

# 科技英语 文选注释

凌渭民 ● 选注

上海交通大学出版社 ● 出版

SELECTED ENGLISH READING  
IN  
SCIENCE AND TECHNOLOGY  
WITH  
ANNOTATIONS



# 科技英语文选注释

凌渭民 选注

上海交通大学出版社

## 内 容 简 介

本书中所选取的英语短文，都是日常生活中经常遇到的科普文章，内容有天文、地理、医药、电子、计算机、能源等等。配有详尽的注释以及句型分析，协助读者正确理解英语原文的基本内容，使读者在学习英语语言知识的同时，学到科普知识。

本书可作为大中学生以及英语读者的业余课外读物。

## 科技英语文选注释

上海交通大学出版社出版

(淮海中路1984弄19号)

新华书店上海发行所发行

浙江上虞汤浦印刷厂排版

常熟大义印刷厂印装

---

开本787×1092毫米 1/32 印张3.125 字数72,000

1987年8月第1版 1987年10月第1次印刷

印数：1—12,000

标准书号：ISBN7—313—00043—X/H31 科技书目：157—277

---

定价：0.80元

## 前 言

英语注释读物最主要的目的和要求是，协助读者正确理解原文的思想内容。为了实现这方面的要求，在注释的过程中，必须注意下列三方面内容。

**(一) 单词的正确涵义：**英语中一个单词有多种解释，这是常见的现象。越是常用的词，解释越是多。在阅读时，如果发现过去学到的解释不适用时，应再仔细查阅注释比较详细的词典，选择比较确切的涵义。在科技英语中，一个日常生活方面的单词，在某些学科方面，有各种不同的涵义，一定要根据科技文献的上下文，把它分辨清楚。如果弄错了，就会讲不通，甚至会闹笑话。例如，power 这个单词，在机械学方面作“功率”、“动力”解，在数学上作“幂”或“乘方”解。

**(二) 词组的结构：**英语中一个词组的结构，在单词的搭配方面，按照惯用法(usage)形成，不可随意增加或减少。常因一个单词的有无，影响整个词组的涵义。这方面不予注意，就会犯错误。例如，in course of 作“在…过程中”解，in the course of 作“在…期间”解。这两个词组的结构方面差别，只是定冠词 the 的有无。

**(三) 句型(sentence pattern)的掌握：**英语中的句型规定了某些单词或词组的先后连用，不容随意改变。这些单词或词组先后连用时，形成了固定的句型，并确定了整个句子的意义。整句译作汉语时，往往不可逐词死译。否则会造成汉语译文不易

EAF77/04

理解或不通顺的现象。例如, *We can not make rapid calculation until the invention of computers.* (直到发明了计算机, 我们才能进行迅速的计算。) 英语原文中的 *not...until...* 译作“直到…才…”, 没有把英语 *can not* 死译作否定语。

上述三方面内容, 是我们进行注释时的准则方面例证, 并没有把全部准则说明和例证。总之, 注释的要求是, 为读者创造正确理解原文的条件, 使读者通过注释的学习, 对全文的思想内容, 了如指掌, 不感到困难。

最后应指出, 为了适应目前读者的需要, 选取的课文题材, 都是日常生活中接触到的科普内容。

在注释和选取题材方面, 采用上述措施, 是否恰当, 希读者指教。

凌渭民

1986年7月

## Contents\*

1. Automation .....	1
2. Speed and Comfort .....	7
3. Through the Earth's Crust .....	13
4. From the Earth: Greetings .....	19
5. Airplanes: Yesterday, Today and Tomorrow...	25
6. The Ultimate Machine: the Electronic Computer .....	32
7. The Search for New Drugs .....	40
8. Albert Einstein and the Atomic Bomb .....	48
9. How to Handle the Sun .....	53
10. Travel in Space: to the Moon and Beyond .....	66
11. Television: the Modern Wonder of Electronics .....	75
12. The Land and Its Limits .....	82

---

\* All the English readings are selected from *New Concept English*,  
*Reading Laboratory and English for Today*

## 1. Automation<sup>1</sup>

One of the greatest advances<sup>2</sup> in modern technology<sup>3</sup> has been the invention of computers.<sup>4</sup> They are already widely used in industry and in universities and the time may come when it will be possible for ordinary people<sup>5</sup> to use them as well.<sup>6</sup> Computers are capable of<sup>7</sup> doing extremely complicated<sup>8</sup> work in all branches of learning.<sup>9</sup> They can solve<sup>10</sup> the most complex mathematical<sup>11</sup> problems or put thousands of unrelated facts in order.<sup>12</sup> These machines can be put to varied<sup>13</sup> uses.<sup>14</sup> For instance, they can provide<sup>15</sup> information on the best way to prevent<sup>16</sup> traffic accidents<sup>17</sup>, or they can count the number of times the word 'and' has been used in the Bible.<sup>18</sup> Because they work accurately and at high speeds, they save research workers<sup>19</sup> years of hard work. This whole process<sup>20</sup> by which machines can be used to work for us has been called automation. In the future, automation may enable human beings<sup>21</sup> to enjoy far more<sup>22</sup> leisure than they do<sup>23</sup> today. The coming<sup>24</sup> of automation is bound to<sup>25</sup> have important social consequences.

