天津广播电视大学科技英语翻译专业

英译汉概论

（上）

天津人民出版社

天津广播电视大学科技英语翻译专业选用教材

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（上　册）

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说　　明

1. 《英译汉概论》是供设在理工科大学的科技英语专业使用的翻译教材。

2. 本教材分上、下册出版。上册共七章。第一章概论，综述英文科技文献汉译的基本要求；其余六章分别介绍词义选择、转换、省略、补充、定语译法、状语译法等重要翻译方法和技巧。

3. 翻译课是实践课；本门课以培养学生具备翻译科技文献的基本能力为目标，学生必须通过认真实践，方能逐步掌握基本方法与技巧，基于此，本教材对于传统的练习编排方式，作了一些更改：

① 把品评精采范例放在相当突出的位置上；

② 有时，对同一个句子、同一段短文，列出两种或两种以上的译文，通过对比，汲取前人的经验；

③ 为加深印象，有时在叙述正文的过程中，也夹进必要的单句练习；

④ 启发、鼓励学生积极思考，尽量避免作机械的消极练习；

⑤ 短文练习量超过单句练习量；而在短文中，或抽出典型的单句，或突出某种具体翻译方法，以作重点要求，避免脱离原文整体及上下文联系而去孤立地研究一词一句的译法。

4. 《英译汉概论》也可用作理工科大学高年级学生、研究生选修课教材，以及供在职工程技术人员业余进修或自学之用。

5. 本教材是在《计算机世界》编辑部、天津广播函授大学合编的《翻译技巧》的基础上编写的。编写过程中得到《计算机世

界》编辑部李超云、陈明锟二位老师的热情鼓励与指导；天津大学的卢振中、刘壮翀、王贵元、潘子立等老师，以及天津广播电视大学刘文昌、李家熹、严文禄等老师，都给予了许多帮助，谨向以上各位老师表示衷心的感谢。

编者

目　　录

第一章 概 论

1-1 导言

随着近代科学技术的发展，科技文献的数量正以惊人的速度增长着，大约每十年就翻一番。据七十年代末统计，全世界文献出版量为论文 300-400 万篇，图书50多万种，其中科技书籍占 20-25%，科技期刊 5 万种，专刊报告 1100 万件，会议论文 10 多万篇，标准资料 10-20 万件。每年有 250 万条科技新闻，每学科平均 1250 条。英语是世界通用语言，目前用英文出版的科技文献占总量的 60% 以上。由此可见，学习、掌握英语汉译方法，迅速、准确地将国外先进的科学技术成就介绍到国内来，为我所用，是建设事业不可或缺的一项重要工作。要做好这项重要工作，就得培养大批能胜任这项工作的人才。为理工科大学科技英语专业学生，以及理工专业研究生、高年级学生开设“英译汉概论”课的目的就在于此。

“英译汉概论”作为一门为高年级学生开设的必修课程，与低年级基础阶段作为教学手段的英汉翻译相比，有完全不同的性质和任务。作为教学手段的英汉翻译，它从属于基本语言现象的教与学，其任务是让学生通过翻译练习，掌握好基础语法、基本词汇和一些常用句型等，逐步提高准确理解原文的能力；而“英译汉概论”课，则是在已具备足够语言基础和一定专业知识的高年级学生中开设的一门专门课程。

可是，这门课与外语院校英语系开设的“翻译理论与实践”课又有区别，因为科技文章并不需要译成文学，也不可能译成文

学。

为此，必须强调两点：

1-1-1"英译汉概论"课以系统介绍基本翻译方法为其主要任务，让学生在正确方法指导下，进行相当数量的翻译实践，逐步提高翻译能力。

1-1-2 鉴于这门课的性质与任务，以及科技文献不同于文艺著作、政论文章的种种特点，"英译汉概论"课应以英汉对比为指导原则，通过英汉两种语言的全面对比来阐明二者的异同，尤其是它们之间的相异之处。

1-2 科技英语的特点

下面是BBC英语广播、电视教学节目对科技英语特点的介绍：

The English of Science

The English of science differs in some ways from the English of literature and of everyday life.

Words and symbols

Scientific texts can almost always be recognized at once because scientists freely use diagrams, symbols, abbreviations, formulae and equations which are used only in science.

Without reading the extracts A, B and C which follow, you can see at once that A and C are about science.

