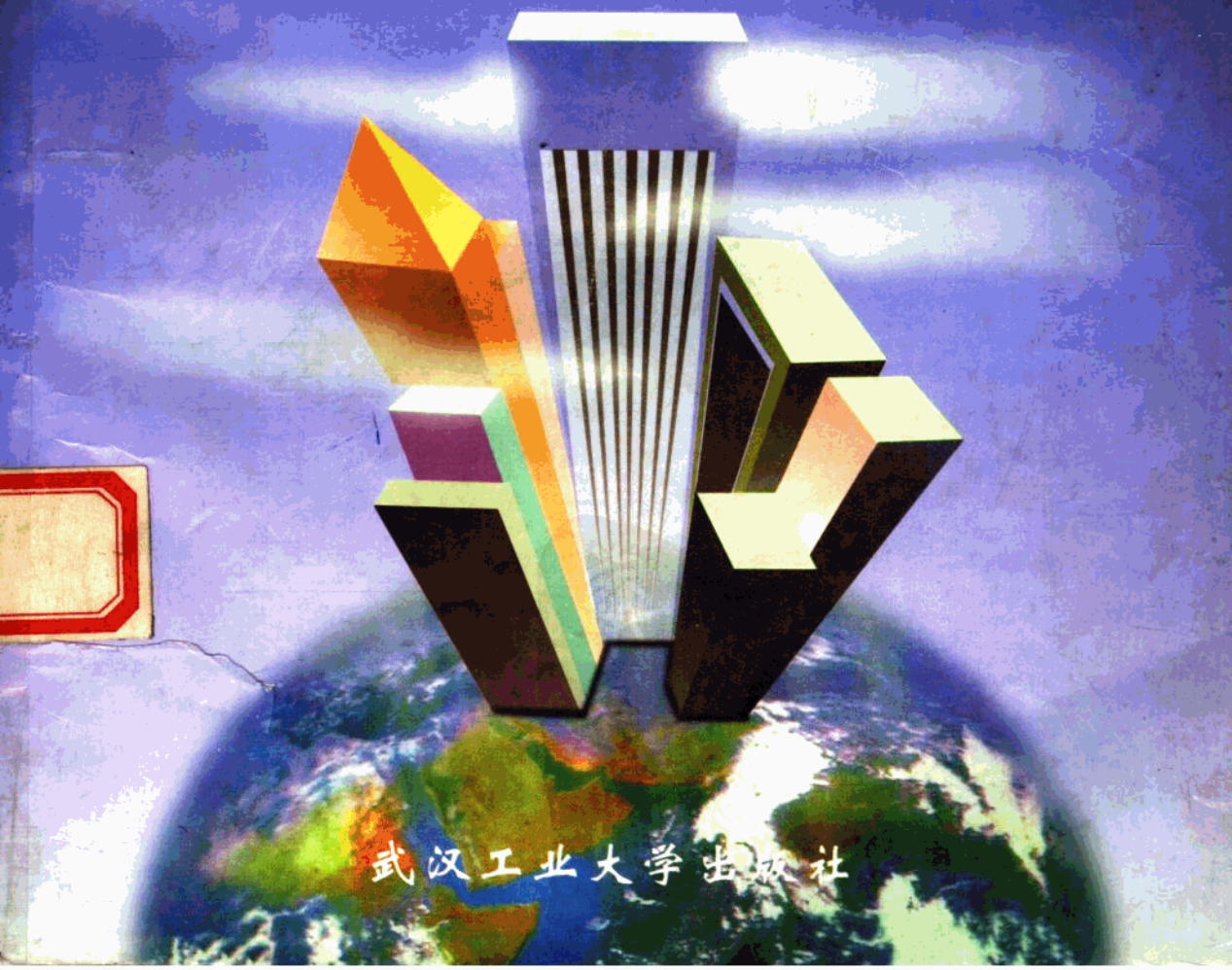
高等专科学校试用教材

城建类专业英语

阅读与翻译

吴来安 汪德华 主编



武汉工业大学出版社

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图书在版编目(CIP)数据

城建类专业英语——阅读与翻译/吴来安主编．—武汉：武汉工业大学出版社，1998.10
ISBN 7-5629-1413-3

Ⅰ．城… Ⅱ．吴… Ⅲ．英语-高等学校-教材 Ⅳ．H31

中国版本图书馆 CIP 数据核字(98)第 14444 号

武汉工业大学出版社出版发行
(武昌珞狮路 122 号 邮编 430070)
武汉工业大学出版社印刷厂印刷

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开本：787×1092 1/16 印张：15.5 字数：384 千字
1998 年 10 月第 1 版 1998 年 10 月第 1 次印刷
印数：1—5000 册 定价：19.00 元
(如有印装质量问题，请与印刷厂联系退换)

