

国家示范院校工学结合系列教材

GUOJIA SHIFAN YUANXIAO GONGXUE JIEHE XILIE JIAOCAI

# 实用矿业英语口语

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李长亭 主编

中国矿业大学出版社

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## 内 容 提 要

本书是国家示范院校工学结合系列教材之一,主要介绍有关煤矿生产、开采设备、故障维修等方面常用的矿业英语句型和词汇,同时也介绍了一些相关的矿业英语专业术语。

本书是高职高专院校煤矿开采、矿井建设、采矿工程、矿井通风与安全、矿山测量、矿山机电等专业的专门用途英语的辅助材料,也可作为煤矿生产技术和管理人员、矿业英语爱好者的参考用书。

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## 前言

《实用矿业英语口语》是为了顺应高职高专培养实用型、复合型人才的需求而编写的,旨在培养学生在各种矿业工作环境下运用专业知识和英语语言技能进行沟通的能力,也为将来参与各种矿业国际交流工作奠定基础。

本书选取了三十个常见矿业工作主题,在每个主题中提供了工作常用的交际用语和专业词汇,使学生充分领悟每个话题的交际策略,并且在实用工作场景中提高常用词汇的重现率。

本书力求在专业英语知识和英语语言技能之间找到一个平衡点,以适合中国学生的方式进行深入浅出的引导和训练,确保学生在了解和掌握矿业专业术语和基本概念后,在口语沟通上能言之有物、言之有据。本书内容紧扣各个煤矿开采环节及流程,分模块提高学生在真实语境下的英语口语沟通技能,语言通俗易懂,循序渐进,矿业知识和情境选择上具有较强的可操作性和实用性。

本书主编为李长亭,副主编为冉生涛、刘璇、刘玉。参加编写的人员有:李长亭(Topic 1、2、3、4、5、20、21)、冉生涛(Topic 12、13、14、15、16、25、26)、刘璇(Topic 22、23)、刘玉(Topic 6、7)、杨肖娜(Topic 8)、孙运红(Topic 9)、任素丽(Topic 10、11)、柴栋(Topic 17、18)、王志锐(Topic 19)、赵平(Topic 24)、陶琳(Topic 27)、李璟(Topic 28)、王爱萍(Topic 29、30)。

在本书的编写过程中,得到了平煤集团公司有关厂矿的大力支持,也参考了诸多同类教材。同时,平顶山工业职业技术学院从事采煤生产一线工作的历届毕业生提供了大量的现场实例和经验,提出了许多宝贵的建议,谨在此一并表示感谢。

由于编者水平有限,书中难免存在缺点和错误,敬请读者不吝指正,以便修正时加以完善。

编者

2013年9月

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## Topic 1

## Welcome to Pingdingshan Coal (Group) Co., Ltd.



## Practical Sentences

1. Pingdingshan Coal (Group) Co., Ltd. (hereinafter referred to as Pingdingshan Coal (Group)) is located in Pingdingshan City, Henan Province. Its predecessor was Pingdingshan Mining Administration Bureau.

平顶山煤业(集团)有限公司(以下简称平煤集团)位于河南省平顶山市。其前身是平顶山矿务局。

2. Pingdingshan Coal (Group) was listed as the major construction project in the national first "five-year plan" in 1952 and it was one of the 10 national construction projects of mining areas in 1953.

1952年,平煤集团被列为国家第一个“五年计划”重点建设工程。1953年,被列为国家十大煤矿建设工程之一。

3. The construction of Pingdingshan Coal (Group) was completed on September 8, 1955 and it was the first extra large coal base which was self prospected, designed and constructed in new China.

1955年9月8日,平煤集团建成投产,系新中国第一个自行勘探、自行设计、自行建设的超大型煤炭基地。

4. In January 1996, by approval of the former Ministry of Coal Industry, Pingdingshan Mining Administration Bureau was restructured into the state-owned and sole proprietor Co., Ltd. and in December 2002, by debt-to-equity swap, it was restructured as the limited liability company with multiple stock owned.

1996年1月,经煤炭部批准,平顶山矿务局重组为国有独资有限公司。2002年12月,通过债权置换,重组为股份有限责任公司。

5. Pingdingshan Coal (Group) owns three coal-fields: Pingdingshan, Ruzhou and Yuzhou. The distance from east to west of the mining area is 138 km and it crosses 9 cities



or counties in Pingdingshan City and Xuchang City.

