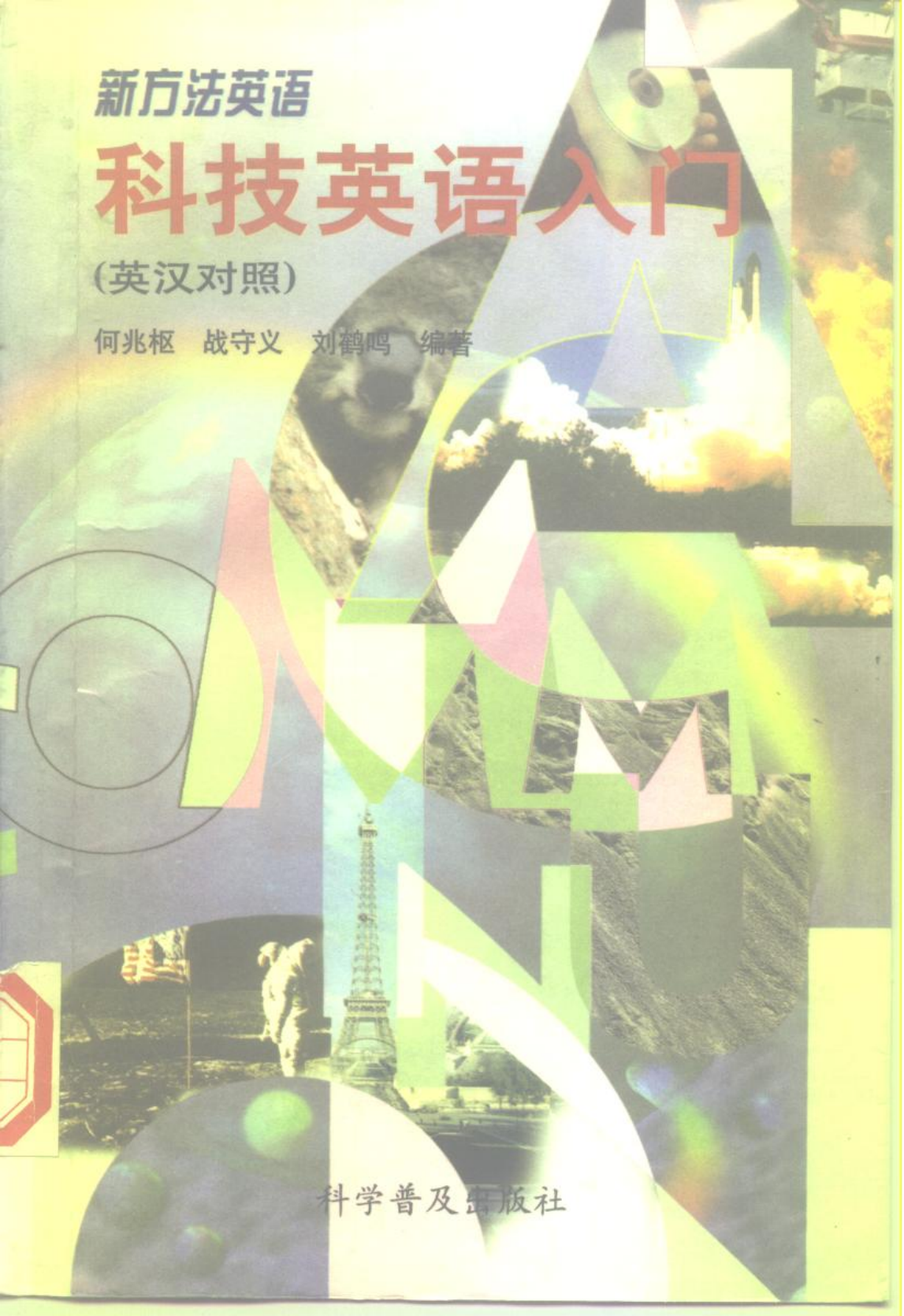
新方法英语

科技英语入门

(英汉对照)

何兆枢　战守义　刘鹤鸣　编著



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内 容 提 要

本书是大学科技英语的初级教材。内容包括宇宙、航天航空、生物工程、环境污染与环境保护、计算机及其应用、人工智能、机器人、激光、信息、能源等方面的高新技术科普文章。全书共33课，每课均附有词汇表、理解性提问和译文，以帮助读者正确理解课文内容。

