

全国高等专科学校城镇建设试点专业系列教材

专业英语

河北工程技术高等专科学校 赵端阳 主编

中国水利水电出版社

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河北工程技术高等专科学校

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内 容 提 要

本教材共有 15 课。每课包括课文、词汇、翻译知识、练习和阅读材料。课文和阅读材料的内容涉及道路、桥梁、给排水、建材、城市规划、建电、电气和建筑等方面的内容;词汇着重介绍一些专业词汇;翻译知识介绍了科技英语翻译中一些常用的技巧;所设的练习,在于测试学生对课文的理解、词汇的运用和翻译的实践。

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序

为了进一步推进高等工程专科学校的教学改革和教材建设,探索高等工程技术应用性人才培养的专科教学模式,国家教育委员会已在全国普通高等工程专科教育各类院校中遴选了100余个工程专科专业,进行“小范围、大幅度”的专业教学改革试点。我校的城镇建设专业(市政工程专业方向)是国家教委批准确认的第三批高工专教学改革试点专业。为了办出专科特色,加大教学体系与教学内容的改革,构筑突出专业技术应用能力的培养的知识能力结构,我们组织本校一些具有较丰富教学经验和较高专业水平的教师,并邀请有关兄弟院校教师及工程技术单位的工程师参加,编写了这套系列教材。内容包括《建筑材料》、《工程力学》、《工程测量》、《水力学》、《土力学与地基基础》、《钢筋混凝土与砌体结构》、《电工与电气设备》、《水泵与水泵站》、《建设监理概论》、《道路工程》、《桥梁工程》、《给水工程》、《排水工程》、《水处理工程》、《城市规划》、《市政工程施工组织管理与概预算》、《环境保护概论》、《工程经济学》、《系统工程》和《专业英语》,以供本校及有关院校同类或相近的专科专业教学试用。

本系列教材在编写过程中,力求妥善处理学科知识的系统性、完整性和专业实践技能培养的关系,努力贯彻体现专科教材理论知识“必需、够用”为度的原则,着力突出专业技术应用能力的培养,力图实现城镇建设专业(市政工程专业方向)教学改革试点方案所要求的课程体系与教学内容的改革,使其具有专科教材针对性和实用性强的特色。努力做到基本概念与基本理论的阐述清晰、突出重点和讲究实用,基本技能与基本方法的训练得体、突出应用和讲究实际,并能充分反映近年来新技术、新工艺、新成就。

本系列教材除作为高等工程专科学校城镇建设专业教材外,也可供其他相近专业和有关专业工程技术人员参考。但愿这一套系列教材能为城镇建设专业深化改革和加强教材建设提供有益的尝试,也希冀能对其他相近专业的改革的探索有所裨益。

限于编者的水平,这套教材难免有不妥之处,恳请广大读者批评指正。

河北工程技术高等专科学校
教材建设委员会

1997年10月

前 言

本教材是根据普通高等工程专科城镇建设专业（市政工程专业方向）教学改革试点方案教材建设规划和学校教材建设委员会审定通过的《专业英语》教学大纲与编写大纲要求而编写的。

根据专科学校的培养目标和教学特点，本着针对性、实用性强，突出专业技术应用能力培养的原则，《专业英语》内容涉及道路、桥梁、给排水、建材、城市规划、建电、电气和建筑等方面，介绍了一些专业词汇和英语翻译常用的技巧，并结合课文、词汇和翻译知识，设计了一些练习。

本教材由赵端阳任主编，路文梅任副主编，陈卫祖教授任主审，张桂芳参加了编写。

本教材在编写过程中得到了河北工程技术高等专科学校水利系同志们的支持，编者在此表示感谢。另外，本教材还参考了有关的教材和文献，编者在此一并致谢。

由于时间仓促和水平有限，书中的缺点和不妥之处敬请各校师生及其他读者给予指正。

编 者

1997年9月

Contents

序

前言

Lesson 1	1
Municipal Engineering	1
翻译知识 I 翻译概述	3
Exercises	4
Reading Material:	
Becoming a Civil Engineer	5
Lesson 2	8
Surveying and Mapping	8
翻译知识 II 词义的选择	10
Exercises	11
Reading Material:	
Planning	13
Lesson 3	16
Soil Mechanics	16
翻译知识 III 词义的引申	18
Exercises	19
Reading Material:	
Soil Stabilization	20
Lesson 4	23
Foundations	23
翻译知识 IV 词的增译	24
Exercises	26
Reading Material:	
Shallow Foundations	27
Lesson 5	30
Road Building	30
翻译知识 V 省译法	32
Exercises	34
Reading Material:	
Building Modern Roads	35