Some time ago<sup>27</sup> an expert on automation, Sir<sup>28</sup>

Leon Bagrit, pointed out that it was a mistake to believe that these machines could 'think'.<sup>[1]</sup> There is no possibility that human beings will be 'controlled'<sup>20</sup> by machines'. Though computers are capable of learning from their mistakes and improving on their performance<sup>30</sup>, they need detailed instructions<sup>31</sup> from human beings in order to be able to operate. They can never, as it were<sup>32</sup>, lead independent lives,<sup>33</sup> or 'rule the world' by making decisions of their own.

Sir Leon said that in the future, computers would be developed which would be small enough to carry in the pocket. Ordinary people would then be able to use them to obtain valuable information. Computers could be plugged<sup>34</sup> into a national network<sup>35</sup> and be used like radios. For instance, people going on holiday<sup>36</sup> could be informed of weather conditions; car drivers could be given alternative<sup>37</sup> routes<sup>38</sup> when there are traffic jams.<sup>39</sup> It will also be possible to make tiny translating machines. This will enable people who do not share a common language to talk to each other without any difficulty or to read foreign publications.<sup>40</sup> It is impossible to assess<sup>41</sup> the importance of a machine of this sort, for many interational misunderstandings<sup>42</sup> are caused simply through our failure to understand each other. Computers will also be used in hospitals. By providing a machine with a patient's<sup>43</sup> symptoms<sup>44</sup>, a doctor will



be able to diagnose<sup>45</sup> the nature of his illness. Similarly, machines could be used to keep a check<sup>46</sup> on a patient's health record and bring it up to date<sup>47</sup>. Doctors will therefore have immediate access to<sup>48</sup> a great many facts which will help them in their work. Book-keepers<sup>49</sup> and accountants<sup>50</sup>, too, could be relieved<sup>51</sup> of dull clerical<sup>52</sup> work, for the tedious<sup>54</sup> task of compiling<sup>54</sup> and checking lists of figures<sup>55</sup> could be done entirely by machines. Computers are the most efficient<sup>56</sup> servants man has ever had and there is no limit to the way they can be used to improve our lives.<sup>[2]</sup>

(From *Developing Skills, New Concept English*)

## Words, Expressions, and Notes

- 1 automation [ɔ:'tə'meiʃən] *n.* 自动化
- 2 advance [əd'vɑ:ns] *n.* 进步
- 3 technology [tek'nɒlədʒi] *n.* 技术
- 4 computer [kəm'pjʊ:tə] *n.* 计算机
- 5 ordinary ['ɔ:dinəri] people 一般人民, 老百姓
- 6 as well 也, 亦
- 7 are capable of 能
- 8 complicated ['kɒmplikeitid] *adj.* 复杂的
- 9 all branches of learning 各种知识部门
- 10 solve 解答(注意: 动词 solve 常跟名词 problem 搭配连用。)

- 11 mathematical [mæθi'mætikəl] *adj.* 数学的
- 12 put...in order 整理
- 13 varied ['veəriəd] *adj.* 各种不同的
- 14 put to use 使用(注意:英语原文是被动语态,翻译全句时,按汉语表达法。)
- 15 provide [prə'vaɪd] *v.* 提供
- 16 prevent [pri'vent] *v.* 防止
- 17 traffic ['træfɪk] accidents 交通事故
- 18 the Bible ['baɪbl] *n.* 圣经(注意:在名词 Bible 前,常用定冠词 the。)
- 19 research workers 研究工作者
- 20 process ['prəʊses] *n.* 过程
- 21 human beings 人
- 22 far more 更多的
- 23 do = enjoy 享受(注意:do 在句中用作“代动词”,代替动词 enjoy。)
- 24 coming *n.* 来临
- 25 is bound to (do) 一定会...(注意:在这个词组后,须用不定式动词。)
- 26 consequence ['kɒnsɪkwəns] *n.* 影响
- 27 some time ago 不久以前
- 28 sir [sə:] *n.* 爵士(用在姓名前时,须大写。)
- 29 control [kən'trəʊl] *v.* 控制
- 30 performance [pə'fɔ:məns] *n.* 性能
- 31 detailed instructions 详细的指示
- 32 as it were 似乎