前　言

本书是根据教育部制订的《普通高等专科学校英语课程教学基本要求》而编写的，本着“实用为主、够用为度”的原则，以建筑工程所关联的内容为编写主线，用英汉对照的形式，配以翻译技巧介绍和一定数量的英译汉练习，旨在培养和提高学生英语阅读、翻译与专业有关的科技文献资料的能力。

在选材上，以城建方面内容为主，具有科学性、实用性和趣味性，译文都是经过反复推敲后而确定下来的，符合“信、达、雅”的翻译标准，使学生在对照阅读的同时，学到一些翻译技巧。

全书共有 30 个单元，每个单元分课文、阅读材料、翻译技巧和英译汉练习等四个部分。课文部分以英汉对照的形式编排，附以生词表、难点注释；阅读部分则是以篇章对照的形式为主；翻译技巧介绍了《基本要求》所规定的内容；英译汉练习分为句子和段落翻译两种形式。书后附有部分练习的参考答案。

根据《基本要求》对专科英语教学三年不断线的精神，此教材可分为三部分，作为专业英语教材，分别在 4、5、6 三个学期学习。对于有志提高英语阅读能力的在职工程技术人员来说，也不失为一本较为适用的自学教材。

本书由汪德华编写 Unit 1～6；吴来安编写 Unit 8～14；秦平新编写 Unit 15～17；李高平编写 Unit 18～19，Unit 24；郭耀民编写 Unit 25～27；聂洪恩、王增欣合作编写 Unit 20～23，Unit 29；白国芳编写 Unit 7，Unit 28，Unit 30。全书统稿工作由汪德华、吴来安完成。

哈尔滨建筑工程大学的杨匡汉教授在百忙之中审阅了初稿，并提出了不少宝贵意见，河南省高等学校外语教学研究会主任委员申立教授审阅了该书，并给予充分肯定，在此谨表示诚挚的谢意。

由于水平有限，加之时间仓促，书中难免有误，尚祈使用者和同行不吝指正。

编　者

1998.5

Contents

Unit 1

How to Read Science

Science is a difficult subject. Not only must the reader understand the meaning of words and sentences, but he must grasp principles, processes, reactions. All of the skills that he has ever learned in reading are called into use in studying science, and some additional ones are necessary, also.

Ordinarily, it is advisable to (1) preview to grasp the structure of the chapter and the patterns of writings; (2) read the entire text carefully referring to all diagrams and pictures as you go along; (3) reread if necessary, making sure to understanding formulas or equations if they are included in the text.

Speed reading is not advisable in studying most science chapters as a whole. However, it is possible to increase certain aspects of your speed in doing all three of the steps mentioned. You can use your highest speed in previewing, and you can continue to increase your previewing speed whenever working with science as well as with other types of context. Your skimming and your scanning abilities can continuously be improved in going over the material a second time in order to select the facts that you need for your pencil-work. With practice you can also increase your speed in your first reading of new science material, although, in general, forcing or timing in science is not advisable. However, if you come to a sizable portion of content that doesn't contain diagrams or equations and you wish to time yourself on reading that, try it and see if you still understand the details. In other words, use your own judgment as to when you, personally, can use speed, but don't look upon science as having text that leads itself to speed reading.

All of the common patterns of paragraph organization are also found in science: cause and effect, comparison and contrast, chronological order, and logical expansion and explanation of a main idea. The cause and effect pattern is used frequently in science, and the most frequent pattern of all in science is the logical expansion and explanation of a main idea.

