverted (内向), inhibited (压抑), passive, mildly depressed, and unsure of themselves (particularly in social situations). Several openly state that sleep was an escape from their daily problems.

55. According to the report, \_\_\_\_\_.

- [A] many short sleepers need less sleep by nature
- [B] many short sleepers are obliged to reduce their nightly sleep time because they are busy with their work
- [C] long sleepers sleep a longer period of time during the day
- [D] many long sleepers preserve their sleeping habit formed during their childhood

56. Many “short sleepers” are likely to hold the view that \_\_\_\_\_.

- [A] sleep is a withdrawal from the reality
- [B] sleep interferes with their sound judgment
- [C] sleep is the least valuable item on their routine program
- [D] sleep is the best way to deal with psychological trouble

57. It is stated in the third paragraph that short sleepers \_\_\_\_\_.



- [ A ] are ideally vigorous even under the pressure of life  
 [ B ] often neglect the consequences of inadequate sleep  
 [ C ] do not know how to relax properly  
 [ D ] are more unlikely to run into mental problems
58. When sometimes they cannot enjoy adequate sleep, the long sleepers might \_\_\_\_\_.  
 [ A ] appear troubled [ B ] become energetic  
 [ C ] feel dissatisfied [ D ] be desperate
59. Which of the following is NOT included in the passage?  
 [ A ] If one sleeps inadequately, his performance suffers and his memory is weakened.  
 [ B ] The sleep patterns of short sleepers are exactly the same as those shown by many mental patients.  
 [ C ] Long and short sleepers differ in their attitudes towards sleep.  
 [ D ] Short sleepers would be better off with more rest.

## Task 2 Skimming and Scanning ( Questions 60 to 69 )

**Directions:** In this part, you will have 15 minutes to go over the passage quickly and answer questions 60 to 69. For questions 60 to 66, choose the best answer to each question from the four choices marked [ A ], [ B ], [ C ] and [ D ]. For questions 67 to 69, complete the sentences with the information given in the passage.

### The Birth of the Microwave

Chances are, you'll use a microwave oven at least once this week—probably ( according to research ) for heating up leftovers or defrosting something. Microwave ovens are so common today that it's easy to forget how rare they once were. As late as 1977, only 10% of U. S. homes had one. By 1995, 85% of households had at least one. Today, more people own microwaves than own dishwashers.

Magnetrons ( 磁电管 ), the tubes that produce microwaves, were invented by British scientists in 1940. They were used in radar systems during World War II, and were instrumental in detecting German planes during the Battle of Britain. These tubes, which are sort of like TV picture tubes ( 显相管 ), might still be strictly military hardware if Percy Spencer, an engineer at Raytheon ( a U. S. defense contractor ), hadn't stepped in front of one in 1946. He had a chocolate bar in his pocket and when he went to eat it a few minutes later, he found that the chocolate had almost completely melted. That didn't make sense. Spencer wasn't hot, how could the chocolate bar be? He suspected the magnetron was responsible, so he tried an experiment. He put a bag of popcorn kernels ( 核仁 ) in the tube. Seconds later, they popped. The next day, Spencer brought eggs and an old tea kettle to work. He cut a hole in the side of the kettle, put an egg in it, and placed it

next to the magnetron. Just as a colleague went to see what was happening, the egg exploded.

Spencer shared his discovery with his employers at Raytheon, and suggested manufacturing magnetron powered ovens to sell to the public. Raytheon was interested. They had the capacity to produce 10,000 magnetron tubes per week, but with World War II over, military purchases had been cut down to almost nothing. What's the better way to recover lost sales than to put a radar set disguised as a microwave oven in every American home? Raytheon agreed to back the project. The company patented (取得专利权) the first "high frequency dielectric (绝缘体的) heating apparatus" in 1953. Then they held a contest to find a name for their product. Some came up with "Radar Range", which was later combined into the single word—*Radarange*.

Raytheon had a great product idea and a great name, but they didn't have an oven anyone could afford. The 1953 model was 5.5 feet tall, weighed more than 750 pounds, and cost \$3,000. Over the next 20 years, railroads, ocean liners and high-end restaurants (高档餐厅) were virtually the only Radarange customers. In 1955, a company called Tappan introduced the first microwave oven for average consumers; it was smaller than the Radarange, but still cost \$1,295. Then in 1964, a Japanese company perfected a miniaturized (小型的) magnetron, and Raytheon soon after introduced a Radarange that used the new magnetron. It sold for \$495. But that was still too expensive for the average American family. Finally in the 1980s, technical improvements lowered the price and improved the quality to make microwave ovens both affordable and practical. By 1988, 10% of all new food products in the U. S. were microwaveable.

Here is the first thing you should know about "microwaves": Like visible light, radio waves and X-rays, they are waves of electromagnetic (电磁的) energy. What makes the four waves different from each other? Each has a different length (wavelength) and vibrates at a different speed (frequency). Microwaves get their name because their wavelength is much shorter than electromagnetic waves that carry TV and radio signals. The microwaves in a microwave oven have a wavelength of about four inches, and they vibrate 2.5 billion times per second—about the same natural frequency as water molecules. That's what makes them so effective at heating food. A conventional oven heats the air in the oven, which then cooks the food. But microwaves cause water molecules in the food to vibrate at high speeds, creating heat. The heated water molecules are what cooks the food. Glass, ceramics and plastics contain virtually no water molecules, which is why they don't heat up in the microwave. When the microwave oven is turned on, electricity passes through the magnetron, the tube which produces microwaves. The microwaves are then channeled down a metal tube (waveguide) and through a slow rotating metal fan (stirrer), which scatters them into the part of the oven where the food is placed. The walls of the oven are made of metal, which reflects microwaves the same way that a mirror reflects visible light. So when the microwaves hit the stirrer and are scattered into the food chamber, they bounce off the metal walls and penetrate the food from every direction. Some ovens have a rotating turntable that helps food