- 33 lead independent lives 单独干活
- 34 plug [plʌg] *v.* 接上插头通电
- 35 network *n.* 广播网;电视网;网络
- 36 go on holiday 度假日
- 37 alternative [ɔ:l'tə:nətiv] *adj.* 可挑选的
- 38 route [ru:t] *n.* 路线
- 39 traffic jams 交通拥挤
- 40 publication *n.* 刊物
- 41 assess [ə'ses] *v.* 估计
- 42 misunderstanding *n.* 误会
- 43 patient's *adj.* ['peiʃənts] 病人的
- 44 symptom ['sɪmptəm] *n.* 征兆
- 45 diagnose ['daɪəgnəʊz] *v.* 诊断
- 46 check *n.* 检查
- 47 bring...up to date 使……符合最近情况;使……现代化
- 48 have access to 可利用
- 49 book-keeper *n.* 簿记员
- 50 accountant [ə'kaʊntənt] *n.* 会计员
- 51 relieve [ri'li:v] *v.* (of) 减轻
- 52 clerical ['klerɪkl] *adj.* 办事员做的
- 53 tedious ['ti:dʒəs] *adj.* 沉闷的
- 54 compile [kəm'pail] *v.* 汇编
- 55 lists of figures 数字表
- 56 efficient [i'fiʃənt] *adj.* 效率高的

[1] It is(was)…to(do)… 在这个句型中, it是形式主语(formal subject), 不定式短语 to(do)…是真实主语(real subject)。科技文献中, 常见这种句型。

e.g. 1. *It is necessary to solve these equations*, 要解这些方程式。

2. *It was difficult to operate this machine*. 操作这台机器是困难的。

注: 代词it在汉语中不予翻译。

[2]…the way(in which)… 在这句型中, in which 常省略。

e.g. *This is the way(in which) we do our experiments*. (这是我们做实验的方法。)

注: 介词短语 in which 不予翻译。

## 2 Speed and Comfort

People travelling long distances frequently have to decide whether they would prefer<sup>1</sup> to go by land, sea, or air. Hardly<sup>2</sup> anyone can positively<sup>3</sup> enjoy sitting in a train for more than a few hours. Train compartments<sup>4</sup> soon get cramped<sup>5</sup> and stuffy<sup>6</sup>. It is almost impossible to take your mind off<sup>7</sup> the journey. Reading is only a partial solution<sup>8</sup>, for the monotonous<sup>9</sup> rhythm<sup>10</sup> of the wheels clicking<sup>11</sup> on the rails soon lulls<sup>12</sup> you to sleep. During the day, sleep comes in snatches<sup>13</sup>. At night, when you really wish to go to sleep, you rarely manage to do so.<sup>14</sup> If you are lucky enough to get a couchette<sup>15</sup>, you spend half the night staring at the small blue light in the ceiling, or fumbling<sup>16</sup> to find your passport when you cross a frontier.<sup>17</sup>,<sup>(11)</sup> Inevitably<sup>18</sup> you arrive at your destination<sup>19</sup> almost exhausted.<sup>20</sup> Long car journeys are even less pleasant,<sup>21</sup> for it is quite impossible even to read. On motor-ways<sup>22</sup> you can, at least, travel fairly<sup>23</sup> safely at high speeds, but more often than not,<sup>24</sup> the greater part of the journey is spent on narrow, bumpy<sup>25</sup> roads which are crowded with traffic<sup>26</sup>. By comparison, trips by sea offer a great

variety<sup>27</sup> of civilized<sup>28</sup> comforts. You can stretch your legs on the spacious<sup>29</sup> decks, play games, swim, meet interesting people and enjoy good food——always assuming,<sup>30</sup> of course, that the sea is calm. If it is not, and you are likely to get sea-sick,<sup>31</sup> no form of transport<sup>32</sup> could be worse. Even if<sup>33</sup> you travel in ideal weather, sea journeys take a long time. Relatively few<sup>34</sup> people are prepared to sacrifice up to<sup>35</sup> a third of their holidays for the pleasure of travelling on a ship.

Aeroplanes have the reputation of<sup>36</sup> being dangerous and even hardened<sup>37</sup> travellers are intimidated<sup>38</sup> by them. They also have the grave disadvantage<sup>39</sup> of being the most expensive<sup>40</sup> form of transport. But nothing can match<sup>41</sup> them for speed and comfort. Travelling at a height of 30,000 feet, far above the clouds, and at over 500 miles an hour is an exhilarating<sup>42</sup> experience. You do not have to devise<sup>43</sup> ways of taking your mind off the journey, for an aeroplane gets you to your destination rapidly. For a few hours, you settle back<sup>44</sup> in a deep armchair to enjoy the flight. The real escapist<sup>45</sup> can watch a free film show<sup>46</sup> and sip<sup>47</sup> champagne<sup>48</sup> on some services<sup>49</sup>. But even when such refinements<sup>50</sup> are not available<sup>51</sup>, there is plenty<sup>52</sup> to keep you occupied<sup>53</sup>. An aeroplane offers<sup>54</sup> you an unusual and breathtaking<sup>55</sup> view of the world<sup>56</sup>. You soar<sup>57</sup> effortlessly<sup>58</sup> over high mountains and deep valleys. You really see the shape