A The main results obtained were:

(1) If an oscillatory motion was superimposed on steady shearing the maximum torque on the top plate

during the combined motion was scarcely more than the torque in steady shearing alone; the minimum was considerably less. The average torque was much less in the combined motion and it is possible that the average rate at which work was absorbed was less in the combined motion than in the steady shearing alone. (A later analysis has shown an increase in these two cases.)

(2) The response of the material to oscillatory motion was non-linear below about 20 c/s in these experiments. For a shear rate of the form:

$$s = s_0 \cos \omega t \tag{1}$$

The stress was of the form:

$$\mathscr{T} = \sum_{n=1} A_{2n-1} \cos([2n-1]\omega t - \phi_{2n-1}) \tag{2}$$

B　In the country, trees had been torn up, and sails of windmills carried away;and gloomy accounts had come in from the coast, of shipwreck and death. Violent blasts of rain had accompanied these rages of wind, and the day just closed as I sat down to read had been the worst of all.

Alterations have been made in that part of the Temple since that time, and it has not now so lonely a character as it had then, nor is it so exposed to the river. We lived at the top of the last house, and the wind rushing up the river shook the house that night, like discharges of cannon, or breakings of a sea. When the rain came with it and dashed against the windows, I thought, raising my eyes to them as they rocked, that I might have fancied myself in a storm-beaten light-house.

C In experiment 1) the recipients were: (a) unsensitized mice; (b) mice sensitized by grafting with CBA skin 4 weeks prior to testing and by intraperitoneal injection of 10^7 spleen cells 3 weeks later.

In experiment 2) the recipients were: (c) mice grafted with (A×CBA —T6) F_1 skin 16 days prior to testing; (d) mice injected intraperitoneally with 10^5 or 10^6 (A×CBA—T6) F_1 spleen cells 7 days before testing; (e) unsensitized mice.

In experiment 3) (A×CBA) F_1 or CBA cells were injected into two groups of adult CBA animals. The recipients were: (f) unsensitized mice; (g) mice grafted with A-strain skin 12 days previously.

Symbols, formulae or equations almost certainly indicate a scientific text. Fortunately, the symbols of science are the same in all countries. They *look* the same in almost all written languages, although they have different sounds when spoken in different languages.

The words of science

Scientists do not use symbols or equations in all the statements they make. They may use only words, and many of the words will, of course, also be commonly used outside science. It is always possible to say in which language a scientific paper is written even though it may consist almost wholly of symbols. Every scientist also uses the special vocabulary of his particular science — of physics or chemistry or biology or engineering, for example — and many of the words of these special vocabularies, like the symbols, occur in similar forms in almost all languages. In different alphabets, of course, such words may look different and yet some of them sound the same when spoken. The following words, for example, are found in almost all languages:

metre, gram, volt, ampere, atom, laser, carburettor, transistor. But there are also many words in science which are not the same in all languages. These words can be very important scientifically; they are the basic words of the older sciences such as mechanics. In these older sciences, words were taken from everyday language and defined for scientific use, as for example the following English words:

matter, mass, force, power, work, energy, moment. Outside scientific contexts these words have less precise uses.

Fortunately, the terms of science are well defined and most languages have exact equivalents of English scientific terms. A good technical dictionary solves most problems of translating scientific terms. And so, if you understand the scientific subject already, the *scientific* vocabulary of an English-speaking scientist will cause you no serious difficulties.

Sentence patterns in science

Scientists try to be objective. The facts they study are statements about things which can be seen, heard, touched or smelt by any normal person and on which all observers would agree. To make agreement easier, scientists try to express all observations in numbers or by meter readings. A non-scientist may be content to say that he can see a green light when he looks into an optical instrument. But '*green*' is a subjective word and green is a colour of many possible shades. Verbal descriptions of colour given by different observers do not agree closely. So a scientist prefers to describe a colour by stating its wavelength, or its range of wavelengths and their intensities, because wavelengths and intensities can be read on the scales of suitable meters by anyone who is not blind. A scientist always invites others to verify his descriptions of what he observes. So scientists accept as facts only statements about things which can be seen by any observers who choose to look. Statements which are private or subjective do not belong to science.

This attitude of the scientist to his subject is naturally reflected in the kinds of sentence patterns he prefers to use. Because he tries to avoid reference to personal feelings or judgements, he usually puts his statements in an impersonal way. For example, instead of saying '*I weighed the specimen*', he would prefer to say '*The specimen was weighed*'. He thus turns attention away from himself and towards the specimen. You may also notice that the patterns of the two statements are different. The first sentence has an active verb: '*weighed*'. The second sentence has a passive verb: '*was weighed*'. This use of the passive is very common in scientific discourse in English.

