

**A
SCIENTIFIC
AND
TECHNICAL
ENGLISH
READER**



下
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科技英语读本

科学技术文献出版社

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科技英语读本

下 册

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编 者 的 话

本书是为科技人员学习英语编写的，可用作科技人员英语学习班教材，也可供自学之用，既适用于初学者，也适用于稍有英语基础的读者。全书共分两册并备有有声资料。

下册包括：

- 一、课 文：共选十六篇。文章都选自近年来英、美科技书籍。每篇课文后附有必要的注释。
- 二、词 汇：共有词汇和习语800左右。
- 三、语 法：扩大、加深上册的语法内容，并增加新的语法专题。
- 四、词汇学习：继上册安排英语常用词的用法，通过简短说明、比较、举例介绍给读者。
- 五、练 习：分为理解和词汇、语法以及阅读和翻译练习三个部分。练习形式力求多样，并培养一定的听说能力。阅读和翻译练习旨在扩大阅读量和培养翻译能力。附录中还提供练习答案。
- 六、附 录：包括分课词汇表、自由阅读材料、长难句分析、构词知识、各国学会、协会、制定标准机构和专业标准名称及其缩写以及下册所用词汇和习语的索引。

由于我们水平有限，错误缺点一定难免，望读者不吝指正。

编 者

一九八〇年八月

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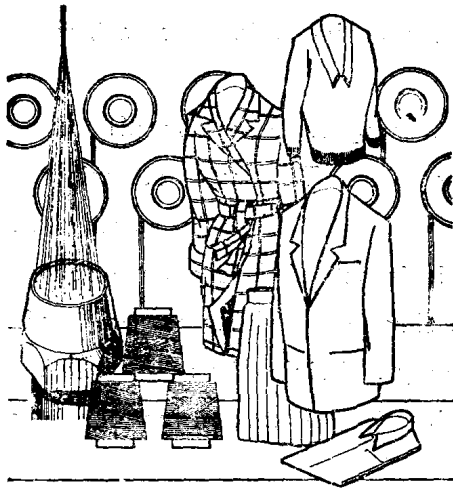
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Lesson One

Man-made Fibers



Wool, cotton, silk, and flax are the classic fibers which have a natural origin and whose proven qualities we have made use of in a variety of ways for centuries¹. They are converted into textiles by processes which begin with spinning into yarn². The man-made fibers are produced from materials which are not in fiber form; they may be either produced by chemical treatment of natural products, such as cellulose from wood pulp in the production of rayon, or entirely synthetic, having no existence in nature,

as are nylon and terylene, having been made from chemical substances³. The first man-made fiber was called "artificial silk"; this indicated not an intention to imitate "the real thing", but a desire to provide something as attractive and very much cheaper⁴. In fact, man-made fibers have distinctive properties which make them acceptable in their own right and not as imitations or substitutes for the natural fibers.⁵

The manufacturing processes for all man-made fibers are basically the same. The raw materials are treated chemically, in some cases melted by heating, to form a viscous liquid. This is extruded through minute holes in a nozzle, and the threads of filaments produced are solidified in various ways. Originally rayon and acetate are always produced in what is known as continuous filament form.⁶

1. ...whose proven qualities we have made use of in a variety of ways for centuries. 这句定语从句和前面的which have a natural origin是等立的。句中, whose proven qualities 是 make use of 的宾语。这一句可译为“几个世纪以来, 由于传统使用的纤维的质量可靠, 我们已把它们作了多方面的利用。”
2. ...into textiles by processes which begin with spinning into yarn. 可译为“通过很多过程, 首先是纺成纱, 将它们制成织物。”
3. they may be either produced by chemical treatment

of natural products, ... or entirely synthetic, having no existence in nature, as are nylon and terylene, having been made from chemical substances. 注意句中either...or...的用法。or entirely synthetic = or may be entirely synthetic as are nylon and terylene, as是关系代词,引导定语从句,意为“如”。这里的as指代synthetic在所引出的定语从句中作表语。句中的两个分词短语分别用来说明synthetic和nylon and terylene。

4. ...to provide something as attractive and very much cheaper. 可译为“提供某些既讨人喜欢而又便宜得多的东西。”，as是副词。
5. substitutes for the natural fibers 天然纤维的代用品
6. ...are always produced in what is known as continuous filament form. 句中连接代词what引导一个从句,即what is known as continuous filament form,用作in的宾语。

Word Study

of

of 是一个特别活跃的介词,可以构成短语来表示多种关系,如:

1. 表示所有关系

the workers of this factory (这家工厂的工人)

the temperature of the body (这个物体的温度)

2. 表示部分和数量

some of us (我们中间有些人)

a series of tests (一系列的试验)

3. 表示同位关系

the city of Peking (北京城)

(at) a temperature of 25℃ (摄氏25度的温度)

4. 表示原因

He died of pneumonia. (他死于肺炎。)

5. 关于, 对于 (接近about的含意)

He is not sure of it. (他对此事不能肯定。)

What do you think of it? (你认为此事如何?)