平煤集团拥有平顶山、汝州、禹州三大煤田。矿区东西长 138 千米,跨越平顶山市、许昌市的 9 个市县。

6. The coal-bearing area of Pingdingshan Coal (Group) is 2 374 km<sup>2</sup> and it is the production base of coking and power coal with the most complete product variety domestically.

平煤集团矿区面积为 2 374 平方千米,是国内煤炭种类齐全的焦煤、电煤生产基地。

7. Through more than 50 years of development, Pingdingshan Coal Group has become a large industrial group, whose main products are power coal, clean coal, coke, electricity, chemical fertilizer, mine machinery, cement and so on.

通过 50 多年的发展,平煤集团已经成为一个大型工业集团,其主导产品为电煤、洁净煤、焦炭、电力、化肥、矿山机械、水泥等。

8. Pingdingshan Coal (Group) has relative strong comprehensive economic power, perfect and high effective management system and strong technical force.

平煤集团拥有较强的综合经济实力、完善高效的管理体制和强大的技术力量。

9. Pingdingshan Coal (Group) also has perfect information support and advanced transportation and sales network. Its coal product covers many provinces in central China, east China, middle-south and south China.

平煤集团还拥有完善的信息支持和先进的运销网络。煤炭销往华中、华东、中南和南方地区。

10. The non-coal industries of Pingdingshan Coal (Group) include electricity, coal chemical, transportation, building and mechanical manufacture industries.

平煤集团非煤产业包括电力、煤化工、运输、建筑和机械制造业。

11. Pingdingshan Coal (Group) has national industrial technology center, national mine rescue center and national A-level production safety and hygiene assesment consulting center.

平煤集团拥有国家级工业技术中心、国家矿山救护中心和国家 A 级生产安全卫生评估咨询中心。

12. The mineralization period of Pingdingshan coal-field is Permo-carboniferous Period, and the coal-bearing coefficient is 3.78 percent.

平顶山煤田的成矿期是石炭二叠纪,含煤系数为 3.78%。

13. There are 10 main minable seams from lower to top: G20, F17, F16, F15, E10, E9, E8, D6, D5 and C3.

主要可采煤层有 10 层,分别是 G20、F17、F16、F15、E10、E9、E8、D6、D5 和 C3。

14. The total thickness of main minable seams is 15-18 m and 6 seams (G21, F14, E11, D7, D4 and B2) are partly minable.

主要可采煤层有 15~18 米厚, G21、F14、E11、D7、D4 和 B2 等六个煤层为部分可采煤层。

15. The grade of metamorphism of coal is gradually strengthened from west to east

and from shallow to deep.

煤质等级由西到东、由浅到深逐渐提高。

16. Coal of Group C and D has medium heating value with high ash, low phosphorus and low sulphur.

丙组、丁组煤属高灰、低磷、低硫中等热值煤。

17. Coal of Group E has medium heating value with medium ash, low phosphorus and low sulphur.

戊组煤属中灰、低磷、低硫中等热值煤。

18. Coal of Group B has high heating value with low ash, phosphorus and sulphur.

乙组煤属低灰、低磷、低硫高热值煤。

19. Coal of Group G has medium heating value with medium ash, low phosphorus and high sulphur.

庚组煤属中灰、低磷、高硫中等热值煤。

20. Except the limestone roof of G20 coal seam, most roofs and floors of main minable seams are mudstone and sandy mudstone.

除 G20 煤层的石灰岩顶板外,主要可采的煤层大部分顶板为泥岩和砂质泥岩。

21. The feature of gas accumulation is that gas content in east coal-field is higher than that in west zone and also gradually increases from shallow to deep.

瓦斯积聚特点是东部煤田瓦斯含量高于西部,并由浅到深逐渐增加。

22. Coal dust of all coal seams in the coal-field has explosion hazard and the ignition period is 2 to 12 months.

煤田所有煤层的煤尘都具爆炸危险,易爆期为 2~12 个月。

23. The depth of isothermal zone in the coal-field is 25 m and the temperature is 12.7 °C. The geothermal gradient tends to increase from west to east and also from shallow to deep.

煤田恒温深度为 25 米,温度为 12.7 °C。地温梯度从西到东、由浅到深逐渐增高。

24. The total thickness of coal measures strata in the north limb of the coal-field is 610 m. It has about 50 coal seams, the total thickness of coal seams is 29 m and the coal-bearing coefficient is 4.85 percent.

