高职高专“十二五”规划教材

Specialized English on Electron & Information Engineering

电子信息类专业英语

马佐贤　戴金茂　主编

化学工业出版社

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·北京·

本书介绍了电子信息类专业英语，包括14个单元，具体内容包括电子技术发展史，电荷、电流、电压，电阻、电容及感应器，测试测量仪器，传感器及应用，集成电路，电子技术应用，计算机基础，操作系统，编程语言，移动通信系统，多媒体，Java技术等相关文章，图文并茂，力求帮助读者进一步掌握电子信息类专业术语和英语词汇，为读者提高阅读专业英语的能力、掌握英语翻译方法和技巧打下基础。

本书可作为高职高专院校电子信息专业的英语教材，也可以作为相关技术人员的自学材料。

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前言

FOREWORD

随着国内外电子信息产业的飞速发展，熟练阅读和翻译英文文献已成为了解电子信息类产业最新动态、进行相关技术交流必不可少的基本技能。本书根据电子信息类专业的特点，编选了电子技术发展史，电荷、电流、电压，电阻、电容及感应器，测试测量仪器，传感器及应用，集成电路，电子技术应用，计算机基础，操作系统，编程语言，移动通信系统，多媒体，Java 技术等相关文章，图文并茂，帮助读者进一步掌握电子信息类专业术语和英语词汇，为提高阅读专业英语的能力、掌握英语翻译方法和技巧打下基础。在选材上多选自原版的专业资料或专业英语教科书，语句原汁原味，力求不仅表达简练、顺畅、纯正，而且有一定的趣味性，易于阅读和理解。同时注意点面结合，注重各专业、学科间知识的相关性，注意到高等职业教育的实用特点。每个单元包括专业英语会话、阅读、练习、补充阅读、翻译技巧等模块，方便教师讲练结合，根据需要对教材内容进行取舍，以便更好地进行教学活动。

本书可作为高职高专院校电子信息工程、应用电子、微电子等专业的英语教材，也可以作为相关技术人员的自学材料。

本书由马佐贤和戴金茂（江苏联合职业技术学院）任主编，陈立平任副主编。第 1 单元由王瑞编写，第 2、13、14 单元由马佐贤编写，第 3～5、7～9、11 单元由戴金茂编写，第 6、10 单元由戎水珍、刘佳共同编写，第 12 单元由马丽萍、程琦共同编写，在本书的编写过程中，得到了江苏联合职业技术学院无锡机电分院领导及外语、电子、信息教研室各位老师的大力支持，吴展遥审阅了全书并提出了许多宝贵的意见，在此一并表示衷心的感谢。

由于编者水平有限，时间仓促，书中难免有不当之处，敬请广大读者和同行批评指正。

编 者

2011 年 2 月

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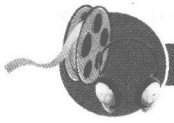
Unit 1

The Development of Electronics



Dialogue

Tom: Hi, Smith, haven't seen you for a long time, how are you?

Smith: Just fine. What about you?

Tom: I'm fine, too. This term I'll learn the specialized English called Electron and Information Engineering.

Smith: It sounds great. It must be useful for your improvement.

Tom: Yes, I also think so. I remember your major in college is Electron and Information Engineering. Can you give me some ideas about it?

Smith: My pleasure. Needless to say, the 1900s is remembered as the electronic century. Great changes have taken place in our life since then.

Tom: Yes, we can't image what our life will be like without the development of electronics.

Smith: But the real electronics in fact was started after the discovery of the transistor effect.

Tom: Oh, I see.

Smith: The specialized English may be a little difficult. So you should have a plan before learning it.

Tom: Ok, I believe I can do it better with the teacher's help.

Smith: I agree. Member practice makes perfect.

Tom: I will, thank you for your time.

Smith: Not at all.

The Development of Electronics

There can be no doubt that the 1900s is remembered as the electronic century. Of course there have been other great advances in medicine, in transport, in science, in commerce, and many other fields, but where would they have been without the instruments and devices that electronics has provided? How would you see a 3D virtual reality image of your beating heart with no electronics? How would you get money out of the bank on a Sunday night without electronics? Would you go to a pop concert that had no amplifiers, large screens or lighting effects? Don't say you would rather watch TV-there would not be any.