In addition to these common patterns, however, there are special patterns in science. One kind of science books is written in the classification pattern, for example, in which living things or objects are classified and their likenesses and differences are pointed out. Another pattern is the technical explanation of processes, usually accompanied by diagrams, necessitating very careful reading and continuous reference to the diagrams. Still another pattern is found in experiments, which consists largely of explicit directions that must be carried out exactly and which calls for the formation of conclusions. There are also descriptive problem-solving sections, in which a problem is stated and explanations are made of how different scientists have conducted successive studies leading up to the final solution

of an important problem. A final pattern which occurs very frequently is the technical detailed-factual pattern. In science, however, all these patterns are so technical and so densely packed with factual details that they may well be looked upon as a characteristic of these kinds of books.

New Words

1. diagram	*n.*	图表	7. accompany	*vt.*	陪同
2. formula	*n.*	公式	8. necessitate	*vt.*	使成为必要
3. chronological	*a.*	按年月顺序的	9. explicit	*a.*	明确的
4. analysis	*n.*	分析	10. descriptive	*a.*	说明的
5. distinctive	*a.*	有特色的	11. factual	*a.*	事实的，真实的
6. approach	*n.*	方法	12. formation	*n.*	形式

参考译文

怎样阅读科技文章

科学是一门很难的学问。阅读科技文章时，读者不仅要理解单词和句子的意义，而且还需要掌握各种科学原理、过程和反应。不仅要运用已掌握到的阅读技巧，而且还要学习其他一些阅读技巧。

通常，可取的办法是：(1)通过预习，掌握章节的结构和著作的格局；(2)仔细阅读，同时参阅所有的图表和图片；(3)文中如果有公式或方程式，必要时要重读，以确保对这些公式或方程式的理解。

总的说来，对大多数科技文章来说，快速阅读是不可取的。不过，按上述三种步骤进行阅读的话，你的阅读速度有可能在某些方面得到提高。预读时，你可以用最快的速度来读，这样，以后无论你碰到科技或其他文体的文章时，你的阅读速度都能继续得到提高。为了从中摘录所需的论据，在读第二遍时，你的略读和浏览能力还会继续提高。通过实践，以后你所阅读的文章即使是第一次接触，速度也肯定有所提高。

在阅读科技书籍时，一般不宜采用强制的或限时的阅读方式。然而，如果你遇到一段没有图表或方程式的文章，并想给自己限定时间，不妨一试，看看是否也能充分地理解了其内容。换句话说，至于什么时候可以采用快速阅读，要由你自己来决定。但是切不要把科技文章看成是适合快速阅读的文章。

在科技文章中可发现各种常见的段落结构形式：因果、比较和对比、按年代顺序编排的、中心思想的逻辑展开和解释形式。在科技文章中，因果关系是较常用的形式，而最常用的是中心思想的逻辑展开和解释形式。

然而，除了这些常见的形式以外，科技文章中还有一些特殊的形式。一种是以分门别类的形式编写的，例如，对生物或物种进行了分类，并指出它们的相似点和不同点。另一种是对某些过程进行技术上的解释，通常配以图表，这需要仔细阅读和不断参阅图表。在有关科学实验的

文章中，还有一种形式，其中主要包括了一些必须严格执行的明确说明，并要求得出结论。还有一些描述解决某个问题过程的文章，首先提出问题，然后说明不同的科学家怎样接连不断地进行研究，最终解决了某个重要问题。最后一种常见的形式是大量的技术资料的罗列。然而，在科技书籍中，所有这些常见的形式，专业性都很强，里面含有大量的数据、资料，我们应该把这看成科技文章的一种特色。

Reading Material

Pure and Applied Science

As students of science you are probably sometimes puzzled by the terms "pure" and "applied" science. Are these two totally different activities, having little or no interconnection, as is often implied? Let us begin by examining what is done by each.

Pure science is primarily concerned with the development of theories (or, as they are frequently called, models) establishing relationships between the phenomena of the universe. When they are sufficiently validated, these theories (hypotheses, models) become the working laws or principles of science. In carrying out this work, the pure scientist usually disregards its application to practical affairs, comfirming his attention to explanation of how and why events occur. Hence in physics, the equations describing the behavior of fundamental particles are said to be examples of pure science (basic research), having no apparent connection (for the moment) with technology, i. e. , applied science.