煤田北翼岩层厚度 610 米,大约 50 层煤,煤层总厚度 29 米,煤层含煤系数为 4.85%。

25. An inclined shaft has been developed, one belt conveyor (belt width is 1 000 mm) erected and hoisting changed from the original skip hoisting to belt conveying.

开凿了斜井,安装了带式输送机(带宽 1 000 毫米),由原来的箕斗提升改为了带式输送机输送。

26. The diameter of the auxiliary shaft was increased from the original 4.5 m to 5.5 m and the hoister was also changed.

副井直径由原来的 4.5 米增加到 5.5 米,提升机也经过了改造。

27. Sectional operation is suitable for drill and blasting and plough face.

分段作业较适合炮采和刨煤机工作面。



28. Cutting chasing operation is suitable for conventional machine mining and fully-mechanized mining, especially for working face with broken roof and easy caving.

追机作业适合普采和综采,特别是顶板破碎、易垮落的工作面。

29. Sectional relay and chasing operation is suitable for long working face adopting conventional machine mining or fully-mechanized mining.

分段接力追机作业适合普采和综采的长工作面。

30. Currently, cycle operation is mainly applied in Pingdingshan Coal (Group).

目前,平煤集团采煤工作面多为循环作业。

### New Words

hygiene ['haɪdʒi:n]

*n.* 卫生学,卫生,保健法

metamorphism [ˌmetə'mɔːfɪzəm]

*n.* 变质,变形,变态

phosphorus ['fɒsfərəs]

*n.* 磷

sulphur ['sʌlfə]

*n.* 硫黄

carbonaceous [ˌkɑːbə'neɪʃəs]

*adj.* 碳质的,碳的,含碳的

methane ['miːθeɪn]

*n.* 甲烷,沼气

accumulation [əˌkjuːmjʊ'leɪʃən]

*n.* 积聚,累积,堆积物

ignition [ɪɡ'niʃən]

*n.* 点火,点燃,燃烧,点火装置

geothermal [dʒiːəu'θɜːməl]

*adj.* 地热的,地温的

gradient ['ɡreɪdɪənt]

*n.* 梯度,倾斜度,坡度

isothermal [aɪ'səu'θɜːməl]

*n.* 等温线

*adj.* 等温的,等温线的

Carboniferous [ˌkɑːbə'nɪfərəs]

*n.* 石炭纪,石炭层

mineralization [ˌmɪnərəlaɪ'zeɪʃən]

*adj.* 石炭纪的,石炭系的

*n.* 矿化,矿化作用

coefficient [ˌkəʊɪfɪjənt]

*n.* 协同因素,系数,率

*adj.* 合作的,共同作用的

limb [lɪm]

*n.* 肢,臂,枝干,分支

metamorphic [ˌmetə'mɔːfɪk]

*adj.* 变质的,变性的,变态的

inclined [ɪn'klaɪnd]

*adj.* 趋向于……的

auxiliary [ɔːɡ'zɪliəri]

*n.* 辅助物,附属机构

*adj.* 辅助的,副的,附加的

### Related Expressions

1. scoop and blast crew

炮采队

2. continuous miner crew

连采队

3. crew leader

带班班长

4. coal preparation plant

选煤厂

5. small mine

小型矿井

6. large mine

大型矿井

- |                                    |          |
|------------------------------------|----------|
| 7. medium mine                     | 中型矿井     |
| 8. emulsion pump station           | 乳化液站     |
| 9. mobile substation               | 移动变电站    |
| 10. spray pump station             | 喷雾泵站     |
| 11. centralized control console    | 集中控制台    |
| 12. distributing box               | 配电箱      |
| 13. equipment train                | 设备列车     |
| 14. dump truck                     | 自动倾卸卡车   |
| 15. service car                    | 服务车      |
| 16. Global Positioning System(GPS) | 全球卫星定位系统 |
| 17. electrical system              | 电气系统     |
| 18. distribution control box       | 控制配电箱    |
| 19. gathering system               | 煤炭收集系统   |
| 20. dust extraction                | 吸尘装置     |

## Topic 2

## Working in the Mine



## Practical Sentences

1. Every mine must have two shafts and everything goes up and down these shafts. One is called the upcast and the other is called the downcast.

