

有声英语教学丛书



美国广播英语

SPACE
AND
MAN

太空与人

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张 磊 裴兴斯 胡文彬 张 浩 编注

上海译文出版社

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说 明

本书系根据《美国之音》英语教学节目《太空与人》的录音选编而成。

本书课文共二十篇。前十篇包括遗传学、胚胎学和生物学，描述了人类运用遗传学改造自然，甚至改造人类自己的巨大成就，和人类在征服细菌和病毒的道路上所遇到的种种困难，以及利用病毒和细菌突变的知识造福人类的光辉前景。胚胎学部分向读者展示了胚胎学家们正在进行的比宇宙飞行还要激动人心的实验。

后十篇讲述人脑结构，胼胝体的功能，大脑的警告系统，树叶与性格的关系，人类记忆的奥秘，爱的起源，自尊心的形成等，向读者展现了人脑这个奇妙的精神活动发源地的轮廓和内幕。叙述了科学家不朽的实验和思维方法。

本书每篇附有生词、注释和理解性问题及参考译文，宜供我国大学理工农医各专业低年级学生及有初步英语基础的医务人员作为英语阅读和听说的辅助教材，也可作外语院系的科技英语阅读材料。

本书配盒式录音带两盘，直接录自《美国之音》当天广播，有时有杂音干扰，但不影响英语学习，需要者请同上海音乐书店联系。

英文录音稿经郑州大学外文系美国专家哲学博士斯科特·皮尔 (Scott Pugh)，夫人苏珊 (Susan) 女士，以及河南医学院美国专家医学、哲学博士马克·库瓦斯奇 (Mark Kowalski) 根据录音作了校订。本书编注过程中曾得到上海第一医学院陈雅君老师的热心帮助，特此致谢。

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LESSON ONE

Text

Heredity

You are unique. There are four billion people in the world, but no other person is exactly like you. Some people have brown eyes; others have blue eyes, black eyes, green eyes or grey eyes. Some have dark hair, others have light hair. Some are tall, others are short. Some are fat, others are thin.

Besides people, there are millions of other living things. Some are so small that we can't see them¹. Every living thing is different from every other. Every living thing is a unique combination of characteristics. Why is each living thing unique? Where do its characteristics come from? Do people receive characteristics from their mothers and fathers? Which characteristics do they receive? How? These are some of the questions that biologists try to answer².

The work of one man 100 years ago was especially important. His name was Gregor Mendel. Mendel studied plants, especially pea plants. In some ways, they were all the same. For example, they all had flowers, but some had red flowers and some had white flowers. Some plants were tall and some were short. Mendel was especially interested in the differences. He wondered why each plant had* a certain color, and shape and size.

* 录音读作 with, 应为 had—编注

He experimented with thousands of pea plants. He kept careful records of his experiments and he discovered some interesting things. He mated different pea plants. First he mated the red flower plant with the white flower plant. All of the offspring plants had red flowers.

Mendel asked, "What happened to the white?" Then he mated two of the offspring plants. Every time he did this, they produced three red plants and one white plant. "There was the white again." So Mendel knew that even red plants somehow passed on whiteness³. Mendel decided that pea plants carried factors and the parents passed these factors on to their offspring.

Today we call these factors genes. Genes are tiny pieces of matter. They carry information from parents to offspring. Long after Mendel's work, biologists asked, "Can we apply our information about genes to people?" They discovered that in a person genes tell whether he will have brown eyes or blue eyes, whether he will have dark hair or light hair, whether he will be tall or short, whether he will be thin or fat.

Now we know that every person is unique. One reason is that every person is a unique combination of genes⁵.