本书适合具有初级以上英语水平的大、中专学生及英语爱好者阅读。

前　言

《科技英语入门》是《新方法英语》的一个分册，是英汉对照的科普读物，为我国大学生和优秀中学生提供知识性、趣味性和可读性甚强的英/汉科技文章，它又是科技英语的初级教材。本书33篇课文介绍了多种科技专业的有趣话题，通俗易懂，文章结构严谨、逻辑性强，体现了科技文章的特点。每篇课文所涉及的英语生词和词组都列在词汇表中（包括音标、词性和汉语释义）；每篇课文的重点内容都归纳在Comprehension Questions（理解性提问）中。教师可以利用这些问题来检查学生对课文理解的深度。具有相当英文作文能力的学生可以试着用英语（书面语或口语）回答这些问题。有志于学习科技英语的翻译和写作的学生和科技工作者，可以从本书的课文和译文中学习到广泛而实用的科技英语词汇，体会翻译和写作技巧。

本书作者阅读了国内外报纸中的科技信息，多种科技专业的教科书和科技刊物的文章，融合自己的知识，按照自己的理解，用英语写成此书的课文。凡是取材于外国（主要是英、美）作者的文章的课文，均经作者改写，为的是去其瑕疵，也为了避抄袭之嫌。至于语言是否"地道"英语，尚待广大读者鉴定。课文汉译文除注明译者姓名外，均为编著者所译。

作者希望此书能有助于读者增强学习科技知识的兴趣，提高阅读英文科技文章的能力，并深切盼望国内学界同仁不吝赐教。

北京理工大学
何兆枢　战守义　刘鹤鸣
1997年3月

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Lesson One

Is There Another Sphinx on the Mars?

The mysteries surrounding the Mars seem to continue puzzling scientists. The old fashion myths such as the Martian "canals", Martian life or even Martian intelligent life who excavated those "canals", had been fascinating until space exploration exposed them.

According to those myths, the presence of some water on Mars can be established by prominent and intriguing whitecaps that develop at the poles when each is having its winter and by the presence of an occasional white cloud, both of which reflect light as ordinary ice crystals do.

As spring advances in each hemisphere, the corresponding polar icecap appears to melt, completely disappearing as the Martian summer comes. Knowing precisely how much heat Mars receives from the sun, and by measuring the rate at which the polar icecaps shrink, an easy calculation shows that these caps must be just surface phenomena, more akin to a layer of frost than to heavy fields of snow and ice.

As the icecaps melt, a wave of plantlike life appears to proceed from the high latitudes toward the equator. The canals appear and darken, and darkish, sometimes reported as greenish, patches appear. Often the canals seem to double, and the oases grow in size and become a chocolate-brown.

The darkening of the canals, of course, appeared to be visible evidence of the seasonal vegetation that sprang up along their broad, flat banks as the water advanced. It was all consistent with the idea that things began to grow when the polar water moved toward the equator. It was an intriguing and inspiring picture, indeed, but it fell before the

advance of scientific knowledge about Mars: temperatures too cold, water virtually absent, little or no oxygen (plant life as we know it should produce more oxygen), and the atmosphere hopelessly thin.

Yet, striking seasonal changes do occur on Mars, and there is some scientific evidence to support the notion that the dark lines are indeed regions of vegetation. But what kinds of plants might grow under Martian conditions? Evidently, the color changes are caused by plants that do not grow by earth processes, but perhaps are related to our lichens, which are capable of prospering even in dry, barren, and frequently freezing soil.

The American space probe Mariner-4 passed at about 5 600 miles above the Mars' surface and snapped 22 pictures and then beamed first "close-up" photos back to the earth, on July 14, 1965. The Mariner-9 entered its orbit around the Mars in November, 1971. The Soviets launched Mars 2 and Mars 3 on May 19 and 28, 1971, which arrived in Mars orbit on November 27 and December 2 respectively. Pictures and information they sent back showed that the Mars' surface is heavily pock-marked with craters formed by the impact of asteroids and meteoroids. Nowhere in the photos was there any sign of water, nor was there a sign of "canal", but sign of active volcanic activities.

But 3 years after Mariner mission, researchers in the Goddard space center discovered in 1975 the image of Sphinx on a Martian photo sent back by Mariner. At first, they did not attach importance to their discovery, and the photo was bought by a computer programmer from Federal Germany.

Experts in NASA found another Martian photo taken at different time, on which the image of Sphinx appeared blurred but remained visible.

These two photos taken from different perspective points and at

different moments were put to sophisticated computerized image processing. The result was just unexpected: The nose and the necklace which had been thought to be the product of interference still existed; what was more surprising is the eyeballs present at the originally visible eyes and the teeth appearing in the half-open mouth.

Using computer techniques, they even calculated the size of the Sphinx—1.5 kilometers from hair to chin and 3.5 kilometers wide. A natural speculation was that only creatures of dramatically advanced civilization could have been able to make such a huge statue.