Applied science, on the other hand, is directly concerned with the application of the working laws of pure science to the practical affairs of life, and to increasing man's control over his environment, thus leading the development of new techniques, processes and machines. Such activities as investigating the strength and uses of materials, extending the findings of pure mathematics to improve the sampling procedures used in agriculture or the social sciences, and developing the potentialities of atomic energy, are all examples of the work of the applied scientist or technologist.

It is evident that many branches of applied science are practical extensions of purely theoretical or experimental work. Thus the study of radioactivity began as a piece of pure research, but its results are now applied in a great number of different ways — in the development of fertilizers in agriculture, in the study of metal-fatigue in engineering, in methods of estimating the ages of objects, etc. Conversely, work in applied science and technology frequently acts as a direct stimulus to the development of pure science. Such an interaction occurs, for example, when the technologist, in applying a particular concept of pure science to a practical problem, reveals a gap or limitation in the theoretical model, thus pointing the way for further basic research. Often a further interaction occurs, since the pure scientist is unable to undertake this further research until another technologist provides him with more highly-developed instruments.

It seems, then, that these two branches of science are mutually dependent and interacting and that the so-called division between the pure scientist and the applied scientist is more apparent than real.

参考译文

理论科学和应用科学

作为初涉科坛的人，你可能有时会对理论科学和应用科学这两个名称感到疑惑不解。是不是就像通常所指的那样，这是两件完全不同的、很少有或没有任何相互联系的事呢？让我们先来看一看两者各有什么异同吧。

理论科学主要是研究、证实宇宙中各种现象之间的关系的理论（或通常所说的“模型”）。当这些理论（假设、模型）被充分证明之后，就成为科学上的定律或原理。在进行这方面研究时，理论科学家通常对这些理论的实际应用是不予考虑的，他们把注意力集中在解释事物发生的过程的原因上。因此，在物理学方面表示基本粒子性能的方程，被看作是理论科学（基础理论研究）方面的例子，从目前来说，它与技术即应用科学没有任何明显的联系。

另一方面，应用科学则直接研究如何将理论科学中的定律用于生活实践，以加强人类对周围世界的控制，从而导致新技术、新工序和新机器的产生。例如研究材料的强度及用途、把理论数学的研究成果用于改进农业或社会科学方面的优选过程上、以及拓展原子能的潜力等活动，这些都是应用科学家或技术人员所做的工作。

许多应用部门显然是纯理论研究或试验工作的延伸。例如放射性研究是一项纯理论研究，但它的成果目前却应用在很多方面，如在农业上用来研究肥料，在工业上用来研究金属疲劳，还用于估计物品的年龄等方面。反过来，应用科学和技术方面的工作也往往直接促进理论科学的发展。例如，技术人员在运用理论力学中的某一具体概念来解决实际问题的当中，发现了理论模型的某些不足或局限，从而为进一步理论研究指明了途径，这时二者就会相互影响。往往还会产生进一步的相互作用，因为理论科学家在技术人员没有给他提供更为先进的仪器之前是无法对这一理论进行进一步研究的。

看来这两门科学是相互依存，又相互影响的，而所谓的理论科学家和应用科学家的区分是表面的，而不是实际的。

翻译技巧

翻译概述

所谓翻译，就是把一种语言表达的意义用另一种语言表达出来。翻译要达到的标准，通常概括为“忠实、通顺”四个字。

1. 忠实：指忠实于原作的内容，把原作的内容完整而准确地表达出来。
2. 通顺：即指译文语言必须通顺易懂，符合汉语规范。

不过，忠实和通顺又不可能截然分开。或对原文理解不透而硬译，译文再通顺也未必达到翻译的目的；如果逐词地死译，译文不通顺，晦涩难懂，貌似忠实而实际上却是对原义的背叛。若要做到二者统一，就必须掌握一些基本的翻译知识和技巧。

下面请看几个误译例句：

①Surface wear can becaused by either thermal stress or fatigue failure in the sliding faces.

译文(A)表面磨损或者由热应力引起，或者由滑动面的疲劳损坏造成。(误)

译文(B)表面磨损或者由滑动面的热应力引起，或者由滑动面的疲劳损坏造成。(正)

分析：in the sliding faces 是 thermal stress 和 faitigue failure 的公共后置定语。A 句中少译一个，使意思变得模糊不清。

②What comes before realization is contemplation. If you avoid contemplation, you will never get to the realization.

