

EASIER
SCIENTIFIC
ENGLISH
PRACTICE

英 汉 对 照

科技英语文选

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[英] GC Thornley 著

西安交通大学外语系

赵光烈 金福庆等 注译

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注 译 者 的 话

本书是(英) G·C·索恩利的原著《科技英语练习》的第二集《Easier Scientific English Practice》。本书包括26篇文章,涉及面较广,着重介绍一些世界著名的科学家轶事和工业,农业,物理、化学、医药等方面的知识。在每篇文章之前还对该文作者作了简要介绍。本书文章按难易程度编排,语言规范,文笔流畅,可供高中及大学学生和具有相当水平的读者阅读。为方便读者,我们对全书作了注释和翻译。本书全部练习(理解练习和语言练习)均予以保留,对其中的语言练习提供了参考答案。

参加本书注译工作的有:赵光烈、金福庆、张锦文、陈璇夫、张鹤立、陈松年、贺广贤、田平。

由于我们水平有限,注译的缺点和错误在所难免,希望读者批评指正。

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1 The Development of Rubber

H. STAFFORD HATFIELD,
Ph.D., F.Inst.P.

The piece given here describes the part of the work of Goodyear and Hayward in the development of rubber for the modern world. It comes from Dr. Hatfield's book *Inventions To-day* (1939). This book is based on some radio talks which the author gave. He has also written *The Inventor and his World*, *European Science*, and other books.

Here is the story of rubber. From the earliest time it was common knowledge to the Peruvians that when a cut was made in the outside skin of a rubber tree, a white liquid like milk came out, and that from this a sticky mass of rubber might be made¹. This rubber is soft and wax-like when warm², so that it is possible to give it any form. The Peruvians made the discovery that³ it was very good for keeping out the wet. Then in the early part of the eighteenth century, the Americans made use of it for the first time. First they made overshoes to keep

their feet dry. Then came a certain Mr. Mackintosh⁴, who made coats of cloth covered with natural rubber. From that day to this we have been coating cloth with rubber as Mr. Mackintosh did, and our raincoats are still named after him.⁵

But these first rubber overshoes and raincoats were all soft and sticky in summer, and hard and unelastic in the winter when it was cold. In fact, they might almost have been made of wax⁶, only they were a bit stronger. But the rubber we have today⁷ is not sticky, but soft and elastic, though very strong—even in the warmest summer and the coldest winter. There would be no automobiles such as we have today without it⁸. Long before the start of history, man made the discovery of how to make skins into good leather. But every attempt to make rubber hard and strong came to nothing⁹. The early overshoes and raincoats were simply not good enough, and their makers went out of business.

Goodyear was living near some of these poor men and he got to work on this question of making rubber or "gum" as the Americans say, hard and strong. Once started on this work, he was the sort of man who simply had to go on till he had overcome the trouble. First came the discovery that nitric acid (HNO_3) made the rubber much better, and in a short

time he was doing a small business in rubber shoes produced in this way.

But when things were starting to go well with him, there came a time when business was bad. Even a hundred years back they had such times. After a little, Goodyear was without money or even food.

But then a strange thing took place. A friend of his, Nicholas Hayward, had the idea in his sleep that rubber might be made hard and strong if mixed with sulphur (S) and put in the sun. Goodyear put this idea to the test, and saw that it did have more or less the desired effect—though somewhat less than more. The only effect it had was on the outside of the rubber. It is common knowledge now that the way to make rubber hard and strong—to “vulcanise” it, as we say—is by heating it with sulphur. If only Nicholas had had the idea of a simple oven, in place of the sun, how much less time it would have taken¹⁰. Goodyear was another four years, in which things went very badly with him, before he made the discovery how to vulcanise rubber completely. When at last he did it, he had nothing at all. Everything of the smallest value had been used to get money, even his sons’ school-books.