Thereafter, Russian scholar in Samara, Tchulin Awenski, discovered a group of structures somewhere 7 kilometers from Sphinx on the photo—11 pyramids of which 4 were big, 7 were small, eventually form a city.

All these happened 10 years ago. Since then, computer technology has dramatically advanced and is now able to perform more reliable and creditable analyses on those photos.

Using image analysis technique, scientists found 19 structures on the very site where 11 pyramids were previously found to exist, besides, there were roads and a strange-looking circular square. The size of those structures is very large, about 10 times that of the Great Pyramid in Giza, Egypt. The circular square was 1 kilometer across. What will be the use of such a huge square? Is it a launching site for spacecraft, or an accelerator site, or a commercial center in the city? These questions are quite puzzling. However, one thing is certain: this city was built many years ago and it is now inhabited by none.

It might well be that in the distant past, the Mars might be possessed of water, air and river, and thus harbored life which then became extinct or left the Mars and moved to the nearest planet, the earth, as there on the Mars remained little air, no water and extremely

sharp temperature variance.

The process is long, in which Mars lost its air, rivers, oceans, and became a cold, barren desert. If this speculation is acceptable, then we can derive that these cities were destroyed millions of years ago . An opposite speculation says that these structures must have disappeared in 5 000 to 10 000 years, otherwise dust storm must have destroyed them, no matter what materials they were made of. Here is the rub. The photos show that some roads were intentionally built to avoid crossing craters. This is an evidence that those cities would not be very old.

All these are speculations to be testified. In fact, during recent years, many space probes were sent to the Mars for this mission. But strangely and unfortunately, two Soviet Mars Satellite I spacecrafts were out of contact, and the American Mars Surveyor spacecraft disappeared from the Mars orbit in 1993. The Soviets had launched 10 spacecrafts to Mars but none could have performed its mission. Only two of them landed on Mars, as well as two American space probes landed on it. Why? Is the failure the result from inferior space equipment? The answer seems negative. The atmosphere of Venus is much harsher than Mars'. The Soviets have launched 14 spacecrafts and the Americans—one to Venus surface.

It may be certain that life on the Mars do not have any antisatellite system to shoot down all those spacecrafts. The mystery may be resolved when more advanced space probes were sent to the Mars.

Words and Phrases

Sphinx ['sfinks] *n*. 斯芬克斯(狮身人面像)

puzzle ['pʌzl] *n*. 谜 *vt*. 使人迷惑

Martian	['mɑ:ʃiən] *n*. 火星人(假想的), *a*. 火星的
excavate	['ekskəveit] *vt*. 开凿,挖掘
expose	[iks'pəuz] *vt*. 揭露,戳穿,揭穿
myth	[miθ] *n*. 神话
prominent	['prɔminənt] *a*. 显著的,显眼的
intriguing	[in'triginŋ] *a*. 引起兴趣的
hemisphere	['hemisfiə] *n*. 半球
corresponding	[ˌkɔris'pɔndiŋ] *a*. 相应的,对应的
shrink	[ʃriŋk] *vi*. 收缩,变小,减小
phenomenon	[fi'nɔminən](单) *n*. 现象
phenomena	[fi'nɔminə](复)
akin (to)	[ə'kin] *a*. 同类的(只作表语)
proceed	[prə'si:d] *vi*. 继续进行
latitude	['lætitjud] *n*. 纬度
equator	[i'kweitə] *n*. 赤道
oasis	[əu'eisis] *n*. 绿洲
vegetation	[ˌvedʒi'teiʃən] *n*. 植被
consistent (with)	[dən'sistənt] *a*. 一致的
inspiring	[ins'paiəriŋ] *a*. 振奋人心的
striking	[straikiŋ] *a*. 触目的,惊人的
notion	['nəuʃən] *n*. 想法,看法,观点
evidently	['evidəntli] *adv*. 明显地
lichen	['laiken] *n*. 地衣
prosper	['prɔspə] *vi*. 茁壮成长
barren	['bærən] *a*. 不毛的,荒芜的
probe	[prəub] *vt*. 探测,探测器,探测飞船
snap pictures	*phr*. 抢拍照片
beam	[bi:m] *v*. (定向)发出,(定向)播送
pock	[pɔk] *n*. 麻点

