

科技英语进阶

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ACCESS TO
SCIENTIFIC
ENGLISH

ACCESS TO SCIENTIFIC ENGLISH

上海交通大学出版社

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科技英语进阶

(理工科大学三年级用)

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内 容 提 要

《科技英语进阶》根据《大学英语教学大纲》(理工科本科用)的专业阅读部分的要求编写的,供理工科大学非英语专业三年级学生使用,也可供同等程度(已通过大学英语四级)的学习者或科技人员进一步提高科技英语阅读能力之用。

《科技英语进阶》是从基础英语通向专业英语阅读的桥梁。本书内容涉及的基础科技知识能为绝大多数理工科学生理解和接受。全书共20课,分为三个部分:第一部分1~8课为与基础英语衔接阶段,以科普文章为主。第二部分9~16课为科技文章阅读阶段。第三部分17~20课重点进行阅读技能指导,从不同文体特点出发,指导学生怎样读懂此类文章,为随后的结合专业阅读扫除障碍。为便于学生自学,本书每课配有生词和词组表,并有大量注释。

科技英语进阶

主编 王士先

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前 言

《科技英语进阶》根据《大学英语教学大纲(理工科本科用)》的专业阅读部分的要求编写,供理工科大学非英语专业三年级学生使用,也可供同等程度(已通过大学英语四级)的学习者或科技人员进一步提高科技英语阅读能力之用。

科技英语是英语的一个变体,有其本身的词汇、语法、句型、文体特点。只经过英语基础阶段学习而没有经过熟悉科技英语的过程,要想看懂那怕是自己所从事的本专业的参考书,也会有一定困难的。因此,科技英语学习这个阶段是十分必要的,是从基础英语通向专业英语阅读的桥梁。通过《科技英语进阶》的学习,学习者不仅能比较顺利地过渡到阅读本专业英语参考书,而且能比较顺利地阅读背景知识熟悉的一般科普及科技文章,从而能通过阅读最新出版的英语科技文章,以最快速度获得科技信息,扩大知识面。

为此,本书编写时既考虑到了理工科英语的特点,又注意到了通用性,使其内容不局限于某个专业,而能为绝大多数理工科学生理解和接受。

考虑到教学大纲规定大学三、四年级专业英语阅读的学时为每周2学时,总共100~120学时,而在科技英语阅读阶段结束之后,还需留出熟悉和阅读本专业英语文献的时间,本书设计为20课,分为三个阶段:第一阶段1~8课为科普文章阅读阶段,文章主要选自英美原版科普杂志,如“New Scientist”,“Popular Science”等。练习形式与英语基础阶段基本相同,作为初步过渡。第二阶段9~16课为科技文章阅读阶段,文章取自科技书籍和杂志。文章长度增加,练习量也有所增加,希望学生在经过前一个阶段之后,能以较快的阅读速度读懂科技文章。第三阶段17~20课重点进行学习技能指导,从科技英语阅读中最常见的 Prefaces & Forewords, Popular Science Articles, Abstracts 和 Science Textbooks 等各种不同

文体的特点出发,指导学生怎样读懂此类文章,为随后的结合专业阅读扫除障碍。

编者设想每课为2学时,第一阶段和第二阶段共16课,可用于第五学期,第三阶段则用于第六学期初,第三阶段结束之后,即可结合本专业选读有关文章,以熟悉本专业词汇及文献特点。各使用单位也可根据本单位情况自行调节进度。

本书除选用科普和科技文章,以帮助学生扩大英语科技词汇、半科技词汇和熟悉英语科技文体外,还增加了翻译技巧、阅读技巧(特别是理解全文的阅读技巧)和查找上下文指代关系方面的练习,以及学习技能方面的练习。为方便学生自学,每课配有生词表、词组表和注释。

本书是上海交通大学外语教师和专业教师合作的产物。本书9~20课中,除部分课文为编者自选外,第9课由江伯鸿提供,第10课由童钧耕提供,第11课由黄皆捷提供,第14课由冯玉柱提供,第15、16课由庄天戈提供。在选材工作中参加审定的有庄天戈、黎滨洪、童钧耕、江伯鸿;参加教材审稿的有庄天戈、童钧耕、李国松、陈福民。本书初稿于1994/1995、1995/1996学年在上海交通大学试用,试用期间得到王如竹、席德胤等任课老师的许多宝贵意见。本书在词汇编排过程中得到外语系计算机房陈庆昌、周国勤的大力帮助,在出版过程中得到上海交通大学教务处黄振宝等全力支持。编者在此向以上各位老师一并致以真诚的感谢。