译文(A)：实现计划之前必须深思熟虑。如果你不加思虑，就绝不可能使计划付诸实施。(误)

译文(B)：在将计划付诸实施之前，必须经过深思熟虑。如果不加考虑，你的计划就决不可能得以实现。(正)

③Nothing was gained by all the overcaution.

译文(A)：通过这些过于小心的措施，什么也没有获取。(误)

译文(B)：所有这些谨小慎微的措施，到头来一无所得。(正)

分析：译句(A)采取的是直译法。但由于过于拘泥原文的结构，译出来的句子不太象汉语，读起来不顺畅，所以算不上佳译。译句(B)略去了"by"(通过)不译，增加了"到头来"三个字，对原文的结构改变较多，但仍没失原义，且符合汉语的表达习惯。

④Author and reader never see quite the same things in a book.

译文(A)：作者和读者们从来不愿在书中看到雷同的主题。(误)

译文(B)：同是一本书，作者和读者往往看法不同。(正)

⑤I was very young; the prospect of working under such a boss constituted the ultimate indignity.

译文(A)：我当时很年轻；在这样一个老板手下工作的前景构成了最大的侮辱。

译文(B)：我当时很年轻；在这样一个老板手下干下去将是一种莫大的耻辱。

分析：译文(A)的毛病，是太拘泥于原文的表层结构，造成译文不通顺。这里"prospect"和"constituted"都是多义词，译时不可能都用其最常见的词义译出，必须在词义的选择上多动些脑筋，才能找出最恰当的词语来。相比之下，译文(B)就要通顺得多了。

⑥There can be no sunshine without shadow.

译文(A)：没有阴影就不可能有阳光。(不合逻辑)

译文(B)：有阳光就可能有阴影。(正)

Translation Practice

Ex. Ⅰ Translate the following sentences into Chinese:

1. Furthermore, there is no reason why one should use the strongest possible mortar to build a brick wall.
2. The front garden was a gravel square.
3. Thus, the purpose of managerial activities is planned, organized and controlled work, which in turn leads to coordinated work.
4. Bridges work so perfectly for crossing a rivers, a railroad track, a highway or a valley that we use them every day without thinking much about.
5. There are too many people, too many things and too much junk in our park.

Compare translated sentence A with B and choose the better one.

6. Try as he may, he never succeeds.

   译文(A):他尽可能尝试,但从未成功。

   译文(B):尽管他很努力,但决不会成功。

7. It is only within recent years that a branch of engineering has risen devoted to theory, design, manufacture, testing and use of optical instruments.

   译文(A):就在最近几年内,有一门研究理论、设计、生产、测试和光学仪器应用的工程学兴起。

   译文(B):就在最近几年内,有一门研究光学仪器的理论、设计、生产、测试和应用工程学兴起。

8. The underground water is very likely to have dissolved in it materials that help it dissolve certain rock materials. The water dissolved the limestone that was once here and carried most of it away.

   译文(A):地下水很可能将某些物质溶解在水中,这些物质又帮助水来溶解某些物质。地下水溶解了一度曾在这里的石灰石,将大部分的石灰石带走。

   译文(B):地下水很可能在它之前已溶解了物质,该物质帮助它溶解一定的岩石物质。地下水溶解了石灰石,它从前曾经在这里,并且将它的大部分带走了。

Ex. Ⅱ Translate the following passage:

On Reading Skills

Reading skills are very important. Experts estimate that it is possible for any normal adult English speaker to read 1,000 words a minute (and more), with special training. Yet most students read only 300 words per minute. The following principles might be helpful for foreign students who wish to increase their reading skill:

1) Always read faster than it is comfortable. The faster your normal rate of reading becomes, the better your understanding will be.

2) While reading, do not allow yourself to regress, but keep reading ahead in every sentence, even when you come across a new word. If some word, term, or phrase has clouded

your understanding, you should reread it only after you have read the entire paragraph through once.

3)Read selectively. As you read, make a conscious effort to screen the nouns, pronouns, and verbs from the other words; since these are the words that give substantial meaning to what you have read. In effect you should read nouns, pronouns, and verbs and merely see the rest of the words in the sentence.