of the land. If the landscape<sup>59</sup> is hidden from view<sup>60</sup>, you can enjoy the extraordinary<sup>61</sup> sight of unbroken cloud plains<sup>62</sup> that stretch out<sup>63</sup> for miles before you, while the sun shines brilliantly<sup>64</sup> in a clear sky. The journey is so smooth<sup>65</sup> that there is nothing to prevent<sup>66</sup> you from reading or sleeping.<sup>[2]</sup> However you decide to spend your time, one thing is certain: you will arrive at your destination fresh<sup>67</sup> and uncrumpled.<sup>68</sup> You will not have to spend the next few days recovering from a long and arduous<sup>69</sup> journey.

(From *Developing Skills, New Concept English*)

## Words, Expressions, and Notes

- 1 prefer [pri'fɜ:](to do)v. 宁愿
- 2 hardly adv. 几乎不
- 3 positively adv. 肯定地
- 4 compartment [kəm'pɑ:tment]n. 分隔间
- 5 cramped [kræmpt]adj. 狭窄的
- 6 stuffy ['stʌfi]adj. 气闷的
- 7 take(your)mind off 不注意
- 8 partial solution 部分的解决办法
- 9 monotonous [mə'nɒtənəs]adj. 单调的
- 10 rhythm ['riðəm]n. 节奏
- 11 click [klik]v. 咯搭声
- 12 lull [lʌl]v. 使安静

- 13 in snatches [snætʃəs] 断断续续地
- 14 manage to do so 设法这样做
- 15 couchette [ku'ʃet]n. (火车中)卧铺
- 16 fumble ['fʌmbl]v. 摸索
- 17 frontier ['frʌntjə]n. 边界
- 18 inevitable [in'evitəbl]adv. 必然
- 19 destination [desti'neiʃən]n. 目的地
- 20 exhausted [ig'zɔ:stɪd]adj. 筋疲力尽的
- 21 even less pleasant 更使人不舒适
- 22 motor way n. 汽车道
- 23 fairly adv. 相当地
- 24 more often than not 经常
- 25 bumpy ['bʌmpi]adj. 颠簸不堪的
- 26 traffic ['træfɪk]n. 来往的行人车辆
- 27 a great variety[və'raɪəti]of 多种多样的
- 28 civilized ['sɪvɪlaɪzd]adj. 优美的
- 29 spacious ['speɪʃəs]adj. 宽敞的
- 30 assume [ə'sjuɪm]v. 设想
- 31 are likely to get sea-sick 可能会晕船
- 32 transport ['trænsɒ:t]n. 运送
- 33 even if conj. 即使
- 34 relatively few. 比较小的(指可数的事物)
- 35 up to prep. 多达
- 36 have the reputation of 因...而著名
- 37 hardened adj. 能吃苦的
- 38 intimidate [ɪn'tɪmɪdeɪt]v. 使害怕



- 39 grave disadvantage 严重的缺点  
40 expensive [iks'pensiv] *adj.* 高价的  
41 match [mætʃ] *v.* 比得上  
42 exhilarate [ig'ziləreit] *v.* 使高兴  
43 devise [di'vaiz] *v.* 想出  
44 settle back 身体后仰着坐下  
45 escapist [is'keipist] *n.* 设法消遣者  
46 watch a free film show 看免费电影  
47 sip [sip] *v.* 啜饮  
48 champagne [ʃæm'peɪn] *n.* 香槟酒  
49 on some services 在几次斟酒后  
50 refinement [ri'fainmənt] *n.* 精美事物或食品  
51 available [ə'veɪləbl] *adj.* 可得到的  
52 plenty *n.* 许多(东西)  
53 keep you occupied 使你有事可做  
54 offer ['ɒfə] *v.* 提供  
55 breathtaking *adj.* 令人可惊的  
56 view of the world 天下景色  
57 soar [sɔː] *v.* 高飞  
58 effortlessly *adv.* 不费力地  
59 landscape ['lændskeɪp] *n.* 风景  
60 hide from view *v.* 看不见  
61 extraordinary [iks'trɔːdnəri] *adj.* 使人惊奇的  
62 cloud plains 大片云层  
63 stretch out 伸展出去  
64 brilliantly ['brɪljəntli] *adv.* 亮晃晃地