He did well in America, but chance had one more dirty trick in store for him. He went to Paris

to put his new vulcanised rubber on view at the Exhibition, and took with him thousands of pounds for the purpose. But the money was not enough and he was put into prison for debt—not for the first time.

Almost everything we make use of in our complex existence has the same sort of story at the back of it. Though they are not all quite such unhappy stories, they are generally about someone who went on working night and day to do something which no other person so far had been able to do.

Notes

1. it was ... that ... 是常见句型。it 为形式主语，真正的主语是由两个并列的 that 引出的主语从句。而第一个 that 引出的从句中有一个由 when 起出的时间状语从句。
2. This rubber is soft and ... when 引出时间状语从句，该句省去了 it is。请注意：有些连接词如 if, when, unless, while, once, as 等引出的状语从句中某些成份可以省略。如：Unless heated this substance does not melt. (条件从句中省略了 it is) 如果不受热，这种物质是不会熔化的。
3. The Peruvians made the discovery that...that 引出同位语从句，说明 discovery 的具体内容。Keep out 意为“防止”。
4. Mackintosh (人名) 麦金托什 mackintosh 第一个字母小写时意为“雨衣”，主要用在英国。
5. From that time to this ... 本句为较复杂的并列复合句。第

一分句带有一个由 **as** 引出的方式状语从句。第一分句的谓语 **have been coating** 为现在完成进行时，主要表示从过去到现在这一段时间里一直在进行的一个动作。例如：**I have been sitting here all afternoon.** 我在这里坐了整个下午。

6. In fact, they might almost have been made of wax, ...

“**might + have + 过去分词**”表示对过去的行为状态的推测，有时表示婉转的批评。

例：a. **You might have read about it in the paper.** 你可能在报上读到这件事了。

b. **You might have made greater progress.** 你的进步是可能大一些的。

7. **We have today** 为省去了关系代词 **that** 的定语从句，说明 **rubber**。

8. **There would be no ...** 本句为现在虚拟条件句，表示与现在事实相反的情况。**without it** 相当于一个条件从句 (**if there were no rubber**)。例如：**Without electricity there would be no modern industry.** 没有电，就没有现代工业。

9. **Come to nothing** 意为“失败，没有结果”。

10. **If ... would have taken** 表示与过去事实相反的虚拟条件句。例如：

If you had further considered the problem, you would have looked at it in different way. 如果你那时再进一步考虑一下这个问题，你的看法就会不同了。

EXERCISES

COMPREHENSION

1. What used to happen when a Peruvian cut the out-

- side part of a rubber tree?
2. What did the Peruvians discover about the usefulness of rubber?
 3. What two sorts of things were made from rubber in the early days?
 4. Why is a raincoat often called a mackintosh?
 5. What is leather made from?
 6. Which acid was useful in improving rubber?
 7. What did Hayward think of in his sleep?
 8. How is rubber vulcanised?
 9. Why had Goodyear nothing left when he at last discovered how to vulcanise rubber?
 10. Why was Goodyear imprisoned in France?

LANGUAGE

1. Fill each space with one of the words from the list: liquids, sticky, wax, mackintosh, acid, sulphur, test, oven, exhibition, debts.
 - (a) Glue is very—when it is warm and it is used for sticking furniture together.
 - (b) Rubber is vulcanised by being heated with—.
 - (c) We use—to seal a letter and make the envelope difficult to open.
 - (d) Peter put on his — and went out into the rain.
 - (e) There is to be a big — of postage stamps in London tomorrow.
 - (f) Sulphuric— (H_2SO_4) is made up of sulphur, hydrogen and oxygen.
 - (g) Most — can be changed into gases by being

heated.

- (h) His uncle paid all Tom's—when he left college.
- (i) Please — the insulation of the wire so that we may be sure it is safe to use.
- (j) The smell of something cooking in the — made him expect to have a good dinner that day.

