

# 天文专业英语文选

上 册

南京大学外文系公共英语教研室编

商 务 印 书 馆

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1982年·北京

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## 前 言

本书共六十课,分上、下两册,每册三十课。内容由浅入深,篇幅由短而长。每课除正课外,有词汇、词组和注释。书末附有译文,供读者在理解原文有疑难时参考。希望读者不要依赖译文,而要大量阅读,多记词汇,熟悉语法,以提高阅读能力。

本书的材料多选自七十年代英美出版的大学天文教科书和有关天文的书刊,尽可能包括天文专业的一般知识。

本书由我室张景桂和傅玉华同志合编。在编写过程中,曾得到我校天文系的协助,提供了许多书刊资料,在此向他们表示感谢。

由于编者的水平有限,本书一定存在不少缺点和错误,希望读者把发现的问题和改进的意见告诉我们,使本书不断得到修正和充实。

南京大学外文系公共英语教研室

## 本书所用语法术语略语表

<i>a.</i>	adjective	(形容词)
<i>ad.</i>	adverb	(副词)
<i>conj.</i>	conjunction	(连接词)
<i>n.</i>	noun	(名词)
<i>num.</i>	numeral	(数词)
<i>pl.</i>	plural	(复数)
<i>prep.</i>	preposition	(介词)
<i>pron.</i>	pronoun	(代词)
<i>v.</i>	verb	(动词)

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## 1. ASTRONOMY

Astronomy, "the science of the stars", is concerned with the physical universe. This science deals with planets and their satellites, with comets and meteors, with the sun, the stars and clusters of stars, with the interstellar gas and dust, with the system of the Milky Way and the other galaxies beyond the Milky Way.①

Astronomy is one of the most ancient of the sciences. For thousands of years Man has been making observations of the sky at night and drawing conclusions from them.② Some of his knowledge he has put to great practical use.③ e.g. in navigation and timekeeping; much of it has served only, as yet, to increase his desire to know more about the structure and behavior of the Universe.④ In recent years, with the construction of better telescopes and with the increase in mathematical ability, astronomy has made great progress.⑤

### 词 汇

astronomy [əs'trɒnəmi] *n.* 天文学  
science ['saɪəns] *n.* 科学  
concern [kən'sə:n] *v.* 涉及, 使关心  
physical ['fɪzɪkəl] *a.* 物质的  
universe ['ju:nɪvə:s] *n.* 宇宙  
deal [di:l] *v.* 涉及, 论述  
planet ['plæniɪt] *n.* 行星  
satellite ['sætəlaɪt] *n.* 卫星  
comet ['kɒmɪt] *n.* 彗星

meteor ['mi:tɪə] *n.* 流星  
cluster ['klʌstə] *n.* 星团  
interstellar [ˌɪntə'stelə] *a.* 星际的  
system ['sɪstɪm] *n.* 系统, 系  
milky ['mɪlki] *a.* 乳白色的  
the Milky Way 银河  
galaxy ['gæləksi] *n.* 星系  
beyond [bi'jɒnd] *prep.* 在...外边, 在...那边



ancient ['eɪnfənt] *a.* 古代的  
 observation [ˌɒbzə'veɪʃən] *n.* 观测,  
 观察  
 draw [drɔː] (drew [druː], drawn  
 [drɔːn]) *v.* 引出, 得出  
 conclusion [kən'kluːʒən] *n.* 结论  
 knowledge ['nɒlɪdʒ] *n.* 知识  
 put [pʊt] (put [pʊt]) *v.* 把...用于  
 practical ['præktɪkəl] *a.* 实际的, 实  
 践的  
 use [juːs] *n.* 用途  
 navigation [ˌnævi'geɪʃən] *n.* 航海,