New Words and Expressions

unique [ju(:)'ni:k] *a.* 独一无二

的, 独特的

billion ['biljən] *n.* (美国)十亿,

(英国)一万亿; 无数

grey [grei], **gray** *adj. n.*

灰色的, 灰色

combination [,kɒmbi'neiʃən] *n.*

组合, 联合, 化合

biology [bai'ɒlədʒi] *n.* 生物学

pea [pi:] *n.* 豌豆

shape [ʃeip] *n.* 形状, 样子

mate [meit] *v.* 交配

offspring ['ɔːfspɪŋ] *n.* 子女, 子代
plant [plɑːnt] *n.* 植物

gene [dʒiːn] *n.*
tiny ['taɪni] *a.*

遗传基因
很小的

Explanatory notes

1. 孟德尔 (Gregor Mendel) (1822~1884)——奥地利遗传学家, 遗传学的奠基人。1865年他发表《植物杂交试验》一文, 提出遗传单位(现在叫做基因)的概念, 并阐明其遗传规律, 以后称之为孟德尔定律。
2. 基因 (gene)——英文 *gene* 的音译。指存在于细胞内有自体繁殖能力的遗传单位, 这种遗传单位的概念最早为孟德尔所建立, 但这个名词后来由丹麦植物学家, 遗传学家约翰逊所提出。
3. 遗传学 (hereditism)——研究生物遗传与变异的科学。
4. 遗传 (heredity)——指亲代的性状在下代表现的现象。

Notes to the text

1. Some are so small that we can't see them.
有些生物小到我们无法看到它们。

本句是复合句, *so ... that* 作“如此…以致”解, *that* 引导结果状语从句。副词 *so* 在句中表示程度。

2. These are some of the questions that biologists try to answer.
这些都是生物学家们试图解答的问题。

句中关系代词 *that* 引出定语从句, 修饰先行词 *questions*, *that* 在从句中作宾语。

3. So Mendel knew that even red plants somehow passed on whiteness.
于是, 孟德尔知道了, 由于某种原因, 开红花的豌豆也传递白颜色。

句中 *so* 是连词, 解释“所以”, *that* 是连接代词, 由它引出一个宾语从句, 作 *knew* 的宾语。在口语和非正式文体中, 引导宾语从句的连接代词 *that* 可省略。

4. apply ... to 把…应用于

5. One reason is that every person is a unique combination of genes.

其原因之一是由于他的基因组合是独特的。

本句是由连接代词 that 引导的表语从句。它和它前面的连系动词 is 结合在一起，形成系表结构，充当句子的谓语。

Comprehension

1. How many people as well as other living things are there in the world?
2. Which subject did Mendel study one hundred years ago?
3. What did Mendel discover?
4. What is a gene?
5. How did Mendel discover the gene?

参 考 译 文

遗 传

你是独一无二的。全世界有四十亿人，可是没有一个人和你一模一样。有些人的眼睛是褐色的，也有蓝眼睛的，黑眼睛的，绿眼睛的，或灰眼睛的。有的人头发是黑色的，另外一些人头发是浅色的。有的人长得很高，有的人很矮，有的胖，有的瘦。

除了人类以外，还有着数百万种其它的生物，有些生物小到我们无法看到它们。每一种生物与别的生物都不相同，它们都有着与众不同的一些特征。为什么每一种生物都是独特的呢？它的特征是从哪里来的呢？人是从父母那里接受特征的吗？他们接受了哪些特征呢？是怎样接受的呢？这些都是生物学家们试图解答的问题。

一百年前，有一个人做了一项极其重要的工作。他的名字叫格里戈·孟德尔。孟德尔对植物，尤其对豌豆进行了研究。他研究了具有某些相同性状的豌豆。例如，它们都开花，但有的开红花，有的开白花。有的很高，有的很矮。孟德尔对这些差异很感兴趣。他想知道

为什么每棵豌豆都具有一定的颜色、形态和大小。

他用几千棵豌豆作实验，仔细地记录实验结果，发现了一些有趣的现象。他拿不同的豌豆作交配。首先，他把红花豌豆与白花豌豆进行交配，结果所有的子代豌豆都开红花。

孟德尔提出了一个问题：“白花豌豆发生了什么变化？”接着，他又把两个子代豌豆进行交配。每次这样的交配均产生三棵红花豌豆和一棵白花豌豆。“又是一棵开白花的豌豆。”于是，孟德尔知道了，由于某种原因，开红花的豌豆也传递白颜色。他断定这些豌豆携带有一些因子，并把这些因子传递给它们的子代。

今天我们把这些因子叫做基因。基因是一些很小的物质碎块，它们从父母亲那里携带信息(并把这些信息遗传给子孙后代)。在孟德尔的研究工作过去许多年以后，生物学家们提出了另一个问题：“我们能够把有关基因的知识应用于人类吗？”他们发现，遗传基因不但决定一个人的眼睛是褐色的，还是蓝色的，他的头发是深色的，还是浅色的，而且也决定他的体格是高的还是矮的，是胖的还是瘦的。

现在我们知道，每个人之所以是与众不同的，其原因之一是由于他的基因组合是独特的。

LESSON TWO

Text

Chromosomes

In our last program, we talked about Mendel's work with red and white pea plants. The plants were different in color, size and shape¹. Mendel discovered that parent plants pass these characteristics to their offspring. He learned to predict the colors of each new generation of plants². He said that factors in the parent plants made this possible.