每个矿必需有两个井筒，一切都要通过这两个井筒上下运送。一个井叫出风井，另一个井叫进风井。

2. Fans near the top of the upcast suck out the used air and the firedamp through large funnels.

出风井口的通风机通过大风硐抽出污浊空气和瓦斯。

3. Ventilation causes fresh air to be pulled in through the downcast and passed through the mine.

通风将新鲜空气由进风口吸入，并使之流经井下。

4. The main tunnels are lit by electric lights and so is the coal-face.

井下主巷道用电照明，采煤工作面也采用电灯照明。

5. The miner has a lamp fixed to his helmet so that he can see to work. The lamp is lit by a battery which is fixed on the miner's belt.

矿工把矿灯固定在工作帽上，从而能看清楚工作。矿灯由挂在腰带上的蓄电池点亮。

6. By counting the lamps that are given out each day, the lamp-man knows how many miners are down the mine.

通过数数每天发放的矿灯数，就能知道有多少矿工下井。

7. The miners are taken to and from the pit-bottoms in cages.

矿工们乘罐笼上下井。

8. These cages are like lifts and each cage has two desks.

罐笼像电梯一样，每个罐笼有两层。

9. There are two cages in each shafts and when one cage is at the top the other is at

the bottom.

每个竖井内有两个罐笼。一个罐笼在井口时,另一个罐笼就在井底。

10. When the top cage is loaded, the man called the bankman signals to the engine-man at the winding house.

井口罐笼装好后,井口把钩工发信号给绞车房司机。

11. The engine-man waits for a signal from the onsetter at the bottom cage.

司机等候井底罐笼处把钩工的信号。

12. After he has had both signals, the engine-man starts the winding gear.

两个信号都得到以后,司机就开动绞车。

13. The cages never carry men and coal together.

罐笼从来不许同时运人和煤。

14. When the cages are carrying men, the winding gear runs slower than coal is being lifted.

罐笼运人比运煤时,绞车开得要慢些。

15. The coal is carried in mine cars which are pulled electrically or by diesel engines.

煤是用电力或内燃机车牵引矿车运输的。

16. In the past, steam engines were used to pump the water out of the mines.

过去用蒸汽机将水抽出矿井。

17. With wire-rope and better steam engines, bigger loads could be lifted up and down the mine shafts.

用钢丝绳和较好的蒸汽机,就能在矿井内上下运输较大的载荷。

18. At the pit-bottom many tunnels lead off into the mine.

在井底许多巷道通向矿内。

19. The roofs of the tunnels are held up by strong steel girders.

巷道的顶板是用高强度的钢梁支撑的。

20. Some of the tunnels lead to the coal-face.

有些巷道通往采煤工作面。

21. Others lead to store-rooms, work-shops, locogarages, the first-aid room and the fire-station.

有的巷道通往仓库、车间、机车库、急救室和消防站。

22. Near the coal-face the roof is lower and the miners may have to bend down as they walk. The only lights are those on their helmets.

在采场顶板较低,矿工走路时可能不得不弯腰。只能用工作帽上的矿灯照明。

23. Perfect quality acceptance system of engineering and link it with wages.

完善工程质量验收制度,并与经济分配挂钩。

24. Full-time quality acceptor is assigned for working face and strict quality acceptance of working site.

工作面设专职质量验收员,严格作业现场质量验收考核。

25. Assemble quality should be guaranteed.

安装工作必须搞好安装质量。

✓26. Gas explosion has a certain concentration scope. Gas can be exploded only when its concentration is in five to sixteen percent and this scope is called gas explosion limit.

瓦斯爆炸是有一定浓度范围的,只有在 5%~16% 这个浓度范围内,瓦斯才能爆炸,这个范围称为瓦斯爆炸界限。

27. Ventilation reversing installation must be checked once every three months at least.

通风逆转装置至少每三个月检查一次。

28. One major cause of unsafe practices is lack of knowledge or skill.

不安全操作的一个重要原因是缺乏知识或技能。

29. Another source of unsafe practices is improper motivation and attitude.

违章操作的另一个原因是不良动机和态度。

30. Regulations about the mine ventilation should be made in the coal-mines all over the country.

应该在全国范围内制定关于煤矿井下通风的规则。

### New Words

upcast[ʌpkɑ:st]