航空  
 timekeeping ['taɪm'kiːpɪŋ] *n.* 计时  
 increase [ɪn'kriːs] *v.* 增加  
 structure ['strʌktʃə] *n.* 结构  
 behavior [bi'heɪvɪə] *n.* 行为, 发展的  
 情况  
 recent ['riːsənt] *a.* 近来的, 最近的  
 telescope ['telɪskəʊp] *n.* 望远镜  
 mathematical [ˌmæθi'mætɪkəl] *a.*  
 数学的  
 ability [ə'bɪlɪti] *n.* 能力  
 progress ['prəʊɡres] *n.* 进步

## 词 组

(to) concern ... with 涉及  
 (to) deal with 涉及  
 at night 夜间  
 (to) draw conclusion 引(得)出结论  
 (to) put to (great practical) use

付诸实用  
 as yet 至今  
 (to) make (great) progress 取得  
 (巨大)进步

## 注 释

- ① This science deals with planets and their satellites, with comets and meteors, with the sun, the stars and clusters of stars, with the interstellar gas and dust, with the system of the Milky Way and the other galaxies beyond the Milky Way.

这是个简单句。science 是主语, deals 是谓语动词, 五个 with 并列, 共用一个 deal, 分别带有宾语。

- ② Man has been making observations of the sky at night and drawing conclusions from them.

这是个简单句。Man 是主语, 表示“人类”, has been making 和 (has been) drawing 是并列的谓语动词(现在完成进行时), observations 和 conclusions 分别作它们的宾语。

- ③ Some of his knowledge he has put to great practical use:

这是一种倒装句型, 它的自然语序是: He has put some of his knowledge to great practical use, .... he 代表上句中的 Man, 指人类, has put 是现在完成时态。

- ④ ...much of it has served only, as yet, to increase his desire to know more about the structure and behavior of the Universe.

这是个简单句。不定代词 much 作主语, of it 是介词短语作定语, 修饰 much, has served 是谓语, to increase his desire 是不定式短语作状语, 修饰 has served, 表示目的; 另一个不定式短语 to know more ... 作定语, 修饰 desire, 不定代词 more 作 know 的宾语, about ... behavior 是介词短语作定语, 修饰 more.

- ⑤ In recent years, with the construction of better telescopes and with the increase in mathematical ability, astronomy has made great progress.

这是个简单句。主语是 astronomy, 谓语是 has made, 宾语是 progress; 两个由 with 引入的并列介词短语作时间状语, 意思是“随着...”。

## 2. THE SOLAR SYSTEM

The solar system consists of the sun and the many smaller bodies that revolve around the sun. These include the planets with their satellites, and the comets and meteors. It is a large system; the outermost planet, Pluto, is about 40 times as far from the sun as the earth's distance,<sup>①</sup> and the majority of the comets have the aphelion points of their orbits still more remote.

The word planets (meaning wanderers) was originally used to distinguish from the multitude of "fixed stars" the celestial bodies, except the comets, that move about among the constellations.<sup>②</sup> Seven of these were known to early observers: the sun, the moon, and the 5 bright planets, Mercury, Venus, Mars, Jupiter, and Saturn, the last of which was believed to be near the sphere containing the stars themselves.<sup>③</sup>

With the acceptance of the Copernican system, the earth was added to the number of planets revolving around the sun,<sup>④</sup> and the moon was recognized as the earth's satellite.<sup>⑤</sup> Uranus, which is barely visible to the unaided eye, was discovered in 1781.<sup>⑥</sup> Neptune, which is too faint to be seen without the telescope, was found in 1846.<sup>⑦</sup> The still fainter Pluto, discovered in 1930,<sup>⑧</sup> completes the list of the 9 known principal planets. In the meantime, in 1801, Ceres, the largest of the asteroids, or minor planets, was detected.