crater ['kreitə] *n*. 火山口，陨石坑
impact ['impækt] *n*. [im'pækt] *vt*. 冲击，碰撞
asteroid ['æstərɔid] *n*. 火星及木星轨道间的小行星
meteoroid ['mi:tjərɔid] *n*. 流星体，陨星体
sign [sain] *n*. 迹象
volcanic [vɔl'kænik] *a*. 火山的
mission ['miʃən] *n*. 使命，任务
attach importance to… *phr*. 对… 重视，重视…
blur [blə:] *vt*. 把…弄模糊
perspective point [pəs'pektiv] *n*. *phr*. 透视点
sophisticated [sə'tistikeitid] *a*. 高级的，复杂的
image processing *phr*. 图像处理
necklace ['nekleis] *n*. 项链
interference [ˌintə'fiərəns] *n*. 干扰
speculation [ˌspekju'leiʃən] *n*. 推测，猜想
pyramid ['pirəmid] *n*. 金字塔
creditable ['kreditəbl] *a*. 可信的
accelerator [æk'seləreitə] *n*. 加速器
be possessed of… [pə'zest] *phr*. 拥有…，据有…
harbor ['hɑ:bə] *vt*. 聚藏，容纳
variance ['vɛəriəns] *n*. 变化，变动
derive [di'raiv] *vt*. 推导，得出(结论)
Here is the rub. *phr*. 难就难在这里。
intentionally [in'tenʃənli] *adv*. 故意地
avoid [ə'vɔid] *vt*. 躲避，避开
testify ['testifai] *vt*. 验证，证明，证实
inferior [in'fiəriə] *a*. 劣的
resolve [ri'zɔlv] *vt*. 解释(疑难)，解决(问题)

Comprehension Questions

1. What did the old-fashion myths suggest about the Mars? What were their arguments?
2. How does space exploration expose those myths about the Mars?
3. With what speculations does the author explain the seasonal changes that occur on the Mars?
4. What conclusions on the Mars can be drawn after American and Soviet spacecrafts to the Mars provide ample information about the Mars?
5. How and why did some scientists suggest in 1975 that there might be a Sphinx on the Mars much larger than the one in Egypt?
6. What further discovery found on the photos induces mystery surrounding the Mars?
7. Describe the author's speculation about the Mars in the distant past.
8. What do you think about all those mysteries surrounding the Mars? Cite your arguments.
9. What do you think about the fact that most of the spacecrafts sent to Mars had lost? Did it occur by a curious coincidence? Cite your arguments.

火星上有另一座狮身人面雕像吗?

有关火星的一些神秘现象似乎仍使科学家们困惑。过去流传的神话,譬如,火星上的"运河",火星上的生命或者开凿那些"运河"的有智慧的生命,一直使人着迷,直到宇宙探索才把它们揭穿。

根据这些神话,火星上大概有水存在。当冬天来临火星每一极地时,形成显眼的和引起人们兴趣的白色极冠以及偶而出现的白云可证实这一点,因为它们就像通常的水晶那样反射阳光。

当春季来临每一半球时，这半球上的冰冠看来开始融化，而当火星的夏季来到时，就完全消失。精确地知道了火星从太阳那里接受多少热量，再测量极地冰冠收缩的速率，就可以很容易计算出这些极地冰冠必定是（出现在）表面上的现象，更类似霜层而不是厚实的冰原。

随着冰冠的融化，像植物那样的生物像波涛一样从高纬度地区向赤道推进。“运河”出现并变黑，出现一些淡黑色的，有时报道说是浅绿色的地块。常常，这些运河似乎加宽一倍，绿洲面积变大而变成巧克力似的棕色。

当然，随着河水向前推进，绿色植被出现在它们宽阔、平坦的河岸上，运河的变黑看来就是（存在）这些季节性植被的可见的证据。有一种观点认为当极地的水向着赤道流动时，植物开始生长。所有这一切与这一观点完全吻合。这确实是一幅引起人们兴趣的、鼓舞人的图画。但是，在有关火星的科学知识增多时，它被戳穿了：气温太低，水实际上不存在，只有很少甚至没有氧（就我们所知，植物生命应该产生更多的氧），大气层薄得可怜。

然而，在火星上显著的季节性变化确实存在。有些科学证据支持这样的想法，即那些黑线条确实是植被区。但是哪种植物可以在火星的条件下生长呢？明显地，颜色的变化是由那些不按照地球上的过程生长的植被造成的，但它可能与我们的地衣有亲缘关系；地衣即使在干燥，荒芜和经常冻结的土壤里也能茁壮生长。

美国的宇宙探测飞船水手－4号经过火星表面约5 600英里的上空[①]并抢拍了22张照片，然后于1965年7月14日将首批特写镜头照片定向发回地球。1971年11月，水手－9号进入围绕火星的轨道。前苏联人于1971年5月19日和28日发射火星－2号和火星－3号，它们于11月27日和12月2日到达火星轨道。它们发回的图片和信息表明火星表面有密布的麻点——火星及木星间的小行星

① 1英里＝1760码＝1.6093公里——编者注