6. 表示特点

He is a man of ability. (=able) (他是一个能干的人。)

The work is of great importance. (=important)

(这件工作很重要。)

7. 表示动宾关系

the discovery of electricity (发现电)

the storage of energy (储存能量)

8. 用于形容词和副词的最高级中, 表示比较范围

He is the best of teachers. (他是最好的教师。)

Copper is the most widely used conductor of all.

(铜是所有导体中使用最广泛的。)

same

same 无论用作哪一词类, 前面必须加定冠词 the 或 this, that, 如: These devices are same shape. (误)

These devices are the *same* shape. (正) (这些仪表形状相同。)

1. —a.

The two machines look the *same*. (这两台机器看起来一样。)

Both of them went there on the *same* day. (他们两人同一天到哪里去的。)

2. —pron.

It is the *same* to me. (这对我说来是一样的。)

I would do the *same* again. (我愿意重做一次。)

3. *same* 后可接介词 *to* 和 *with*, 也可接 *as*, *that* 和 *where*, 如:

You can do it now or leave it till later, it's all the *same to* me. (你可以现在做或留待以后做, 这对我全是一样。)

It is the *same with* liquids as *with* gases.
(这对液体和气体都一样。)

This is the *same* device *as* the one I used yesterday.

(这台仪表和我昨天用过的那台一样。)

She was born in the *same* city *where* he was born.

(她和他都生在这个城市里。)

He uses the *same* books *that* you do.

(他用的书和你用的一样。)

Practice

Put in *of* or *same* in each of the following sentences,

1. We are _____ the _____ age ([eidʒ]年龄).
2. Most _____ us have read the _____ book as they.
3. These two kinds of liquids turn into solids at the very _____ temperature.
4. Water boils at a temperature _____ 100℃.
5. The case is the _____ with gases.
6. The manufacturing processes for all man-made fibers are basically the _____.
7. Put the book back in the _____ place where you found it.
8. We must work hard for the realization ([riələi 'zeɪʃən]实现) _____ the four modernizations of our country.

Grammar

分词的时态

I. 构成:

时态 \ 语态		主 动	被 动
现在分词	一般式	making	being made
	完成式	having made	having been made
过去分词			made

[注意]否定式是“not+分词”，如：not making, not being made, not having made.

I. 用法;

类别	用 法	例 句
现在分词一般式	分词表示的动作与谓语动词的动作同时发生, 或表示动作发生之后谓语动词的动作立即发生。	<p><i>Crossing these spaces, the wheels of the train make noises.</i> (火车轮子驶过隙缝时发出响声。) <i>We saw him watching the news on TV last night.</i> (昨晚我们见到他在看电视新闻。) <i>The metal being cut is low carbon steel.</i> (正在切割的金属是低碳钢。) <i>Being melted by heating, the raw materials form a viscous liquid.</i> (原料在加热熔化时变成了粘液。) <i>Picking up the telephone at his elbow, he asked for a seat to be kept for him.</i> (他拿起手边的电话要求给他留一个座位。)</p>

现在分词完成式	分词表示的动作先于谓语动词的动作发生,常用作状语,表示时间或原因。	<p><i>Having finished the experiment, they came to help us.</i> (他们做完实验后就来帮助我们。)</p> <p>The worker wrote a report to the plant, <i>having made improvements in these machines.</i> (这位工人在改进了这些机器后就给厂里写了个报告。)</p> <p><i>Having been repaired, the machine runs well.</i> (经过修理之后, 机器运行良好。)</p>
过去分词	一般表示已完成的被动动作, 或不强调它和谓语动词表示的动作在时间上的关系。	<p>These new industrial products <i>made in China</i> are of good quality. (这些中国制造的新的工业产品质量很高。)</p> <p><i>Heated, the metal expands.</i> (金属受热后就会膨胀。)</p>

[注意]1. 被动态的完成式分词有时可与过去分词相互替换, 前者强调动作的时间, 后者强调动作的结果, 试比较:

Having been tested many times, the metal is now found to be very strong.