美籍教师 Selena Cantor 审阅了全书,并提出了许多宝贵的意见,谨在此表示衷心感谢。

编写通用性强、适用面广、符合大纲要求的科技英语阅读教材是一种新的尝试。我们计划在进一步探索这一课题的过程中不断对教材加以修订、增补,使之更臻完善。我们热诚希望使用本书的广大师生向我们提出宝贵意见。

编者

1996年5月

几点说明

1. 本书课文一般加注段(落序)号,在每一自然段前用[1]、[2]、[3]……表示。个别课文(如17课)因练习需要加注句子序号,用1、2、3…等标注在每个句子第一个字母的左上角。

2. 注释用①、②、③…标注在所注内容最后一个字母的右上角。

3. 本书每课附有生词表和词组表,生词和词组的收取以《大学英语教学大纲通用词汇表(1~4级)》为起点。1~8课生词表比较详细,包含大部分派生词、缩写词和人名、地名等专有名词;第9课起,由常用词缀构成的派生词及专有名词一般不再列入。

4. 为便于查找,生词表和词组表中加注段号(正式课文前面出现的生词不标段号),放在生词之前。此外,凡生词与《大学英语教学大纲通用词汇表(5~6级)》重复的,前面加*号表示,凡生词与《大学英语教学大纲专业阅读部分通用词汇表》重复的,前面加#号表示。有时一个生词有可能与两个词汇表都重复,这个生词前面就标两种符号,提醒学生应该重点掌握。例如,从以下一段生词表

9 * # slot

vacancy

bedstate

10 * ward

11 CPN

可以看出,课文第9段有3个生词,其中slot与两个词表重复,vacancy与专业阅读词表重复,bedstate则在两个词表中都没有;第10段和第11段课文各有一个生词,其中第10段的ward与5~6级词表重复,以此类推。

5. 凡名词性词组,都列入生词表,动词性词组及介词词组等则列入词组表。

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PART I

**READING ON GENERAL
SCIENCE TOPICS**

科普题材阅读

Keeping up with the Satohs^①

Bob Johnstone^② explains what makes the Japanese tick^③.

[1] I went into Tokyo the other day to get my modem — the little box I use to send articles over the telephone to London — fixed. When I bought the modem, just over a year ago, I was surprised to notice that it was made in Taiwan, not Japan. At that time, because of the difficulty in keying^④ Japanese script into personal computers, communication via modems had yet to take off here^⑤. The result was that none of the big Japanese electronics companies made cheap modems, a remarkable omission given that^⑥ they seem to make everything else.

[2] I asked the man in the shop if they still had to import modems from Taiwan. Oh no, he assured me, all their modems were now made locally. The model I use, which transmits at 300 ‘baud’ — in effect, bits per second^⑦, was no longer available. It had been replaced by a faster one, which was capable of 1,200 baud^⑧. And in the near future, he told me, it in turn would be replaced by a 2,400 baud one^⑨, I asked him if it was really so important for private users to be able to transmit so fast. He admitted that, no, it was not, commenting that ‘that is the way the Japanese people are^⑩ — if a new product appears which is better than the one they’ve got, they have to have it, regardless of whether they need it or not.’

[3] Later that week, I came across another example of this tendency in a different, and totally unexpected, context^⑪. I was

interviewing a professor of physics at Tokyo University about Japan's newly completed particle accelerator, currently the most powerful of its kind in the world. He told me that some of his colleagues were already annoyed with the new machine. They were complaining, he said, that it was too small, and proposing to abandon it in favour of plans for bigger, more powerful accelerators. And this before the new machine had produced even a single collision¹¹! The professor, whose many years in the U. S. had made him a good deal more outspoken than the average Japanese academic¹², maintained that 'In Japan, this is typical; we design and build something which everybody then thinks is out of date.'