Lesson 6	37
Choice of Bridge Type	37
翻译知识 VI 词类的转换	39
Exercises	41
Reading Material:	
The Three Types of Bridges	42
Lesson 7	45
Modern Building Materials	45
翻译知识 VII 成分的转换	47
Exercises	50
Reading Material:	
Construction Materials	51
Lesson 8	54
Drainage, Sewerage and Sewage	54
翻译知识 VIII 数量或倍数增加的译法	56
Exercises	58
Reading Material:	
Combating Water Pollution	59
Lesson 9	62
Water Supply	62
翻译知识 IX 数量或倍数减少的译法	63
Exercises	64
Reading Material:	
Type of Water Treatment	65
Lesson 10	68
Structural Systems	68
翻译知识 X 被动语态的翻译	70
Exercises	72
Reading Material:	
Kinds of Architecture in Modern Practice	73
Lesson 11	76
Digital Circuits	76
翻译知识 XI 否定形式的翻译	78
Exercises	80
Reading Material:	
Electronic Computers and Their Uses in Architecture	81

Lesson 12	84
Transformers	84
翻译知识 XII 定语从句的翻译	86
Exercises	87
Reading Material:	
Electronic Power Supply	89
Lesson 13	92
Electric Power Substations	92
翻译知识 XIII 状语从句的翻译 (I)	94
Exercises	95
Reading Material:	
Electric Distribution Systems	98
Lesson 14	100
Electric Protective Devices	100
翻译知识 XIV 状语从句的翻译 (II)	102
Exercises	103
Reading Material:	
Electric Protection	104
Lesson 15	106
Electrical Engineers	106
翻译知识 XV 长句的翻译	107
Exercises	109
Reading Material:	
Electric Power and Wiring	111
Appendix	113
Dams	113
Embankment Dams	115
Literature	117

Lesson 1

Municipal Engineering

In an industrially undeveloped country, the municipal engineer is sometimes concerned only with simple street maintenance, cleaning and lighting. But in Britain in a town of 100000 to 500000 people he might also be in charge of water supply, sewerage and sewage disposal, dwelling and other construction, roadbuilding, traffic engineering, public suburban transport, and (before the gas and electricity nationalization of 1948) also the town gas and electricity supplies. An exceptional town like Hull has a municipal telephone service. Carlisle has municipal hotels where municipal beer is drunk.

In Britain since about 1950 the supplies of gas and electricity have been provided by nationalized industries which have taken over all the formerly municipal gas or electricity services. In the largest British cities, water supply and public transport to the suburbs have also been taken over by independent corporations. These are not nationalized bodies but are set up for each city by law as the need arises.

Thus the ideal job for an ambitious energetic young municipal engineer is to become the city engineer of a growing town of some 300000 people where he will be concerned also with the zoning and layouts of factories and municipal housing, and many of the services to them, including the new roads, their gardens or trees, lighting, drainage, water supply, and bus or railway services. The highest social responsibility for this work is in the zoning of the land into areas for heavy industry, light industry, shops and offices, housing, parks and games. This is the work of a town planner, but a planner who originally may have been a civil engineer will practically cease to be one, since planning will have become more important to him.

But before he can become city engineer in a town of over 100000 people, the ambitious young municipal engineer will at first find work in any municipal engineer's department. He will do whatever work is in progress, make drawings of a street being straightened or an overpass being widened, and will visit it for a few hours when his work allows. In this way, after a few years he will have enough experience to qualify for membership of one of the civil engineering institutions which deal with Municipal Engineering. In Britain the main ones are Institutions of Municipal Engineers, of Highway Engineers, of Water Engineers and the Institute of Sewage Purification. But to become a city engineer it is usually essential to be an associate member of the Institution of Civil Engineers, so the ambitious man should join the ICE as well as one or more than one municipal institution.

To join these institutions he will have to pass their examinations by studying in his spare

time. Then after a few years of study and office work he may be appointed to take charge of some construction work as resident engineer. This will give him valuable experience that he will report in his applications to the institutions and discuss with the examining engineers.

For example, if he is working with the sewerage section of the Engineer's department he may have designed and drawn the new layouts for the sewerage of a large area of the town which is being demolished and rebuilt with new and wider streets. He will have drawn the temporary diversion sewers needed to take the sewage flow during the reconstruction, as well as the new permanent sewers and their branches, junctions, manholes and any other awkward details. The total of all these drawings will be an appreciable amount of useful work to show to the examiners. If he also works on the site throughout the construction period he will be able to see the mistakes he has made in his drawings, correct those which can be corrected, and remember those which cannot.