## 词 汇

**solar** ['səʊlə] *a.* 太阳的  
**solar system** 太阳系  
**consist** [kən'sist] *v.* 由...组成  
**revolve** [ri'vɒlv] *v.* 公转  
**include** [in'klud] *v.* 包括  
**outermost** ['autəməʊst] *a.* 最外的  
**Pluto** ['plu:təʊ] *n.* 冥王星  
**distance** ['distəns] *n.* 距离  
**majority** [mə'dʒɔ:riti] *n.* 大多数  
**aphelion** [ə'fi:ljən] *n.* 远日点  
**remote** [ri'məʊt] *a.* 遥远的  
**wanderer** ['wɒndərə] *n.* 漫游者  
**originally** [ə'ridʒinəli] *ad.* 原先, 原来  
**distinguish** [dis'tiŋɡwɪʃ] *v.* 区别  
**multitude** ['mʌltitju:d] *n.* 众多  
**celestial** [si'lestjəl] *a.* 天的, 天上的  
**constellation** [ˌkɒnstə'leɪʃən] *n.* 星座  
**Mercury** ['mɜ:kjuri] *n.* 水星  
**Venus** ['vi:nəs] *n.* 金星  
**Mars** [mɑ:s] *n.* 火星  
**Jupiter** ['dʒu:pitə] *n.* 木星  
**Saturn** ['sætə:n] *n.* 土星  
**sphere** [sfie] *n.* 球体

**contain** [kən'tein] *v.* 包含  
**acceptance** [ək'septəns] *n.* 接受  
**Copernican** [kə'pɜ:nikən] *a.* 哥白尼的  
**recognize** ['rekəɡnaiz] *v.* 认识  
**Uranus** ['juərənəs] *n.* 天王星  
**barely** ['beəli] *ad.* 仅仅, 勉强  
**visible** ['vɪzəbl] *a.* 看得见  
**unaided** [ˌʌn'eɪdɪd] *a.* 无助的, 独立的  
**unaided eye** 肉眼  
**discover** [dis'kʌvə] *v.* 发现  
**Neptune** ['neptju:n] *n.* 海王星  
**faint** [feɪnt] *a.* 微弱的  
**complete** [kəm'pli:t] *v.* 完成, 使充满  
**list** [lɪst] *n.* 表  
**principal** ['prɪnsɪpəl] *a.* 主要的  
**meantime** ['mi:ntaim] *n.* 当时, 同时  
**Ceres** ['sɜ:ri:z] *n.* 谷神星  
**asteroid** ['æstərɔɪd] *n.* 小行星  
**minor** ['maɪnə] *a.* 较小的, 次要的  
**detect** [di'tekt] *v.* 发现, 探测

## 词 组

**(to) consist of** 由...组成  
**majority of** 大多数的  
**(to) distinguish ... from** 使...和...区别

**(to) add ... to** 把...加入  
**too ... to (inf.)** 太...以致不  
**in the meantime** 同时, 在...期间

## 注 释

① ... the outermost planet, Pluto, is about 40 times as far from the sun as the earth's distance.

这是个主从复合句。在 as ... as 结构中, 第一个 as 是副词, 作修饰

far 的状语,第二个 as 是从属连接词,引导一个省略的比较状语从句.修饰第一个 as. 注意在第一个 as 前面还可以加倍数或分数词来修饰.例如: This classroom is only half (one third) as large as that one. 这个教室只有那个教室的一半(三分之一)大。

- ② The word planets (meaning wanderers) was originally used to distinguish from the multitude of "fixed stars" the celestial bodies, except the comets, that move about among the constellations.

这是主从复合句。句中包含了一个由关系代词 that 引导的非限制性定语从句; 主句中 to distinguish 到 bodies 是不定式短语作状语, 修饰谓语动词 was used, 表示目的; 在这个不定式短语中 from the multitude of "fixed star", 是修饰 distinguish 的状语, 而 the celestial bodies 是它的宾语, bodies 后面有介词短语 except the comets 和从句 that ... constellations 都是修饰它的定语。

- ③ ... the 5 bright planets, Mercury, Venus, Mars, Jupiter, and Saturn, the last of which was believed to be near the sphere containing the stars themselves.

the last 开始是一个非限制性定语从句, which 指 the five bright planets, 而 the last of which 指 Saturn; 在从句中, 主语是 the last (of which), 谓语动词是 was believed, 不定式短语 to be near the sphere 作主语补足语, 现在分词短语 containing ... themselves 作修饰 sphere 的定语。

- ④ With the acceptance of the Copernican system, the earth was added to the number of planets revolving around the sun:

with ... system 是介词短语作状语, 修饰 was added, 表示伴随情况, revolving 到句末是现在分词短语作定语, 修饰 planets. 翻译时可把被动语态改为主动语态翻译, 以符合汉语的习惯。

- ⑤ ... and the moon was recognized as the earth's satellite.