Electronics in the early 20th century started thriving at a greater speed unlike the pre-

20th century developments. The radio invented by the Italian genius Marconi and the work of Henry Hertz opened the road to further discoveries and inventions. In the first decade the new thing that was welcomed to the technical world was the vacuum tube. The vacuum tubes at that time worked as a miraculous component for the radio devices.

The real electronics what it is called today was actually started after the discovery of the transistor effect. Transistor opened the road for the electronics and more importantly it opened the road for the computing world. Computers of various types started hitting the market and the research works got a boost.

Some other problems were also there like the assembling of the electronic components on a single mother board. Jack Kilby in Texas Instruments found a very nice solution. He suggested throwing away all the wires and tried to connect the resistors, capacitors and transistors on the same piece of wafer internally. Surprisingly his ideas worked and gave birth to the integrated circuit industries.

New words and Expressions

electronics	[ilek'trɔniks]	*n.* 电子学
instrument	['instrumənt]	*n.* 工具，手段，器械，器具
amplifier	['æmplifaiə]	*n.* [电工] 扩音器，放大器
decade	['dekeid]	*n.* 十年，十
wafer	['weifə]	*n.* [无] 晶片，圆片，干胶片
		vt. 用干胶片封
internally	[in'tənəli]	*adv.* 在内，在中心
vacuum	['vækjuəm]	*n.* 真空，空间
		a. 真空的
miraculous	[mi'rækjuləs]	*a.* 奇迹的，不可思议的
component	[kəm'pəunənt]	*n.* 成分
		a. 组成的，构成的
transistor	[træn'zistə]	*n.* [电子] 晶体管
integrated	['intigreitid]	*a.* 综合的，完整的

3D virtual reality image 三维虚拟图像
vacuum tube 真空管
radio device 无线电设备
transistor effect 晶体管效应
give birth to 诞生
integrated circuit 集成电路

Exercises

Ⅰ. Mark the following statements with T (true) or F (false) according to the text.

1. You can see a 3D virtual reality image of your beating heart with electronics. ( )
2. Electronics in the late 20th century started thriving at a greater speed unlike the pre-20th century developments. ( )
3. The radio was invented by the Italian genius Henry Hertz and the work of Marconi opened the road to further discoveries and inventions. ( )
4. The real electronics what it is called today was actually started after the discovery of the vacuum tube. ( )
5. Jack Kilby suggested throwing away all the wires and tried to connect the resistors, capacitors and transistors on the same piece of wafer internally, and gave birth to the integrated circuit industries. ( )

Ⅱ. Work with your partner to answer the following questions.

1. When is the electronic century?

_____

2. By whom was the radio invented?

_____

3. When was the real electronics what it is called today actually started?

_____

Ⅲ. Review the text and translate the following phrases into Chinese or English.

1. 真空管 _____
2. 集成电路 _____
3. 三维虚拟图像 _____
4. electronic component _____
5. there can be no doubt _____
6. lighting effects _____

Ⅳ. Translate the following sentences into Chinese.

1. There can be no doubt that the 1900s is remembered as the electronic century.

_____

_____

2. Electronics in the early 20th century started thriving at a greater speed unlike the pre-20th century developments.

_____

_____

3. The real electronics what it is called today was actually started after the discovery of the transistor effect.

_____

_____

4. Jack Kilby suggested throwing away all the wires and tried to connect the resistors, capacitors and transistors on the same piece of wafer internally. Surprisingly his ideas worked and gave birth to the integrated circuit industries.

_____

_____

Supplementary Reading

Brief Introduction to Some Electronic Systems

Some electronic systems are familiar in our life. For example, we encounter radios, televisions, telephones, and computers on a daily basis. Other electronic systems are present in daily life, but are less obvious. Such as electronic systems control fuel mixture and ignition timing to maximize performance and minimize undesirable emissions from automobile engines. Electronics in weather satellites (Fig 1.1) provide us with a continuous detailed picture of our planet.

