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高等学校试用教材

英 语

第 三 册

(冶金类)

北京钢铁学院(主编)

昆明工学院 东北工学院

人 民 教 育 出 版 社

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本书是根据 1977 年高等学校工科外语教材编写会议的要求编写的《英语》第三册(冶金类)教材。内容包括钢铁冶金、有色冶金、金属压力加工、金属物理、金相及热处理等方面。全书共十二课,文章四十八篇,每课配有语法及辞汇注释和大量练习。

本册可接续大连海运学院、上海交通大学和天津大学分别主编的三种《英语》教材(一、二两册)的任何一种,供冶金院、系学生及有关专业人员使用。

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北 京 钢 铁 学 院(主 编)

昆 明 工 学 院 东 北 工 学 院

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前 言

根据 1977 年召开的全国高等学校工科基础课教材座谈会及高等学校工科外语教材编写会议的精神, 我们编写了《英语》第三册(冶金类)教材, 适用于钢铁和有色冶金类各专业, 以及金属压力加工、金属物理、金相及热处理、冶金物理化学等专业。

本书的任务是继续打好英语语言基础, 巩固和扩大词汇和语法知识, 进一步培养学生使用英语的熟巧及综合分析能力和翻译能力, 为阅读英语冶金专业书刊打下较牢固的语言基础。

本书共 12 课, 每课包括课文、词汇、注释、练习和阅读材料五部分。课文及阅读材料均选自原文书刊, 仅在个别地方作了删节。课文内容都是冶金科普性文章, 避免偏专, 以便于低年级学生易于接受。语言上具有一定难度, 并力求生动活泼, 语言规范。

本书每课都配有一个语法复习重点, 通过课文、注释及练习对重点语法项目进行复习、巩固和提高。

注释部分除对正课文的难点进行注释外, 并对该课的语法复习重点进行了适当的提示和概括。

为了使學生切实掌握所学内容, 每课后均安排了大量的练习, 以利于精讲多练。练习包括复习课文和复习巩固已学过的词汇、语法知识两方面的内容。

每课有 A、B、C 三篇阅读材料, A 篇结合正课文, 选注了部分生词以便于学生阅读; B、C 两篇仅供选用。书后附有编写本书正、副课文的资料来源书目, 以课次为序。

本书由北京钢铁学院主编, 参加编写的单位有昆明工学院和东北工学院。参加编写的人员有: 北京钢铁学院外语教研室胡德

润、宋国明、牟孝忠，昆明工学院外语教研室王学铭、祝帆，东北工学院外语教研室王洪涛。

本书承中南矿冶学院(主审)、重庆大学(主审)、马鞍山钢铁学院、武汉钢铁学院、鞍山钢铁学院、西北工业大学、江西冶金学院等单位审阅，同志们提出了许多宝贵意见，我们对此表示衷心感谢。在编写过程中，我们还得到北京钢铁学院冶金系刘钢同志及中共中央马、恩、列、斯著作编译局刘丽媛同志的帮助，提出了一些意见，在此一并致谢。

由于编者水平所限，教材中难免存在不少缺点错误，热切希望读者批评指正。

编者

一九七九年三月

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LESSON ONE

TEXT:

MAN-MADE MATERIALS

EXTRA READINGS:

A. METALLIC MATERIALS

B. PROPERTIES OF METALS AND THEIR CONSEQUENT USES

C. COPPER

Words and Expressions

- | | | |
|-----------------|-----------------------------|----------------|
| 1. ceramics | [si'ræmiks] <i>n.</i> | 陶瓷 |
| 2. concrete | ['kɒnkri:t] <i>a.</i> | 具体的 |
| 3. blueprint | ['blu:'print] <i>n.</i> | 蓝图 |
| 4. vital | ['vaɪtl] <i>a.</i> | 极其重要的 |
| be ~ to | | 对…是极其重要的 |
| 5. civilization | [ˌsɪvɪlaɪ'zeɪʃən] <i>n.</i> | 文明; 文化 |
| 6. humanity | [hju(:)'mænɪti] <i>n.</i> | 人类 |
| 7. era | ['iərə] <i>n.</i> | 时代; 纪元 |
| 8. entirely | [ɪn'taɪəli] <i>ad.</i> | 完全地; 彻底地 |
| 9. dependent | [dɪ'pendənt] <i>a.</i> | 依靠的, 依赖的 |
| ~ on (upon) | | 由…决定的;
随…而定 |
| 10. progress | ['prəʊgres] <i>n.</i> | 前进; 进展;
进步 |