In any branch of civil engineering such experience is extremely valuable because it gives an understanding of all sides of the work that is obtained by no one else, and by very few civil engineers.

New Words and Expressions

1. municipal	a.	市的, 市政的
2. sewerage	n.	污水, 污水(排水, 下水)工程
3. sewage	n.	污水
4. roadbuilding	n.	道路建造, 筑路
5. nationalization	n.	收归国有, 国有化
nationalize	v.	把.....收归国有, 使国有化
6. exceptional	a.	例外的, 特殊的
7. layout	n.	布局, 安排
8. drainage	n.	排(放)水, 排水系统, 污水
9. precedence	n.	(次序, 时间, 重要性等)领先, 优先
10. institute	n.	学会, 研究所, 学院
11. institution	n.	学会, 协会, 学校
12. overpass	n.	立体交叉, 立交桥
	v.	越(通)过
13. purification	n.	净化, 纯化
14. diversion	n.	改道
15. demolish	v.	拆毁(建筑物)
16. manhole	n.	检查(检修)孔, 人孔, 探孔
17. awkward	a.	难应付的, 难处理的

18. appreciable a.	可估计的, (大得)可察觉的
19. make drawings of	制图
20. Institutions of Municipal Engineers	市政工程师协会
21. resident engineer	土地工程师, 工段工程师

翻译知识 I 翻译概述

翻译是一种语言表达法,是译者根据原作者的意思,用本国语言将其恰如其分地表达出来。英汉两种语言的不同,同一事物有不同的语言表达形式,所以就要求译者不但要确切地理解和掌握原著(英文原文)的内容,而且要很好地运用本国语言(汉语译文),把原文通顺而流畅地表达出来。因此翻译必须符合两条标准——准确和通顺。

一、准确

准确是指翻译时要读通英文原文的语言,准确而完整地理解其全部内容(包括词汇、语法和上下文关系等),不要任意曲解和增删,译文必须准确表达出原文的意思。

1. The underground water is very likely to have dissolved in it materials that help it dissolve certain rock materials.

A:地下水很可能含有已溶解于它,物质有助于它溶解某种矿物质。(误)

B:地下水很可能已含有溶解于水的物质,这些物质有助于水溶解某些矿物质。

2. Thus, at twenty-one, Benjamin Franklin set out to broaden the frontiers of knowledge in the new land that was America.

A:这样,在21岁时,富兰克林出发到美洲新大陆去深造。(误)

B:这样,在21岁时,富兰克林开始在美洲新大陆扩展知识领域。

二、通顺

通顺是指在忠实原文的前提下,汉语译文必须规范化,词法与句法应符合语法的表达方式,力求通顺易懂,而不要逐词直译。

1. A parking lot can be build at lower cost.

A:一个停车场能以较低的费用被修建起来。

B:用较低的费用可修建起一个停车场。

2. The channel must have a flat bottom.

A:沟渠必须有平整的底。

B:沟渠必须底部平整。

Exercises

I. Choose the best answer according to the text.

1. The main idea of the paragraph is that _____.
 - A. in an industrially developed town of over 100000 people, the municipal engineer's job may include a variety of responsibilities
 - B. nationalization of gas and electricity increases an engineer's responsibilities
 - C. municipal services are found in every British city
 - D. municipal engineering is a popular job in Britain
2. In Britain since about 1950, the supply of the gas and electricity is under the charge of _____.
 - A. gas companies
 - B. electricity department
 - C. municipal authority
 - D. nationalized industry
3. To become a qualified municipal engineer in Britain, one should _____.
 - A. join the IEC
 - B. gain experience and join the IEC
 - C. find work in any municipal engineer's department
 - D. report on at least one valuable work experience
4. A city engineer is responsible for all of the jobs below, except _____.
 - A. designing a new road
 - B. designing the drainage system
 - C. electricity supply
 - D. water supply
5. The applicant for a civil engineering institute must _____.
 - A. submit a report of a valuable work experience
 - B. have experience in demolition and reconstruction
 - C. make correction of the mistakes on his report
 - D. join the ICE
6. Work experience in civil engineering _____.
 - A. can be obtained through study and experience
 - B. cannot be gained by any means other than work
 - C. is valuable because all civil engineers share the same experience
 - D. is only available to fully trained engineers

II. Fill in the blanks with the words and phrases given below, changing the form where necessary.

be concerned with, municipal, zone, take over, take precedence, in progress, demolish, overpass, take charge of, arise

1. In our city, many old houses _____ in order to build the new apartments.
2. Many complicated problems _____ in the process of the work.
3. An experienced old worker _____ the new project.
4. The construction work is _____.
5. The _____ designed by an young man was said the best one in this city.
6. Who will _____ my job when I am on leave?
7. The _____ authority has issued new policies to attract the foreign investment.
8. This book _____ the early life of the author in the countryside.
9. The industrial park in this city has been _____ into several areas to build some new factories, shops and apartment buildings.
10. They have _____ to draw more foreign funds.