Unit 2

Engineering Education: An Update

Civil engineering educators should "stick to their knitting", at least as far as curriculum is concerned. Or instead, civil engineering educators should further diversify and develop courses in new areas of technology. This different advice was offered at the Engineering Education Conference held earlier in 1985 in Columbus, Ohio. The theme was "Challenges to Civil Engineering Educators and Practitioners-Where Should We Be Going?" Those attending the conference worked on a great number of issues from curriculum to finances to computers.

"We can't offer a variety of courses," said James Poirot, referring to the curriculum question. Poirot, a civil engineer, said institutions of higher learning should be updated, and develop special expertise rather than diversifying "beyond our resources or where it does not make sense." He thinks civil engineers are becoming known as "great managers," and that engineering schools should improve those skills.

Students should be seeing the multi-disciplinary nature of most projects and how the civil engineer combines management skills with technical expertise in a coordinating projects. Many civil engineers have to appear at public hearings later in their careers, and will be dealing with the press, citizen groups, and political and public finance issues. They need to see the "big picture" as university students, the reasons for the projects they might work on.

Poirot noted that his firm offered some 44 courses to new employees; most were directed at improving management and communication skills.

Others saw the curriculum picture differently. George Bugliarello of the Polytechnic Institute of New York, said civil engineers should become more diverse. "We should be looking at space, the oceans, deserts," and other more exotic areas. Bugliarelo suggested, as did others at the Ohio meeting, that civil engineers had allowed other engineering disciplines to take over previous "new" fields, such as genetic and industrial engineering, and telecommunications.

There are two possible courses of action, then one is to focus on high-technology areas; the other is to focus on management. If curriculum tilts to the latter, one key skill is communications. Several practitioners speaking at the conference remarked on the lack of such skills among new civil engineering graduates. Lewis Grimm, a senior project manager, was one of them. Grimm see new civil engineers as good problem-solvers, but sadly lacking in communication ability, both written and spoken. Sharing Poirot's point of view, he said "Civil engineers have to go out to the public; they need to explain why a project is needed."

Some engineering schools have communications programs. Francis Griggs of Union College described four half-courses offered there that focus on oral and written

communication. One of the courses is graphics, with the goal of teaching students how to express an idea in a drawing. Work on developing these courses began in 1980, and they've been offered several years, with good response. However, classes need to be limited to about 20-25 students to make speaking courses effective, thinks Griggs.

Speaking skills aren't the only problem with new employees. Practitioner Jim Naismith noted a deficiency of quite another sort. Most new civil engineers, he said, "simply don't know how to work. Few have grown up on the farm or helped out at the family store."

The conference question, "Where are we going?" was never certainly answered. But several speakers see such high-technology developments as robots and artificial intelligence influencing the profession in the future. The discussion of new materials came up constantly. The reason for this was that civil engineers will be developing new materials and learning more about their properties in the future. These studies will change the civil curriculum in years to come.

New Words

1. update *n. vt.* 现代化
2. knit *vt.* 编织
   knitting *n.* 编织(法),编织物
3. curriculum *n.* 课程
4. diversify *vt.* 使多样化
5. expertise *n.* 专门知识,专长
6. disciplinary *a.* 学科的
7. graphics *n.* (*pl.*) 制图法
8. deficiency *n.* 缺乏,缺少
9. persistent *a.* 不断的,持续的
10. polytechnic *a.* 多种工艺的,多种科技的
11. diverse *a.* 多种多样的,形形色色的
12. desert *n.* 沙漠,不毛之地
13. exotic *a.* 外来的,吸引人的
14. discipline *n.* 学科
15. genetic *a.* 遗传不学的
16. tilt *vi.* 倾斜,偏于
17. graduate *n.* 大学
18. property *n.* 特性
19. Polytechnic Institute of New York
    纽约工学院

Phrases and Expressions

1. stick to 忠于,坚持 stick to one's knitting 只管自己分内的事
2. work on 从事,努力做(某事)
3. refer to 谈及,提及
4. become/be known as 被认为是,被称为
5. deal with 处理,对付
6. remark on 评论,谈论
7. lack of 缺乏,不足
8. come up 发生,被提出来