11. crucial	[ˈkruːʃjəl] <i>a.</i>	决定性的; 紧要 关头的
12. glamorous	[ˈglæməərəs] <i>a.</i>	有魅力的
13. nose	[naʊz] <i>n.</i>	鼻子; 弹头
14. cone	[kəʊn] <i>n.</i>	锥形物; 锥体
15. tremendous	[triˈmendəs] <i>a.</i>	极大的; 惊人的
16. reentry	[riˈentri] <i>n.</i>	再进入; (字)重 返大气层
17. wash	[wɒʃ] <i>v.</i>	洗, 洗涤
18. proper	[ˈprɒpə] <i>a.</i>	适合的, 适当的
19. indispensable	[ˌɪndɪsˈpensəbl] <i>a.</i>	必不可少的
20. relatively	[ˈrelatɪvli] <i>ad.</i>	相对地; 比较地
21. compose	[kəmˈpəʊz] <i>vt.</i>	组成; 构成
be ~d of		由...组成
22. commercial	[kəˈmɜːʃəl] <i>a.</i>	商业的; 大批的
23. exponentially	[ˌɛkspəʊˈnenʃəli] <i>ad.</i>	成指数地
24. several	[ˈsevrəl] <i>a.</i>	几个, 数个
25. estimate	[ˈestɪmeɪt] <i>v.</i>	估计; 估价
26. composition	[ˌkɒmpəˈzɪʃən] <i>n.</i>	成分; 合成物
27. grade	[ɡreɪd] <i>n.</i>	级别; 类别
28. automobile	[ˈɔːtəməbiːl] <i>n.</i>	汽车
29. corporation	[ˌkɔːpəˈreɪʃən] <i>n.</i>	公司; 企业
30. consumer	[kənˈsjuːmə] <i>n.</i>	消费者; 用户
31. despite	[dɪsˈpaɪt] <i>prep.</i>	不管; 尽管
32. amazing	[əˈmeɪzɪŋ] <i>a.</i>	令人惊异的
33. search	[sɜːtʃ] <i>n.</i>	探索
34. aerospace	[ˈɛərəʊspeɪs] <i>n.</i>	航空; 宇宙空间

35. reliability	[riˌlaɪə'biliti] <i>n.</i>	可靠性
36. standard	['stændəd] <i>n.</i>	标准
37. epitomize	[i'pitəmaɪz] <i>vt.</i>	概括;集中体现
38. long-term	['lɒŋtɜ:m] <i>a.</i>	长期的
39. warranty	['wərənti] <i>n.</i>	保证;保单
40. lower	['ləʊə] <i>v.</i>	降低

TEXT

MAN-MADE MATERIALS

We live in a world of man-made materials. Steel, aluminum, plastics, ceramics, copper, glass, and all the others are the concrete substance of our ideas, our designs, our product plans and blueprints.

Of course, materials have always been vital to human civilization. From history books we have all learned, at one time or another, that three of humanity's earliest eras are called the Stone Age, the Bronze Age and the Iron Age, because the civilization of each was almost entirely dependent on the material after which the era was named¹. But now, in the twentieth century, materials — not just one, but many — have become one of the most important factors on which the advance of technology and industry depends. Our progress in space, in electronics, and in atomic energy is directly linked to the solution of crucial materials problems. Even in many of the less glamorous manufacturing fields, materials are of major importance in the planning, design, and manu-

facture of products. Whether it is a rocket nose cone that must withstand the tremendous heat of reentry into the atmosphere, or a washing machine, the use of proper materials is indispensable to the success of the product.

Let's take a closer look at this materials world which is so vital to both our everyday products as well as advanced technology. Until the beginning of this century, the world of materials was relatively small. It was composed of only the few common materials with which we all are familiar: iron, copper, lead, wood, glass, ceramics, and rubber. But then steel and aluminum were produced commercially, and the first commercial plastics were developed. In the last 50 years, the number of² new metals, alloys, plastics, rubber, and ceramics has increased exponentially. Today there are several hundred times as many different materials as in 1900, and it is estimated that there are between 50,000 and 70,000 different compositions and grades available now. For example, in 1900, less than 100 different materials were used in automobiles. Today's car has at least 4,000 different materials in it. And one large manufacturing corporation uses 14,000 different materials in the wide variety of industrial and consumer products it produces.

Despite the amazing variety of modern-day materials, the search still goes on for better materials to meet new requirements, not only in an advanced technology area such as aerospace, but in the manufacture of industrial and consumer products as well³. Also, better materials are

needed to meet higher quality and reliability standards, epitomized by long-term product warranties and the demand for safer products. Finally, the search goes on constantly for new and better materials to lower costs.