Now we know that all living things have these factors, or genes. Later, biologists applied Mendel's work to people. They learned that people also receive certain characteristics from their parents. Parents pass genes to the next generation. Each person is a unique combination of genes.

After Mendel died, other biologists studied genes. One of the first was Thomas Hunt Morgan. Morgan studied fruit flies. They reproduced very quickly. Morgan grew sixty generations of them in two years. He discovered that fruit flies like pea plants follow rules of heredity³. Living things have chromosome chains. A fruit fly's chromosomes contain hundreds of genes. Morgan and his helpers learned the exact location of genes in the chromosome chains. They also learned the exact work of some of the genes. So they were able to grow almost any kind of fruit fly: flies with long legs, short legs, large wings, small wings and so on.

After Morgan, other biologists studied many other forms of life. They studied bacteria and paramecia, rabbits, dogs, and mice. They found that genes determined characteristics of all these forms of life. Next, they wanted to study human heredity. They asked: "Just what are genes? Do people have them?" "Do they determine a person's characteristics? His heredity?"

They could study pea plants, fruit flies, bacteria and animals in a laboratory, but they could not study people this way. They began by talking with people about their children and grandchildren. At first, they made some mistakes. They thought that almost everything about a person was part of his heredity. But with the help of many other scientists, they finally learned important things about genes and human heredity. They learned that genes do not determine everything about a person, but they are still very powerful.

Genes make the difference between people with brown eyes and blue eyes, with dark hair and light hair. They make the difference between tall people and short people, fat people and thin people.

Genes are tiny bits of matter made of atoms. They are part of living active cells. Together they form chromosome chains.

Each person has 46 chromosomes. He receives 23 from his mother and 23 from his father. They meet when the mother's egg meets the father's sperm. They join to create a new life. The genes in a person's chromosomes determine his heredity. They make him unique⁵.

New Words and Expressions

color ['kʌlə] *n.*

颜色

predict [pri'dikt] *v.* 预言, 预告

generation [dʒenə'reiʃən] *n.*
一代; 生殖

Thomas Hunt Morgan

['təmes hant'mo:ɡən] *n.*
托马斯·亨特·摩根

quickly ['kwikli] *ad.* 快速地

heredity [hi'rediti] *n.* 遗传

chromosome ['krəʊməsəʊm] *n.*

染色体

chain [tʃein] *n.* 链, 链条

fly [flai] *n.* 蝇

location [ləu'keiʃən] *n.*

定位, 勘定, 位置

wing [wiŋ] *n.* 翅膀, 翼

bacteria [bæk'tiəriə] *n.* (pl) 细菌

paramecia [pærə'mi:siə] *n.*

草履虫

finally ['faɪnəli] *ad.* 最后

powerful ['paʊəfʊl] *a.* 有力的

sperm [spɜ:m] *n.* 精子, 精液

create [kri'eit] *v.* 产生, 创造

egg [eg] *n.* 卵子

mice [maɪs] *n.* 鼠

rabbit ['ræbit] *n.* 兔

Explanatory notes

1. 托马斯·亨特·摩根 (Thomas Hunt Morgan)——美国实验胚胎学家、遗传学家。在孟德尔定律的基础上创立了基因学说。早年从事实验生物学中有关授精、性别决定、再生、发育工作。对当时发展以生理学为基础的生物学观点起了一定作用。1909年起,在果蝇中进行实验遗传学研究,发现伴性遗传的规律。他和他的学生又发现连锁、交换和不分开现象等,从而发展了染色体遗传学说,并进一步证明作为遗传单位的基因是在染色体上作直线排列。1933年获诺贝尔生理学或医学奖。主要著作有《基因论》,《实验胚胎学》等。
2. 果蝇 (fruit flies)——一种小型蝇类,喜在腐烂水果和发酵物周围飞舞。由于容易饲养,生活周期短(约二周),适宜于用作遗传学等科学实验材料。
3. 染色体 (Chromosome)——细胞有丝分裂时出现的、易被碱性染料着色的丝状或棒状小体,由细长的染色纤维盘绕缩短而成。由核酸和蛋白质组成,是遗传的主要物质基础。各种生物的染色体有一定的数目、形态和大小。