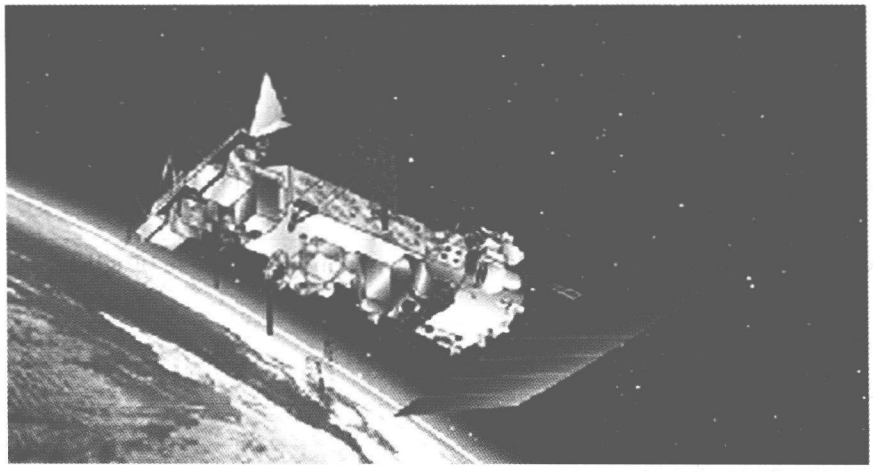


Fig 1.1 weather satellite

Still other systems are even less familiar. For example, a system of satellites known as the Global Positioning System (GPS) has been developed to provide three-dimensional information for ships, aircrafts and cars anywhere on earth. This is possible because signals emitted by several satellites can be received by the vehicle, by comparing the time of arrival of the signals and by using certain information contained in the received signals concerning the orbits of the satellites, the position of the vehicle can be determined.

Other electronic systems include the air-traffic control system, various radars, compact-disc (CD) recording equipment and players, manufacturing control systems, and navigation systems.

New words and Expressions

encounter	[in'kauntə]	*v.* 遭遇，遇到，相遇 *n.* 遭遇，遭遇战
ignition	[ig'niʃən]	*n.* 点火，点燃
maximize	['mæksmaiz]	*vt.* 取…最大值，最佳化
minimize	['minimaiz]	*vt.* 将…减到最少 *v.* 最小化
dimensional	[di'menʃənəl]	*a.* 空间的
vehicle	['vi:ikl]	*n.* 交通工具，车辆，媒介物，传达手段
orbit	['ɔ:bit]	*n.* 轨道
manufacturing	[ˌmænju'fæktʃəriŋ]	*n.* 制造业 *a.* 制造业的
navigation	[ˌnævi'geiʃən]	*n.* 航海，航空，导航，领航，航行

Exercises

Ⅰ. Mark the following statements with T (true) or F (false) according to the text.

1. Radios, televisions, telephones, and computers on a daily basis are familiar in our life. ( )
2. Electronics in weather satellites sometimes can't provide a continuous detailed picture of our planet for us. ( )
3. GPS provides three-dimensional information for ships, aircrafts and cars anywhere on earth. ( )

Ⅱ. Translate the following paragraph into Chinese.

Some electronic systems are familiar in our life. For example, we encounter radios, televisions, telephones, and computers on a daily basis. Other electronic systems are present in daily life, but are less obvious. Such as electronic systems control fuel mixture and ignition timing to maximize performance and minimize undesirable emissions from automobile engines.

Translating Skill 1 科技英语翻译概述

Ⅰ. 科技英语概述

科技英语（English for Science and Technology，EST）诞生于20世纪50年代，20世纪70年代以来。科技英语在国际上引起了广泛的注意和研究，目前已经发展成一种重要的英语语体，在词汇、语法、修辞等方面具有自己的特色。从事科技英语翻译时较少运用修

辞手段，而是注重事实与逻辑，要求技术概念明确清楚，逻辑关系清晰突出，内容准确无误，资料准确精密，文字见解明了，符合技术术语表达习惯，体现科技英语的科学、准确、严谨的特征。

提高翻译水平的有效途径是进行大量的翻译实践，应该在实践中学习翻译理论和常用技巧，遵循“实践-认识-再实践-再认识”的规律，不断练习，不断总结，才能有效地提高翻译的能力。

Ⅱ. 翻译的标准

翻译的标准是衡量译文质量的尺度，又是指导翻译实践的准则。可以把翻译标准概括为“忠实、通顺”四个字。所谓忠实，指译文必须忠实、正确地传达原文的内容，对原文的意思既不歪曲，也不能任意增减。所谓“通顺”，指的是译文的语言必须通顺易懂，符合汉语规范。要按照汉语的语法和习惯来选词造句，没有文理不通、结构混乱或逻辑不清的现象。

试比较下列各句的不同译文。

In certain cases friction is an absolute necessity.