The sentence patterns of scientific English are also found in nonscientific English. There are no special patterns to learn. The sentence patterns of the English of science conform with the grammatical rules of English language textbooks. Though its vocabularies may sometimes be difficult, the English of science is simpler than the English of literature and of everyday life because its sentence patterns are less varied.

The style of written scientific English

The scientist always writes with a definite and rather narrow practical purpose — it may be to describe a phenomenon, an experiment or a process, or to explain a theory. The scientist tries to keep his limited objective always in view and so he tries to write clearly and logically. But in recent years the quantity of scientific writing has increased so rapidly that editors of scientific journals cannot accept all the papers they would like to publish. This pressure on space in the journals has forced scientists to co mpress their statements. The scientist has to say as much as possible in the few words he is allowed. He often omits words which can shorten a sentence without making it unintelligible. Here are two examples of compression:

(a) The results of this experiment show that AMX significantly impairs the co-ordination of hand and eye.

This sentence might be shortened to read:

The AMX results show significant hand/eye co-ordination impairment.

(b) On the alternative theory, the deflection of the beam of light is calculated to be 4°.

This sentence might be shortened to read:

The alternative calculated light beam deflection is 4°.

Scientific speech

The English of science has been created by the *writings* of scientists. When scientists *speak* as scientists, they naturally adopt the written forms of scientific English. Unless a scientist is being deliberately informal, he will tend to *speak like a book* when he is explaining science. But of course a scientist is also a social person. So you will hear the scientist speaking personally and informally when he is being sociable, and impersonally and more formally when he is being scientific. The contrasts between these two styles illustrate how the English of science differs from the English of literature and of everyday life. Here is an example:

(*Mr Smith enters Dr Brown's office. Dr Brown is* *a consultant. Dr Brown speaks.*)

Good morning, Mr Smith.

Can I take your coat? Awful weather, isn't it?

Do sit down.

Well, I've been looking into your enquiry about the corrosion trouble you've been getting in the control valve. I'm sorry you've had trouble — quite unexpected — but I think we have the answer.

The most probable cause of corrosion at a metal-to-metal junction immersed in an ionized fluid is electolytic. In this particular valve, however, ...

Here the sociable Dr Brown welcomes his guest and apologizes, using personal and informal language. Then the sociable Dr Brown becomes the impersonal scientist when he talks, as a scientist, about corrosion.

练　　习

1. 将«The English of Science»中的"Sentence patterns in science"译成汉语:

2. 将 «The English of Science» 中的 "The style of written scientific English"译成汉语:

1-3 科技英语汉译标准

根据科技文献的语言特点，以及译作的读者对象，科技文章英译汉的标准应当是:

忠实地保持原著的意义与风格，同时赋予译文以合乎

汉语规范的、通顺的表达形式，也就是鲁迅先生早年倡导的译文标准："信"和"顺"。

"信"是科技文献翻译的第一标准。译者必须以接近数学式的准确性转述原文的全部内容，他无权对原文内容任意地加以歪曲、增删或篡改。显然，为要达到"信"，首先必须透彻理解原文；对原文有任何的不理解，都有可能产生背离原意的错误，而这正是科技文献翻译的大忌：

例 1-1 All substances are not good conductors.

照字面翻译，例 1-1 似应译作"所有物质都不是良导体"。

这种译法肯定不对。错在哪里？

错在对 all 这个词的用法理解有误：当 all 与否定词 not 一起使用时，并不表示全部否定，而只是部分否定，因此，All substances are not…，不能照字逐词译作"所有物质都不是……"，而应译作："并不是所有物质都……"。将部分否定错误地理解为全部否定，造成了背离原意的大错。

例 1-2 The importance of laser in communications can't be overestimated.

如果照字面逐词翻译，上例似应译作：激光器在通讯中的重要性不能被估计过高。

这个译法，乍一看好象没有什么问题，但实际上也译错了，正确译法应该是：

参考译文：对激光器在通讯中的重要性怎么估计也不会过高。

将原文的"怎么估计也不会过高"，错译成"不能估计过高"，意思正好相反。错译的原因是没有透彻理解 can't be overestimated 这个词组的确切含义：

有些及物动词加上前缀，再与 cannot be 连用，构成被动