n. 向上投掷之物,上抛,排气竖坑

downcast[daunkɑ:st]

n. 送风井

funnel[fʌnl]

n. 漏斗,烟囪

ventilation[venti'leifən]

n. 空气流通,通风设备

helmet['helmit]

n. 钢盔,头盔

onsetter[ɔnsetə]

n. 井底把钩工

gear[giə]

n. 齿轮,传动装置

diesel['di:zəl]

n. 柴油机,柴油

girders ['gə:də]

n. 大梁,纵梁

### Related Expressions

1. workshop

机修车间

2. lamp room

灯房

3. fan house

通风机房

4. power house

动力车间

5. locker rooms

更衣室

6. winding houses

提升机房

7. upcast shaft

回风井

8. downcast shaft

进风井

9. roadways to distant coal faces

开切眼

10. coal left to support shafts

井筒保护煤柱

11. gate or roadway

工作面巷道或主巷

12. ventilation doors

风门

- |                                      |          |
|--------------------------------------|----------|
| 13. air crossing                     | 风桥       |
| 14. roadway supports                 | 支架       |
| 15. girders supporting               | 金属拱形支架   |
| 16. armoured conveyor                | 铠装输送机    |
| 17. transfer point                   | 转载点      |
| 18. gate conveyor                    | 工作面巷道转载机 |
| 19. coal being loaded into mine-cars | 装载机装车点   |

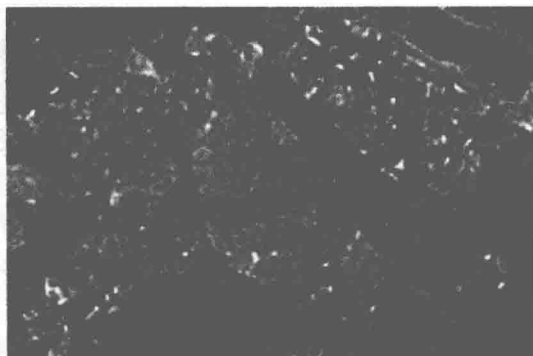


Figure 1-1-1



## Topic 3

## Where Did Coal Come From



## Practical Sentences

√ 1. Coal is a sedimentary rock formed from plants that flourished millions of years ago when tropical swamps covered large areas of the world.

煤是由数百万年前茂盛的植物形成的沉积岩,那时地球的大部分被热带沼泽所覆盖。

2. Lush vegetation, such as early club mosses, horsetails and enormous ferns, thrived in these swamps.

这些热带沼泽中生长着茂盛的植物,如原始石松、马尾松和高大的蕨类植物。

3. Generations of this vegetation died and settled to the swamp bottom, and over time the organic material lost oxygen and hydrogen, leaving the material with a high percentage of carbon.

这些植物一代又一代枯死后沉积到沼泽底部,在漫长的岁月中,这些有机(植)物失去了氧元素和氢元素,留下了高含量的碳元素。

4. Layers of mud and sand accumulated over the decomposed plant matter, compressing and hardening the organic material as the sediments deepened.

一层层泥沙在腐烂的植物上逐渐积累,逐渐加厚,使其压紧压实。

5. Over millions of years, deepening sediment layers, known as overburden, exerted tremendous heat and pressure on the underlying plant matter, which eventually became coal.

数百万年后,越来越厚的沉积层,也就是我们熟知的覆盖层,对深埋其下的植物产生高温高压作用,使之最终形成了煤。

6. Before decayed plant material forms coal, the plant material forms a dark brown, compact organic material known as peat.

在这些腐败的植物形成煤以前,它们先形成了一种坚实的深褐色物质,我们称之为泥炭。

7. Although peat will burn when dried, it has a low carbon and high moisture content relative to coal.

尽管干燥后的泥炭也可以燃烧,但相对于煤来说,它的碳含量较低,而水分含量较高。

8. Most of coal's heating value comes from carbon, whereas inorganic materials, such as moisture and minerals, detract from its heating value.

煤的燃烧值的高低取决于含碳量的高低,而水分和矿物质等无机物会降低它的燃烧值。

9. For this reason, peat is a less efficient fuel source than coal.

由于这个原因,泥炭是一种低效的燃料。

10. Over time, as layers of sediment accumulate over the peat, this organic material forms lignite, the lowest grade of coal.