有些动词 (如 find, recognize, see, regard classify ... 等) 同时要求有宾语和宾语补足语, 宾语补足语可以是名词、形容词、分词、不定式或介词短语等, 如把这种句型变成被动语态, 宾语补足语就变成了主语补足语。在这个句子中, 谓语动词 was recognized 是被动语态, as ... 是介词短语作主语补足语。

- ⑥ Uranus, which is barely visible to the unaided eye, was discovered in 1781.

which 是关系代词, 引导一个非限制性定语从句, 修饰 Uranus.

- ⑦ Neptune, which is too faint to be seen without the telescope, was

found in 1846.

在 which 引导的非限制性定语从句中, too ... to 是“太...(而)不...”的意思,不定式 to be seen (被动语态)作程度状语,修饰 too.

- ⑧ The still fainter Pluto, discovered in 1930, completes the list of the 9 known principal planets.

过去分词短语 discovered in 1930 作定语,修饰 Pluto; 也可以把它改成 which was discovered in 1930, 就变成一个非限制性的定语从句。

### 3. THE PHASES OF THE MOON

The moon's phases are the different shapes it shows.① Records of the phases of the moon have been found dating from 13,000 B.C. ② The moon is a dark globe like the earth; half is in the sunlight, while the other half turned away from the sun is in the darkness of night.③ The phases are the varying amounts of the moon's sunlit hemisphere that are turned toward us successively in the course of the month.

It is the *new moon* that passes the sun;④ the dark hemisphere is toward us. The moon is invisible at this phase unless it happens to pass directly across the sun's disk, causing an eclipse of the sun.⑤ On the second evening after the new phase the thin crescent moon is likely to be seen in the west after sundown.⑥ The crescent grows thicker night after night, until the sunrise line runs straight across the disk at the *first quarter*. Then comes the gibbous phase as the bulging sunrise line gives the moon a lopsided appearance.⑦ Finally, a round *full moon* is seen rising at about nightfall.⑧ The phases are repeated thereafter in reverse order as the sunset line advances over the disk; they are gibbous, last quarter, crescent, and new again.

The horns, or *cusps*, of the crescent moon point away from the sun's place, and nearly in the direction of the moon's path among the stars. They are more nearly vertical in the evenings of spring, and more nearly horizontal

in the autumn. Their direction in the sky follows the changing direction of the ecliptic with respect to the horizon during the year.

Often when the moon is in the crescent phase we see the rest of the moon dimly illuminated.<sup>⑨</sup> This appearance has been called “the old moon in the new moon’s arms”, for the bright crescent seems to be wrapped around the faintly lighted part.<sup>⑩</sup>

## 词 汇

shape [ʃeɪp] *n.* 形状  
 record [ˈrekəd] *n.* 记录  
 date [deɪt] *v.* (从某时期)开始  
 globe [gləʊb] *n.* 球, 球体  
 sunlight [ˈsʌnlaɪt] *n.* 日光  
 hemisphere [ˈhemɪsfɪə] *n.* 半球  
 successively [səkˈsesɪvli] *ad.* 继续地  
 course [kɔːs] *n.* 过程  
 invisible [ɪnˈvɪzɪbl] *a.* 看不见的  
 directly [dɪˈrektli] *ad.* 直接地  
 disk [dɪsk] *n.* 圆面, 盘  
 eclipse [ɪˈklyps] *n.* 食  
 thin [θɪn] *a.* 细的, 薄的  
 likely [ˈlaɪkli] *ad.* 大概  
 crescent [ˈkresənt] *n.* 月牙, 蛾眉月  
 sundown [ˈsʌndaʊn] *n.* 日落  
 thick [θɪk] *a.* 粗的, 厚的  
 sunrise [ˈsʌnraɪz] *n.* 日出  
 straight [streɪt] *ad.* 直, 直接  
 quarter [ˈkwɔːtə] *n.* 四分之一, 弦