2. Insert the correct prepositions in the spaces below.

The passage may help you:

- (a) A cut was made — the cloth.
- (b) A mackintosh is good — keeping out the rain.
- (c) Let us keep this copper wire, I can make use of it.
- (d) The material was covered — rubber.
- (e) Raincoats are named — Mr. Mackintosh.
- (f) They were too soft — summer and too hard — winter.
- (g) Peter then walked out — the house.
- (h) When he had started — this work, things began to go well — him.
- (i) The rubber was mixed — sulphur and the idea was put — the test.
- (j) Goodyear put his vulcanised rubber — view — Paris.

3. *Every attempt came to nothing* = was unsuccessful.

Write original sentences containing the following:

- (a) Came to nothing,
- (b) Will come to nothing,
- (c) If it comes to nothing,

(d) Because it may come to nothing,

(e) Will ... come to nothing if ...?

4. *The rubber we have today* = which we have today.

The relative pronouns (*which, whom, that*) may be left out when they are the objects of verbs. ¹

They may not be left out if they are subjects.

Rewrite the following sentences, leaving out the relative pronouns if possible:

(a) The rubber that they got from the trees was a white liquid.

(b) The overshoes that they made were not very successful.

(c) The idea that Hayward got in his sleep was only partly successful.

(d) The rubber that goes into our tyres is vulcanised.

(e) The money that Goodyear took to Paris was not enough.

5. Form nouns from (a) know, (b) discover, (c) exhibit. Form adjectives from (d) stick, (e) nature.

6. Notice *stronger*, which is the comparative degree of *strong*. Comparatives are used when we compare TWO things. *Warmest* is the superlative degree of *warm*.

1 This rule does not apply when the noun which is qualified by the clause is already defined or distinct from others. For example, it does not apply in, *Mr. Tomkinson, whom you know, has fallen ill*. (The relative clause does not pick out Mr. Tomkinson from others.)

<i>Positive</i>	<i>Comparative</i>	<i>Superlative</i>
strong	stronger	strongest
warm	warmer	warmest

Give the other two degrees of comparison of the following: (a) smallest, (b) coldest, (c) longer, (d) useful, (e) hot.

7. Explain the following in any way you like:

- (a) Once started on his work, he ...
- (b) A strange thing took place.
- (c) Their makers went out of business.
- (d) Common knowledge.
- (e) From that day to this.

2 Weight On and Off the Earth

D.M. DESOUTTER

D.M. Desoutter is a writer on flying and space, and has the ability to explain difficult matters clearly enough for young people to understand them. Among his books are *Your Book of Flying* and *Your Book of Space Travel* (1962). From the second of these the passage below is taken. It is a discussion of weight, and how the weight of an object changes in different places.

We are so used to¹ our life on the surface of the earth that it can be quite an effort for our minds to break free of all the ideas that we take for granted. We talk about "up" and "down", but we know that what is "down" for us is "up" for someone on the other side of the world.

Because we can feel that things are heavy, we think of "weight" as² being a fixed quality in an object, but it is not really fixed at all. If you could take a one-pound packet of butter 4,000 miles out from the earth, it would weigh only a quarter of a pound.

Why would things weigh only a quarter as much

as they do at the surface of the earth if we took them 4,000 miles out into space? The reason is this, All objects have a natural attraction for all other objects, this is called gravitational attraction. But this power of attraction between two objects gets weaker as they get farther apart. When the butter was at the surface of the earth, it was 4,000 miles from the centre (in other words the radius of the earth is 4,000 miles). When we took the butter 4,000 miles out, it was 8,000 from the centre, which is twice the distance.

If you double the distance between two objects, their gravitational attraction decreases "two times two"³. If you treble the distance, it gets nine times weaker (three times three). If you take it four times as far away, it gets sixteen times weaker (four times four) and so on.

So this is one of the first things we need to remember; that the weight of an object in space is not the same as its weight on the surface of the earth.

What about the weight of our pound of butter on the surface of the moon? At that distance the pull of the earth is about 4,000 times smaller than it is here on the surface, so we can forget all about the earth-pull on our butter.