III. Translate the following sentences into Chinese.

1. Best surface finish is provided by machining methods, especially by grinding.
2. All the structural elements here are not beams.
3. All metals do not conduct electricity equally well.
4. The machine works well.
5. He measured his length on the floor as soon as he entered the room.
6. The theater includes a stage or performing area and an auditorium or viewing place for the audience.
7. In fact, most reinforced concrete beams are cracked when they are carrying the load for which they were designed.
8. The moment the circuit is completed, a current will start flowing toward the oil.

Reading Material

Becoming a Civil Engineer

In the English-speaking countries, unlike Continental Europe, a professional engineer who wishes to be fully qualified, must join at least one engineering institution. All these institutions require candidates for admission to prove that they have some years of useful practical experience as an engineer. Each institution is a learned society not unlike a club except that the candidate's strict examination for membership is based mainly on his engineering knowledge, and all institutions publish engineering literature in their own subjects, usually in their monthly journal. Each has several grades of membership, from the highest, full Member, down through the usual grade, Associate-Member, to the grades of Student or Graduate for younger people up to about twenty-five or thirty years old.

In Britain it has always been possible for a boy on leaving school at fifteen to start work in

the drawing office of a civil engineer, whether contractor or consultant, and eventually after many years of study in his spare time, to become a qualified civil engineer. This is becoming less easy and it may soon become impossible. The recommended method of study for the ICE (Institution of Civil Engineers) examinations is now by full-time or sandwich study for a degree or diploma. Sandwich study is full-time work at a college interrupted by periods of full-time work with an employer.

Modern engineering requires more and more science, and to make use of its scientific theories, a civil engineer should study full-time for some years after leaving school. Therefore a university degree in civil engineering may soon become essential for membership of the ICE or any of the other civil engineering institutions (Institution of Highway Engineers, Municipal Engineers, Public Health Engineers, Structural Engineers, Water Engineers, or the Permanent Way Institution, etc.).

To qualify for Associate-Membership of the ICE, a person must be at least twenty-six years old and working as a civil engineer. He must also pass certain examinations, satisfy the ICE that he has had several years of useful engineering experience under the supervision of qualified civil engineers, both in the drawing office and on the site, and finally he must pass a mainly oral examination called the professional interview, before a group of qualified civil engineers. This is generally the only part of the examination from which candidates are never excluded, whatever their civil engineering degree.

In general education, the minimum requirements, before a man may be accepted even as a candidate for the ICE examinations are as follows, five passes in the General Certificate of Education, (a) at advanced level in physics, (b) at advanced level in either pure or applied mathematics, (c) at ordinary level in English, and (d) at ordinary level in two other subjects. Detailed information is issued free by the ICE on all matters including the parts of the examination a candidate need not take as well as on the number of years and the types of civil engineering experience which are accepted.

In Britain the thirteen main engineering institutions were formally joined for examination purposes in 1965 in the Council of Engineering Institutions in London. A similar arrangement was made a few years earlier in the United Engineering Center, 345 East 47th Street, New York, for the United States institutions. In Britain all professions now take the Part I examination set by the Council of Engineering Institutions. This includes the five subjects of engineering drawing, mathematics, applied mechanics, principles of electricity, heat, light, and sound.

Phrases and Expressions

- | | |
|------------------------------|------|
| 1. engineering literature | 工程文献 |
| 2. sandwich study | 半工半读 |
| 3. Permanent Way Institution | 铁路协会 |

4. professional interview

专业面试

5. Council of Engineering Institutions

工程协会理事会

Exercises

Are the statements true or false according to the text?

- () 1. Those who want to be a member of an engineering institution, must have been an engineer for some years.
- () 2. An institution is either a learned society or a club as well.
- () 3. The membership is divided into several grades.
- () 4. The sandwich study is half-day study half-day work.
- () 5. The professional interview is not very important.
- () 6. Practical experience is the most important in order to be a qualified member of ICE.
- () 7. A candidate for the ICE must be good at English.
- () 8. The council of Engineering Institutions in London is established earlier than the United States Institutions in American.