(1) 在一定场合下，摩擦是一种绝对的必需品。

(2) 在某些情况下，摩擦是绝对必需品。

The tendency of evolving organisms to follow a trend is widespread.

(1) 进化着的有机体遵循着一种趋向，这种趋向是普遍的。

(2) 不断进化的各种生物，基本上都有共同的进化趋向。

另一方面，也要防止片面理解“通顺”的要求，过分强调译文的流畅而不受原文意思的约束，添枝加叶，造成翻译上的自由主义。

例如：He wanted to learn , to know, to teach.

(1) 他渴望博学广闻，喜欢追根穷源，并且好为人师。

(2) 他想学习，增长知识，也愿意把知识教给别人。

Ⅲ. 理解与表达

翻译的过程主要包括理解和表达两个阶段。在通常情况下，理解是第一位的，表达是第二位的。正确地理解原作是翻译的基础，没有正确的理解就不可能有正确的翻译。当然，虽然理解了原文，但不能用确切的汉语表达出来，致使词不达意、文理不通、晦涩难懂，也无法达到忠实表达原则思想内容的目的。

1. 理解阶段

翻译的关键在于理解。就科技英语的翻译而论，关键在于透彻地理解和把握住原文的内容和实质。为了透彻理解原文，应该注意以下几点。

(1) 结合上下文，推敲词义

理解必须通过原文的上下文来进行。英语里一词一意的情况很少的，只有结合上下文才能理解单词在某一特定的语言环境中的确切意义，否则翻译时往往容易出错。例如：

Various speeds may be obtained by the use of large and small pulleys.

[误] 利用大小滑轮可以获得不同的转速。

[正] 利用大小皮带轮可以获得不同的转速。

Pulley 一般做“滑轮”，“辘轳”解，但影响机器转速的应为“皮带轮”而不是“滑轮”。

(2) 辨明语法，弄清关系

科技英语的特点之一是句子长，语法结构复杂，因此，根据原文的句子结构，弄清每句话里的语法关系对正确理解具有重要意义。例如：

There are no problems in the production of such domestic robot to which we do not have already the glimmering of a solution.

［误］要生产这样的家用机器人已经毫无问题，我们对于一系列技术问题的解决现在已经不是只有一线希望了。

［正］要生产这样的家用机器人存在着各种问题，然而这些问题的解决均已略显端倪。

这个句子误译的原因，可能主要是没有看清 no problems 与定语从句中 to which we do not have... 构成双重否定，因而造成理解上的错误。to have a glimmering of solution 意为“模模糊糊的知道解决（这些问题的）办法”，即要解决这些问题现已略有眉目。

（3）理解原文所涉及的事物

有些句子的翻译，不能单靠语法关系来理解，还必须从逻辑意义或专业内容上来判断，应该特别注意某些特有的事物，典故和专门术语所表达的概念。例如：

Do you know that the bee navigates by polarized light and the fly controls its flight by its back wings?

［误］你知道蜜蜂借助极光飞行，而苍蝇用后翅控制飞行吗？

［正］你知道蜜蜂借助偏振光飞行，而苍蝇用后翅控制飞行吗？

例句中的 polarized light 是偏（振）光，指不同方向显示不同特点的光线，误译为极光是由于不懂专业望文生义造成的。

2. 表达阶段

表达阶段的任务是把已经理解的原作的内容用汉语恰如其分地重述出来。表达涉及的问题很多，这里只介绍两种最基本的方法：直译和意译。

（1）直译

直译是指译文采取原作的表现法，既忠于原文内容，又考虑原文形式。但直译不是死译或硬译。下面是一个直译的例子：

What sort of force does the sun exert on the planets which causes the plants to move according to the laws which Kepler has discovered?

太阳以什么力于行星，使之遵循开普勒发现的定律运行呢？

（2）意译

意译（free translation）是指通过对原文深层意蕴的理解，将原文的表层结构转化为译文的表层结构，并且打破原文的语言形式，用译文的习惯表达形式把原文的意蕴再现出来。如：

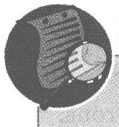
In fact, it may be said that anything that is not an animal or vegetable is a mineral.