[4] These two incidents left me wondering why the Japanese never seem to be happy with what they've got, why they should¹³ always feel an urge to rush out and buy the latest of everything. Could it be that the incessant price wars of the consumer electronics companies had induced a Pavlovian attitude¹⁴ in the Japanese people, whereby they could no longer prevent themselves from reaching automatically for their wallets (or rather purses¹⁵, for in Japan the wife usually controls the house keeping) whenever they see an advert bearing the magic words, 'shin hatsu bali' — newly on sale¹⁶? Or was the cause more deeply rooted, related perhaps to Buddhist notions of impermanence and the instability of the material world¹⁷? Certainly, this would be the kind of answer that most Japanese would have you believe.

[5] So I did what I normally do when I'm puzzled by Japanese behaviour — I asked my wife to explain it. She, being Japanese (but, having married a foreigner, not typically Japanese), can usually provide some insight on such matters. Her response in this case was that the Japanese live in awe of the new. The phenomenon, she reckons, dates back to the arrival in Japan of the 'keto' (hairy foreigners, that

is, people like me) in the middle of the last century, bringing nearly three centuries of isolation from the rest of the world to a sudden end. The Japanese immediately perceived that new items like warships were good things to have. And 'new' has continued to be associated with 'good' ever since. (It is only very recently, for example, that the Japanese have started to take any interest in antiques).

[6] If catching up with the West started the desire for things new, then keeping up with the Satohs, the local equivalents of the Joneses®, helps to keep it going. But there is a crucial difference of motive here, and a very Japanese one at that®. Mr and Mrs Satoh's intention in buying a new microwave oven, videotape recorder or whatever, is not to be different from their neighbours, but to be the same. In Japan, everyone strives to be 'anshin' — at ease — and the only way to achieve this condition is by doing exactly the same as everyone else does.

[7] To be left behind in the never-ending search for the new is not only to be uneasy, it is also to lose face. This can be a serious business in Japan. The newspapers here often carry reports about offices which have introduced automation equipment — copiers, facsimile transmitters and computers. (That means just about all offices, as the rules about keeping in line apply as much at work as they do in the home.) According to these reports, the young girls at the bottom of the office ladder® tend not to have any difficulty in learning how to use the new equipment, whereas their bosses — typically men in their forties — do. The result is that the bosses lose face, which can lead them in turn to that most famous of Japanese responses — suicide. Sometimes I think the Japanese take new things too seriously.

New Words

- Sato^h/'sɑ:təʃ/n. 佐藤[人名]
Johnstone/'dʒɒnstən/n. 约翰斯顿[人名]
- 1 * modem/'məʊdəm, 'mɒdəm/n. (modulator + demodulator) 调制解调器
script/skript/n. 手稿; 打字原稿
omission/ə'mɪʃən/n. sth. that is omitted
- 2 √ baud/bɔ:d/n. 波特(一种发报速率单位)
- 3 accelerator/ək'seləreɪtə/n. 加速器
particle accelerator 粒子加速器
outspoken/aut'spəʊkən/a. saying freely what one thinks;
frank
- 4 incessant/in'sesnt/a. continual, often repeated
price war 价格战
consumer electronics 日用电子产品
- * # induce/in'dju:s/vt. 引起, 导致
Pavlovian/pæv'lɒviən/a. 巴甫洛夫学说(的)
house keeping 管家
- * # whereby/'weəbaɪ/ad. by means of which, according to which
advert/'ædvɜ:t/n. advertisement 的缩略形式
Buddhist/'budɪst/a. 佛教的
impermanence/im'pɜ:mənəns/n. being not permanent
- # instability/ɪnstə'bɪlɪti/n. lack of stability
- 5 awe/ɔ:/n. a feeling of respect mixed with fear and wonder
- * reckon/'rekən/v. be of the opinion; estimate
keto/'ketə/n. (日文译音)长毛番鬼
hairy/'heəri/a. covered with hair