(经过多次试验之后, 发现这种金属强度很高。)

Tested many times, the metal is now found to be very

strong. (经多次试验, 发现这种金属强度很高。)

2. 分词用作定语时, 要注意分词所表示的动作和谓语所表示的动作之间的时间关系。一般说来有下述几种情况:

- 1) 当分词表示的动作和谓语所表示的动作同时发生时, 用现在分词。

They live in a room *facing* (= *that faces*) south.

(他住在一间朝南的房间里。)

We visited a factory in Shanghai. The workers *working* (= *who were working*) there were all young people.

(我们在上海参观了一个工厂。在那里工作的都是年轻人。)

Come tomorrow and give the report to the man *sitting* (= *who will be sitting*) at that desk.

(明天再来, 把报告交给坐在那张书桌前的人。)

- 2) 分词表示的是现在正在发生的动作时, 用现在分词。

The man *talking* there (= *who is talking there*) with him will perhaps come to teach here next month.

(和他谈话的那个人下个月可能到我们这里来教书。)

The laboratory *standing* (= *that stands*) at the corner of the street was built last year.

(街道拐角那所实验室是去年修建的。)

- 3) 过去分词作定语时, 表示的动作或在谓语所表示的动作之前发生, 或是没有一定的时间性。

This is the only car *repaired* ([ri'peəd]修理) (= *that has been repaired*) by that mechanic.

(这是那个机械师所修理过的唯一的一辆汽车。)

He is a man *loved* by all.

(他是受群众爱戴的人。)

- 4) 如果所指的动作(被动)现在正在发生, 可用被动态的现在分词。

The machine *being repaired by him* is a planer.

(他正在修理的那台机器是刨床。)

Exercises

Comprehension and vocabulary

I. True or false

1. All classic fibers have a natural origin.
2. For centuries we have made use of the proven qualities of the classic fibers in various ways.
3. Classic fibers are changed into textiles by processes which begin with spinning into filament.
4. Man-made fibers are materials that can be either produced by chemical treatment of natural products or can be entirely synthetic.
5. Nylon and terylene are synthetic fibers made from chemical substances.
6. Man-made fibers are more attractive and cheaper than natural fibers.
7. Nowadays we use man-made fibers as substitutes for natural fibers.
8. The manufacturing processes for all man-made fibers are quite different from one another.
9. The raw materials are treated chemically to form a viscous liquid.
10. The viscous liquid is extruded through minute

holes in a nozzle, and the threads of filaments are solidified always in the same way.

I. Give nouns corresponding to the following verbs:

treat—	solidify—
exist—	produce—
imitate—	intend—

II. There is a word or phrase in column B similar in meaning to each one in column A, but they are not in correct order. Rearrange them so that they come together.

A	B
1. in a variety of ways	a. artificial silk
2. convert electric energy into heat energy	b. filament
3. man-made fibers	c. chemical substances
4. raw materials	d. acetate
5. synthetic substances	e. artificial fibers
6. thread	f. turn electric energy into heat energy
7. rayon	g. natural materials
8. cellulose	h. in various ways

III. Put the following into English using the phrases in *italics* in the sentences.

1. They *are converted into* textiles by processes which begin with spinning into yarn.

电能使用得最广泛，因为它容易转换为其它形式的能

量。

2. Originally rayon and acetate were always produced in what is known as continuous filament form. 这种人造纤维称为人造丝。

3. The proven qualities of classic fibers have been made use of in a variety of ways for centuries.

我们能利用化学材料来生产人造纤维。

4. The distinctive properties of man-made fibers make them acceptable in their own right and not as imitations or substitutes for the natural fibers.

人造纤维不能用来代替天然纤维。

5. This indicates not an intention to imitate "the artificial silk", but a desire to provide something as attractive and very much cheaper.

爱迪生从小就有一个学习科学的强烈愿望。

Grammar

1. Change the subordinate clauses into participial phrases;

1. We can measure the temperature of a fire *which is heating some fuel*.

2. In the course of this study he predicted that an electric charge, *which was oscillating back and forth*, would send out electromagnetic waves into space.

3. An alloy *which consists of copper and zinc* is called brass.