NOTES

1. ... because the civilization of each was almost entirely dependent on the material *after which the era was named*.

句中斜体部分是由“介词+which”引出的定语从句。从句中的主语是 the era, 谓语是 was named, after which 作状语。全句可译为:

因为其中每个时代的文明几乎完全取决于以之命名的材料。

“介词+which”引出的定语从句在科技书中是常见的。要注意介词是属于从句的, 而不是属于主句的。

这样的句子在本课中还有二处:

But now, in the twentieth century, materials — not just one, but many — have become one of the most important factors on which the advance of technology and industry depends.

It was composed of only the few common materials with which we all are familiar ...

2. (the) number of 中的“number”是“数目”的意思, 注意不要与 a number of (“若干”、“许多”)相混:

The number of students in our country increases every year. (谓语用单数)

我国学生的数目每年增加。

A number of steel plants there use (uses) electric furnaces. (谓语用单数或复数)

那里许多钢厂用电炉。

3. Despite the amazing variety of modern-day materials, the search still goes on for better materials to meet new requirements, not only in an advanced technology area such as aerospace, but in the manufacture of industrial and consumer products as well.

句中 for better materials 这个介词短语作前面名词 the search 的定语。全句可译为:

尽管现在的材料品种已多得惊人, 但仍在继续探寻更好的材料以满足新的需要 —— 不仅在诸如宇航的先进技术领域中是如此, 在生产普通工业品及消费品方面也是如此。

EXERCISES

I. Answer the following questions:

1. What are the man-made materials mentioned in the text?
2. What are three of humanity's earliest eras called?
3. Must a rocket nose cone withstand the tremendous heat?
4. Do you think this materials world is vital to our everyday products?
5. How many different compositions and grades of materials are there available now?
6. How many different materials were used in automobiles in 1900? How many are used today?
7. Does the search go on constantly for new and

better materials to lower costs?

8. How many different materials does one large manufacturing corporation use in its industrial and consumer products?

II. Some of the following statements are true and some are false. Point out which are true and which are false:

1. Stone, sand and earth are man-made materials.
2. Man-made materials have not been vital to human civilization.
3. The Stone Age was named almost entirely after the material stone, depended on at that time.
4. Three of humanity's earliest eras are called the Sand Age, the Copper Age and the Steel Age.
5. Our progress in space is indirectly linked to the solution of crucial materials problems.
6. Materials are of major importance in the manufacture of products.
7. A washing machine must withstand a tremendous heat.
8. At present, the world of materials is relatively small.
9. At the beginning of this century, the first commercial plastics were developed.
10. Today's car has at least 4,000 different materials in it.

III. Point out the attributive clauses in the following and translate the sentences into Chinese:

1. The nucleus is the part of the atom from which atomic energy is released.
2. We say that work is the product of the force applied and the distance through which it acts.
3. These stars form a group, the shape of which is rather like the shape of a watch.
4. From the way atoms act, men have been able to compare their weight and list them in a table beginning with the slightest and ending with the heaviest.
5. Lead is in sharp contrast with copper, tin, and iron, all of which were known to and used by the ancients.
6. In some places moving water drives the generators that produce the electric current we use.
7. Many pure substances have definite temperatures at which they change from one physical state to another.
8. When we study the ease (容易程度) with which a metal corrodes, or changes into a new substance, we are studying one of the chemical properties of that substance.
9. There is a group of metals in which the process of corroding stops after an oxide film has been developed.
10. Substances through which currents easily pass are known as conductors.
11. Metals have many characteristic properties, the

most important of which is strength.

12. Some metals have special properties, two of which are the power to conduct electric current and the ability to be magnetized.
13. The main properties of metals on which metal products rely are their strength, toughness, plasticity, resistance to corrosion and the ability to be formed into desired shapes.
14. New and better materials, for which the search goes on constantly, are of vital importance for the progress in space, electronics, atomic energy, and ordinary industries.

IV. Fill the blanks with appropriate prepositions given below: for, from, of, with, to, by, in:

- A. Have you ever wondered why most ____ the electric wires are made ____ copper instead ____ the cheaper metal iron? There are several reasons ____ this; perhaps you can give some ____ them. One important reason is that copper conducts electricity much better than iron. All metals conduct electricity, and ____ this means we can often tell whether a substance is a metal, though not always, as we shall see later. However, the scientist has been able to arrange the metals ____ a table according ____ the ease with which they allow the electric current to flow.
- B. It is well known that iron rusts and silver tarnishes, while gold remains bright. This chemical