直译：事实上，可以说不是动物或植物的任何东西便是矿物。

意译：事实上，可以说任何东西只要既不是动物又不是植物便是矿物。

Ⅳ. 校对和修改

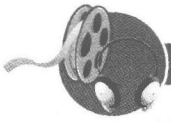
理解和表达都不是一次完成的，而是逐步深入，最后才能达到完全理解和准确表达原作反映的客观现实的目的。因此，表达阶段还包括校对和修改译文这一环节。校改译文是使译文符合翻译标准所必不可少的一步。校改译文时，不仅要对译文作进一步的推敲，使之符合汉语规范，而且要特别注意译文的准确性，科技文尤其重要。因此，译文只有经过再三校改，直到符合原文时，才能最后定稿。



If you want knowledge, you must toil for it.
要想求知，就得吃苦。

Unit 2

Charge, Current and Voltage



Dialogue

Tom: Hi, Mary. Who's the man outside?

Mary: He's my new colleague, Jack.

Tom: What's his job?

Mary: He is an engineer, and he is in charge of after-sales services. Come here,

Jack: This is Tom.

Tom: How do you do, Jack?

Jack: How do you do, Tom. Nice to meet you.

Tom: Nice to meet you, too. May I ask you a question?

Jack: Of course.

Tom: Could you introduce something about your work to us?

Jack: After-sales service is also the key work for our company. We supply customer services, including dealing with feedback information and complaint and claims according to the contract.

Tom: Thank you, Jack. I hope we can visit your department some time.

Jack: Welcome! I have to go to call my boss now. See you!

Tom and Mary: Bye!

Charge, Current and Voltage

Matter is made up of atoms, which are composed of a number of fundamental particles. The most important of these particles are protons and neutrons found in the nucleus of the atom and electrons moving in orbit about the nucleus. Normally the atom is electrically neutral, the negative charge of the electrons balancing the positive charge of the protons. Particles may become negatively charged by gaining electrons from other particles.

We may produce a negative charge on a balloon by rubbing it against our hair. The balloon will then stick to a wall or the ceiling, which are uncharged. Relative to the negatively charged balloon the neutral wall and ceiling are oppositely charged. We now define the coulomb (C) by stating that the charge of an electron is a negative one of 1.60218×10 coulombs. Putting it another way, a coulomb is the charge of about 6.24×10 electrons. The symbol for charge will be taken as Q or q.

The primary purpose of an electric circuit is to move or transfer charges along specified

paths. This motion of charges constitutes an electric current, denoted by the letters i or I. Finally, current is the time rate of change, given by $i=dq/dt$. The basic unit of current is the ampere (A). An ampere is 1 coulomb per second.

Charges (free electrons) in a conductor may move in a random manner. However, if we want some concerted motion on their part, we must apply a so-called electromotive force (EMF). Thus work is done on the charges. We shall define voltage "across" an element as the work done in moving a unit charge (+1C) through the element from one terminal to the other. The unit of voltage, or potential difference, as it is sometimes called, is the volt (V).

Fig 2.1 DC

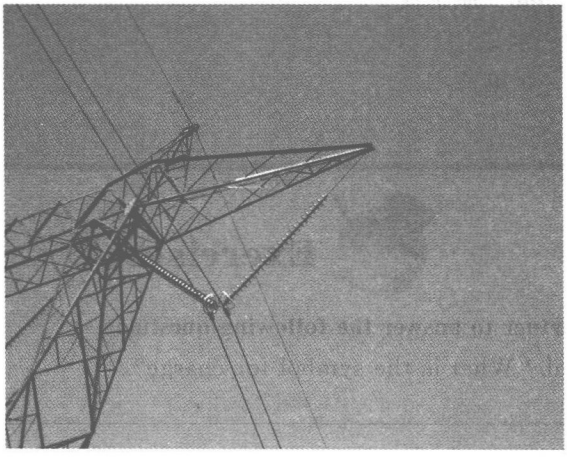


Fig 2.2 high voltage

New words and Expressions

charge	[tʃɑ:dʒ]	*n.* 负荷，电荷，费用，充电
current	['kʌrənt]	*n.* 电流，水流，气流
voltage	['vəultidʒ]	*n.* [电工] 电压，伏特数
atom	['ætəm]	*n.* 原子
compose	[kəm'pəuz]	*v.* 组成
particle	['pɑ:tikl]	*n.* 粒子，微粒
proton	['prəutən]	*n.* [核] 质子
neutron	['nju:trən]	*n.* 中子
define	[di'fain]	*vt.* 定义，详细说明
coulomb	['ku:ləm]	*n.* [电] 库仑（电量单位）