久而久之,随着沉积物在泥炭上的增加,这些有机物质(泥炭)形成了质量最差的褐煤。

11. As the thickening geologic overburden gradually drives moisture from the coal and increases its fixed carbon content, coal evolves from lignite into successively higher-graded coals: subbituminous coal, bituminous coal and anthracite.

随着加厚的沉积岩层从煤层中逐渐获取水分,碳的含量增加,形成了质量从低到高的褐煤、次烟煤、烟煤和无烟煤。

12. Anthracite, the highest rank of coal, has nearly twice the heating value of lignite.

无烟煤的燃烧值能够达到褐煤的两倍。

13. Coal formation began during the Carboniferous Period (known as the first coal age), which spanned 360 million to 290 million years ago.

煤的形成起源于石炭纪(也就是我们熟知的第一煤纪),大约从三亿六千万年前到二亿九千万年前。

14. Coal formation continued throughout the Permian, Triassic, Jurassic, Cretaceous, and Tertiary Periods, which spanned 290 million to 1.6 million years ago.

煤的形成还依次跨越了二叠纪、三叠纪、侏罗纪、白垩纪和第三纪,大约从二亿九千万年前到一百六十万年前。

15. Coals formed during the first coal age are older, so they are generally located deeper in Earth's crust.

因为形成于第一煤纪的煤比较古老,所以它们大都埋藏在地壳中较深的位置。

16. The greater heat and pressures at these depths produce higher-grade coals such as anthracite and bituminous coals.

在那个深度,高温高压形成了如无烟煤和烟煤等高质量煤。

17. Conversely, coals formed during the second coal age under less intense heat and pressures are generally located at shallower depths.

相反,第二煤纪,经受较低温度和压力而形成的煤,多埋藏在较浅的位置。

18. Consequently, these coals tend to be lower-grade subbituminous and lignite coals.

当然,这个时期的煤多半是亚烟煤和褐煤了。

19. Coal contains organic (carbon-containing) compounds transformed from ancient plant material.

煤中含有来自于古生物的有机化合物(含碳的)。

20. The ancient original plant material was composed of cellulose, lignin, tannin and other organic compounds such as fats and waxes.

这些古生物由纤维素、木质、丹宁和其他一些诸如脂肪和石蜡的有机化合物所构成。

21. Cellulose is the material which reinforces the plant cell walls.

纤维素是增强细胞壁强度的物质。

22. Lignin is the substance that cements plant cells together. Tannin is a class of compounds in leaves and stems.

木质是黏合植物细胞的物质。丹宁是叶子和茎里所含的化合物。

23. In addition to carbon, these organic compounds contain hydrogen, oxygen, nitrogen and sulfur.

除碳以外,这些有机物质还包括氢、氧、氮和硫。

24. After a plant dies and begins to decay on a swamp bottom, hydrogen and oxygen (and smaller amounts of other elements) gradually dissociate from the plant material, increasing its relative carbon content.

死亡后的植物在沼泽底部开始腐烂时,氢和氧(和一些极少量的微量元素)逐渐从腐烂的植物上分解开来,使含碳量增加。

25. Coal also contains inorganic components, known as ash.

当然煤也含有像灰分的无机物质。

26. Ash includes minerals such as pyrite and marcasite formed from metals that accumulated in the living tissues of the ancient plants.

灰分中含有诸如黄铁和白铁的矿物质,它们来源于金属,这些金属在古生物未死的组织中沉积。

27. Quartz, clay and other minerals are also added to coal deposits by wind and groundwater.

石英、黏土和一些矿物质也会由风和地表水带入到煤的沉积物中。

28. Ash lowers the fixed carbon content of coal, decreasing its heating value.

灰分会降低煤中的碳含量,同时也会降低它的燃烧值。

29. Reserves of all fossil fuels are limited.

所有矿物燃料的贮藏量都是有限的。

30. The problem now is to meet the new safety and environmental requirements. 现在的问题是要满足新的安全和环境要求。

### New Words

sedimentary[ˌsedi'mentəri]

adj. 沉积的,沉淀性的

tropical[ˈtrɒpɪkl]

adj. 热带的

fern[fɜ:n]

n. 蕨类植物

peat[pi:t]

n. 泥炭

lignite[ˈlɪɡnaɪt]

n. 褐煤

subbituminous[ˌsʌbɪ'tju:mɪnəs]

adj. 亚烟煤的