- warship /'wɔ:ʃɪp/ *n.* a naval ship used for war
- * antique /æn'tɪk/ *n.* 古物, 古董
- 6 Jones /dʒəʊnz/ *n.* 琼斯[人名]
- * # crucial /'kru:ʃjəl/ *a.* decisive, critical
- microwave /'maɪkraʊweɪv/ *n.* 微波
- * strive /straɪv/ *v.* make great efforts
- anxin /'æn'ʃɪn/ *n.* 安心(汉语“安心”在日文中的音译)
- 7 * automation /ˌɔ:tə'meɪʃən/ *n.* 自动化
- copier /'kɒpiə/ *n.* 复印机
- ✓ facsimile /fæk'sɪmɪli/ *n.* transmitter 传真机(简称 fax)
- * suicide /'sju:saɪd/ *n.* 自杀

Phrases and Expressions

- 1 the other day 不久前
- take off 以...作为起点, 起飞
- 3 be annoyed with 对...不满/厌烦
- 4 be happy with 满意
- rush out 冲出去, 急匆匆地出去
- reach for 伸手拿, 伸手抓
- 5 provide insight on 对...提出某种见解
- ✓ in awe of 敬畏
- date back to 上溯到
- bring ... to a sudden end 使...突然结束
- be associated with 与...有联系
- take interest in 对...感兴趣
- 6 keep ... going 使...继续下去
- at ease 安逸, 自在, 安心
- 7 be left behind 落在后面

lose face 丢面子

keep in line 保持一致

take ... seriously 认真对待

Notes

- ✓1 Keep up with the Satohs 是从英语成语 Keep up with the Joneses 套过来的。英语的这句成语意为“赶时髦，与邻居比时髦”。Jones 是英国一个极普通的姓，就像中国的“张”、“李”一样。这里换上了日本人最常用的姓 Satoh(佐藤)，就特指日本人的赶时髦风尚了。因此这里意译为“日本人的赶时髦风”。
- 2 Bob Johnstone “鲍勃·约翰斯顿”是英国的一位记者，本文以“日本来鸿”的形式刊载于英国某杂志。
- ✓3 make the Japanese tick 意为“使日本人成为现在这个样子”。to make something/somebody tick 是一个词组，意为 to make something/somebody behave like that.
- 4 此处 keying 作动词用，意为“键入”，即按键把信息输入计算机。
- ✓5 had yet to take off here 相当于 had not taken off here，意为“在这里(日本)还没有起步”。
- 6 given that 引出条件从句，意为“if one takes into account that”。
- 7 bits persecond 意为“每秒传输的符号数”，即比特/秒。
- 8 此处为省略句，相当于 Which was capable of transmitting at 1,200 baud。
- 9 a 2,400 baud one 意为 one (modem) which can transmit at 2,400 baud。
- 10 that is the way the Japanese people are 为口语，意为 that is the way in which the Japanese people are living.
- 11 此处 context 意为“情景”。

- 12 single 与 a 连用时,表示强调。此处强调“连一次粒子碰撞都还未进行过”。
- ✓13 academic 此处作名词用,意为“学者”。
- 14 这里的 should 意为“竟然会”。should 与 why, who, how 等连用时,常可表示意外或惊异之意。
- 15 Pavlovian attitude; Pavlov (巴甫洛夫)是苏联著名的生理学家,他的“条件反射”学说尽人皆知,因此这里的 Pavlovian attitude 当指“条件反射”。
- 16 purse 通常指“女用钱包”, wallet 通常指“男用钱包”。
- 17 newly on sale 意为“最新上市”。
- 18 ... Buddhist notions of impermanence and the instability of the material world 这里的意思是:佛教教义既然认为物质世界是非永久性的、不稳定的,那么对信奉佛教的日本人来说,不断追求新事物就是理所当然的了。
- 19 此处 the local equivalents of the Joneses 为同位语,修饰 Satohs,意为“当地的琼斯-佐藤”,全句可译为“那么在日本与邻居比时髦,就有助于使这种狂热保持下去”。下面提到日本式的比时髦,与英国式的是有所区别的。在英国,人们力求买的东西与邻居家的不一样,比邻居的更好。
- ✓20 at that 用来加强语气,意为“而且”。
- 21 office ladder 指办公室中职位高低的阶梯。

Exercises

Ex. 1 Comprehension

Say whether the following statements are true (T) or false (F) according to the text. Use the Given line reference to locate the