first quarter 上弦  
 gibbous [ˈɡɪbəʊs] *a.* 凸圆的  
 bulge [bʌldʒ] *v.* 凸出  
 lopsided [ˈlɒpˈsaɪdɪd] *a.* 倾斜的  
 appearance [əˈpiərəns] *n.* 外表, 出现  
 repeat [riˈpi:t] *v.* 重复  
 thereafter [ðəəˈraɪftə] *ad.* 此后  
 reverse [rɪˈvɜːs] *a.* 相反的, 反向的  
 sunset [ˈsʌnsɛt] *n.* 日落  
 advance [ədˈvɑːns] *v.* 前进  
 horn [hɔːn] *n.* 角  
 cusp [kʌsp] *n.* 月角  
 direction [dɪˈrekʃən] *n.* 方向  
 vertical [ˈvɜːtɪkəl] *a.* 垂直的  
 horizontal [ˌhɒrɪˈzɒntl] *a.* 水平的  
 ecliptic [ɪˈklyptɪk] *n.* 黄道  
 respect [rɪˈspekt] *n.* 关系, 方面  
 horizon [həˈraɪzn] *n.* 地平线  
 dimly [ˈdɪmli] *ad.* 阴暗地  
 illuminate [ɪˈluːmineɪt] *v.* 照亮

## 词 组

in the course of 在...过程中  
 night after night 一夜一夜地

with respect to 关于



## 注 释

- ① The moon's phases are the different shapes it shows.

it shows (= which it shows) 是限制性定语从句, 修饰 shapes. 注意关系代词在引导限制性定语从句、本身又在从句中作宾语时, 可以省略。

- ② Records of the phases of the moon have been found dating from 13,000 B.C.

动词 find 后面有时要求跟宾语补足语, 本句中 have been found 是现在完成时被动语态, dating from 13,000 B.C. 是现在分词短语作主语补足语。比较: People has found records of the phases of the moon dating from 13,000 B.C.

- ③ ... half is in the sunlight, while the other half turned away from the sun is in the darkness of night.

这是个并列复合句。while 是连接词, 表示反意时可译成“而”; 过去分词短语 turned away from the sun 此处为修饰 half 的定语。

- ④ It is the new moon that passes the sun;

这是个强调句型, 其原句型是: A new moon passes the sun. 强调句型的一般结构是: it + to be + 强调成分 + that (who 或 which) + 原句(一强调成分)。例如: It is into the air that water disappears. 这里强调的是状语, 其原句型是 Water disappears into the air.

- ⑤ ... unless it happens to pass directly across the sun's disk, causing an eclipse of the sun.

从属连接词 unless = if ... not, 引导条件状语从句; 在 happen + 动词不定式这种结构中, happen 已失去原有的词意, 作“碰巧…”、“偶然…”解, 相当于 accidentally, 后面的不定式则含有实意(如 I happened to meet him in the street yesterday. 昨天, 我恰巧在街上碰到了他)。causing an eclipse of the sun 是现在分词短语作状语, 修饰 happen to pass, 表示结果。

- ⑥ ... the thin crescent moon is likely to be seen in the west after sundown.

likely = probably, to be + 不定式表示预先安排, 规定好的活动(如 You are to hand in your exercises tomorrow. 你们明天得交练习)。

- ⑦ Then comes the gibbous phase as the bulging sunrise line gives the moon a lopsided appearance.

as = when, 引导时间状语从句, 修饰 comes; 主句是个倒装句, 主语