Notes to the text

1. The plants were different in color, size and shape.

这些植物的颜色、大小和形态各不相同。

size and shape 前面省略了介词 in, 实际上是 in size and in shape.

2. He learned to predict the colors of each new generation of plants.
他学习预言这些植物的每一新子代的颜色。

句中不定式短语 to predict ... 作及物动词 learned 的宾语。

3. He discovered that fruit flies like pea plants follow rules of heredity.

他发现, 和豌豆植物一样, 果蝇也遵循遗传法则。

1) 连接代词 that 引出宾语从句, 作 discovered 的宾语。

2) 句中的 like 是介词。

4. His heredity?

能决定他的遗传吗?

His heredity 前面省略了主语和谓语 Do they determine 以免重复。

5. They make him unique.

它们使得他与众不同。

unique 是形容词, 在句中作宾语补足语。

Comprehension

1. What did Morgan study and discover?
2. Could he grow fruit flies?
3. What did other biologists study after Morgan?
What did they find?
4. How many chromosomes does each person have?
Where do they come from?
5. Can we apply Morgan's work to people?

参 考 译 文

染 色 体

在上次的节目中，我们谈到了孟德尔的红花豌豆和白花豌豆植物的研究工作。这些植物的颜色、大小和形态各不相同。孟德尔发现，亲代植物把它们的特征传给子代。他学习预言这些植物的每一新子代的颜色。他声称，亲代植物中的一些因素使这种预言成为可能。

现在我们知道，所有的生物都具有这些因素或遗传基因。后来，生物学家们把孟德尔的这项工作应用于人。他们知道了人也接受从他们的父母那儿来的某些特征。父母亲把基因传递给下一代。每个人都是独一无二的基因的组合体。

孟德尔去世以后，另一些生物学家研究了基因。托马斯·亨特·摩尔根是最先从事这项研究的生物学家之一。摩尔根研究了果蝇。果蝇繁殖得很快。摩尔根在两年内就培养出了六十代的果蝇。他发现，和豌豆植物一样，果蝇也遵循遗传法则。生物具有染色体。果蝇的染色体含有数百个基因。摩尔根和他的助手们知道了这些染色体链上基因的精确位置，他们也知道了其中一些基因确切的功用。于是，他们几乎能够培养所有种类的果蝇：长肢果蝇、短肢果蝇，大翅果蝇、小翅果蝇等等。

继摩尔根之后，另一些生物学家们对许多其它的生命形式进行了研究。他们研究了细菌、草履虫、兔子、狗和老鼠，发现基因决定着所有这些生命形式的特征。接着，他们想对人类遗传进行研究。他们问道：“基因究竟是什么？人有基因吗？它们决定着人的特征吗？能决定他的遗传吗？”

生物学家们能在实验室里研究豌豆、果蝇、细菌和动物，但却不能对人这样研究。他们通过同人们谈论有关他们的子孙的情况来开始研究。起初，他们犯了一些错误。他们以为一个人的一切几乎都是遗传部分。在许多其它科学家们的帮助下，他们终于知道了有关基因和人类

遗传的重要知识，知道了基因并不决定人的一切。但基因还是强有力的。

基因造成了褐眼睛和蓝眼睛(之间)的差异，造成了黑头发和浅色头发(之间)的差异，造成了人与人之间高矮胖瘦的差异。

基因是由许多原子组成的细小物质，它们是具有生命活力的细胞的一部分。基因聚合在一起构成了染色体链。

每个人都有四十六条染色体。他从母亲那里得到二十三条，从父亲那里得到二十三条。当母亲的卵子和父亲的精子相遇时，这些染色体聚合相会。它们结合产生新的生命。一个人的染色体上的基因，决定了他的遗传。它们使得他与众不同。