Lesson 2

Surveying and Mapping

Without mapping, there could be no civil engineering, and every civil engineer therefore must know the elements of mapping and how to obtain the measurements needed to draw maps which in English is called surveying.

An area of land without hills or buildings can be accurately surveyed with nothing but a good steel tape, but this is hard work when the land has many more sides than four, or when its sides are longer than 1000m. A small area with many hindrances to the lines of sight across it cannot be properly surveyed with a tape, and some instrument that measures angles will then be needed. The instrument for surveying angles in surveying land is called a theodolite, and it is accurate to less than one minute of curve, depending on its size. An instrument with a measuring circle of 10 cm diameter can be read by vernier to 10 seconds of curve. This smallest division on the scale is called the least count, but with a vernier, the readings can be much more accurate. A simpler and quicker but much less accurate instrument is the magnetic compass, sometimes called a dial or Bruton. The accuracy of its readings is rarely better than one degree of curve.

These instruments provide the information needed for drawing the plan (map). The theodolite can also provide the information needed for finding the differences in level which are also most important on a civil engineering site, but it is much simpler and more accurate to use a leveling instrument. The usual type, known as the dumpy level, is mounted, like the theodolite or the compass, on a three-legged support, called a tripod, to bring the line of sight (collimation line) up to a convenient height above ground, so that the surveyor can sight the points without tiring. Many tripods are telescopic, particularly those used in mines, and their legs can be widely varied in length.

In all land surveying, the survey is built up (triangulated) from a series of connected triangles. So far as possible, the whole area should be covered by well-conditioned triangles, i. e. those with angles ideally of 60° but not less than about 30° nor more than 100° . Because the area must be covered by triangles, an area surveyed by tape alone must be free of hindrances of sight, otherwise not all the sides of the triangles will be measurable. With a theodolite or compass it is possible to obtain the lengths of the unmeasured sides from the known angles of the triangle and the measured side.

Three more pieces of surveying equipment should be mentioned, the plumb bob, a weight on a string hung from the underside of a theodolite to make sure that it is centralized over the

station, the plane table, and the tacheometer.

The plane table is a drawing board on a tripod, which can be set at various points in the field, the mapping being done while the lengths and angles are being measured. The tacheometer is often used with the plane table. It is an ordinary theodolite with two horizontal hair lines in the telescope which are at such a distance apart that they subtend at 100m a length of 1m. By noting the readings of the top and bottom hairs on a staff set at a point whose distance is required, it is possible to work out the distance of the staff from the instrument. The instrument man calls out the readings to his helper, who works out the distance between them, and multiplies it by 100, and thus obtains the distance of the point. He then marks it on the plane table or tells the man at the plane table what the distance is. The plane table man aligns a special ruler on the board with the point and measures off the correct distance, thus marking the point on the board. A difficulty arises when the point and instrument are not at the same level. If the angle to the horizontal length is B and the estimated slope length is L , the true horizontal length will be $L \cos^2 B$. This means that the angle to the horizontal must be measured at each reading. This can slow down the ordinarily very fast method of mapping, but instruments do exist which are self-adjusting and very quickly read. It can be a real pleasure to map with these instruments.

New Words and Expressions

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|---------------------------|--------------------|
| 1. theodolite <i>n.</i> | 经纬仪 |
| 2. vernier <i>n.</i> | 游标, 游尺 |
| 3. reading <i>n.</i> | (示值)读数, (仪表)指示数 |
| 4. dial <i>n.</i> | 刻度盘, 罗盘面板 |
| 5. leveling <i>n.</i> | 测平, 校正, 水准测量 |
| a leveling instrument | 水准仪 |
| 6. dumpy <i>a.</i> | 短粗的, 矮胖的 |
| dumpy level | 定镜水准仪 |
| 7. tripod <i>n.</i> | 三脚架 |
| 8. collimation <i>n.</i> | 准直, 瞄准, 平行校正 |
| 9. telescope <i>a.</i> | 望远镜的, 可伸缩的 |
| 10. triangulate <i>v.</i> | 成三角形, 对.....进行三角测量 |
| 11. ideally <i>ad.</i> | 理想地, 完美地, 理论上地 |
| 12. plumb <i>n.</i> | 铅锤, 垂线 |
| <i>a.</i> | 垂直的 |
| 13. bob <i>n.</i> | 悬锤, 垂球 |
| plumb bob | 铅锤, 吊锤, 锤球 |
| 14. undershot <i>n.</i> | 下面, 内面, 下侧 |