

# 通信科技英语

## 文选

南京大学英语公共英语教研室编



18

# 通俗科技英语文选

第十八辑

南京大学外文系公共英语教研室编

商务印书馆

1985年·北京

TONGSU KEJI YINGYU WENXUAN

通俗科技英语文选

第十八辑

南京大学外文系公共英语教研室编

---

商务印书馆出版

(北京王府井大街36号)

新华书店北京发行所发行

市政水泥制品印刷厂印刷

统一书号: 9017·1428

---

1985年6月第1版

开本 787×1092 1/32

1985年6月北京第1次印刷

字数 76 千

印数 14,000 册

印张 3 1/4

定价: 0.49 元

## Contents

1	Why Do Crocodiles "Eat" Their Own Young?.....	1
	(为什么鳄鱼“吞噬”自己的幼鳄?)	
2	Cotton .....	4
	(棉花)	
3	Canadians Take a Sound Approach to Pest Control.....	8
	(加拿大人研究用声波控制鼠害)	
4	How Much Sleep Do We Need?.....	11
	(我们需要多少睡眠?)	
5	Distribution of Nutrients in Plants .....	16
	(植物养分的输导)	
6	The Discovery of Preventing Germ Disease.....	23
	(预防细菌性疾病的方法是怎样发现的)	
7	Bat's Radar .....	28
	(蝙蝠的雷达)	
8	科技英语新词的构成(二) 截短.....	33
9	Confravision Could Save Travel Costs.....	35
	(电视电话会议可节省旅行费用)	
10	Venus .....	40
	(金星)	
11	Volcano Beneath the Sea.....	45
	(海底火山)	
12	Aspirin's Amazing New Promise.....	50
	(阿司匹林出人意料的新用途)	
13	Happy Accidents .....	55
	(幸福的意外)	

14	词根: Grad-, Gress- .....	60
15	Making Reactions Run Uphill.....	62
	(使反应朝着费力的方向进行)	
16	Are Humans Computers?.....	67
	(人是计算机吗?)	
17	The Bermuda Triangle.....	72
	(百慕大三角地带)	
18	Space and Man (Part Four) .....	77
	(太空与人 第四部分)	
19	Test Yourself after the Reading .....	81
	(读后测验)	
20	Why Do Lobsters Turn Red?.....	87
	(为什么龙虾会变红?)	
21	Fine Balance .....	88
	(绝妙的平衡)	
22	Answers to Hard Questions.....	89
	(难题解答)	
23	Why a Quark?.....	91
	(为什么称作“夸克”?)	
24	How Does Film Work?.....	92
	(胶卷是怎样成像的?)	
25	Key to the Test.....	95
	(测验答案)	

## Why Do Crocodiles "Eat" Their Own Young?

Actually, they don't — this one is simply taking her young to the beach. That may surprise you. Not many people associate such tender maternal care with this ten-foot, scaly-skinned reptile. But researchers insist crocs are exemplary mothers.

After a female Nile crocodile has been courted and mated, she goes ashore and hollows out a hole 8 to 12 inches deep. She deposits her eggs and covers them, patting down the earth with her body and tail. Then she guards the nest, rarely leaving it.

During the incubation period, which runs anywhere from 84 to 90 days,<sup>①</sup> the fiery tropical sun bakes the soil covering the nest until it's nearly as hard as rock. When the infants begin hatching underground, they find escape nearly impossible, so they let out a chorus of yelps. The mother hears them and breaks open the nest.

As the youngsters climb out, she catches each one firmly but gently between her teeth. She seems to swallow and the young disappear into the great tooth-lined maw. A few of the young enter of their own accord.

Some eggs are slow to hatch, or they can't quite make it on their own.<sup>②</sup> Grasping an egg with jaws powerful enough to crush the leg of an ox, the mother cracks the leathery shell. Gently, she breaks the inner skin and releases another babe.

Meanwhile, the "swallowed" hatchings are alive and well.

They're nestled cozily together inside their mother's pouch, a piece of elastic skin that stretches across the lower jaw.

Once the entire brood of 20 or more is aboard, the mother travels to the water's edge. Slipping into the pool, she opens her jaws and releases her offsprings into the water. The point<sup>③</sup> is to get them there safely.

At first, the young crocodiles stay together, climbing over their mother or swimming after her. They live on snails and insects, then graduate to frogs and even small birds and rodents. Still, it takes several years and a few feet of growth before<sup>④</sup> these offspring become the fierce predators most other wildlife fear. During that time, some will be killed by hawks and other skilled hunters.<sup>⑤</sup> But during the earliest, bumpiest stages of life, when<sup>⑥</sup> they needed help they got it — gently and with endless patience. After all, what are mothers for?

## 词 汇

associate with 使...发生联系  
 tender ['tendə] *a.* 温柔的, 体贴的  
 scaly-skinned ['skeili ,skind] *a.* 鳞状皮肤的  
 reptile ['reptail] *n.* 爬行动物  
 exemplary [ig'zempləri] *a.* 模范的  
 the Nile [nail] *n.* 尼罗河  
 court [kɔ:t] *vt.* 求爱  
 ashore [ə'ʃɔ:] *ad.* 上岸, 上陆  
 incubation [,inkju'beɪʃən] *n.* 孵卵  
 fiery ['faɪəri] *a.* 激烈的, 暴躁的

hatch [hætʃ] *vt.* 孵出  
 chorus ['kɔ:rəs] *n.* 齐声, 一齐  
 yelp [jelp] *n.* 喊叫声  
 maw [mɔ:] *n.* 动物的胃(尤指反刍动物的第四胃)  
 of their own accord 自愿地  
 cozily ['kəuzili] *ad.* 舒适地  
 pouch [paʊtʃ] *n.* (有袋动物的腹部) 幼儿袋囊  
 elastic [i'læstik] *a.* 可伸缩的  
 brood [bru:d] *n.* 一窝, 同窝幼鸟  
 aboard [ə'bɔ:d] *ad.* 上船  
 graduate ['grædʒuit] *vi.* 逐步转成

**rodent** ['rəʊdənt] *n.* 啮齿动物  
**fierce** ['fiəs] *a.* 凶猛的, 残忍的  
**predator** ['predətə] *n.* 食肉动物

**bumpy** ['bʌmpi] *a.* 颠簸的  
**after all** 毕竟

## 注 释

- ① which runs anywhere from 84 to 90 days: anywhere = any point; 从句意思是 which lasts about 84 to 90 days
- ② they can't quite make it on their own: they can't hatch by themselves 靠自己的力量无法孵出
- ③ the point: = the key point, the purpose 目的
- ④ before: 可译成“...才...”
- ⑤ hunters: = predators, 不是指“猎人”
- ⑥ when 引导非限制性定语从句, 修饰 stages of life

## 参考译文

### 为什么鳄鱼“吞噬”自己的幼鳄?

事实上, 鳄鱼并非如此——母鳄只是把她的幼鳄带到海滩上。这可能会使你感到十分惊讶。很少人会把这种温柔的母性关怀跟这个十英尺长、身上长满鳞片的爬行动物联系起来。可是研究人员坚持认为雌鳄才是模范母亲。

雌性尼罗河鳄在配对和交配后便来到陆上挖一个八至十二英寸深的洞穴。她在洞里下蛋后, 便用身体和尾巴扒下一些泥土将蛋覆盖好。此后她守着这个穴窝, 很少离开。

孵卵期约为八十四至九十天, 在这期间, 炎热的热带太阳烤炙着覆盖在穴窝上的泥土, 直使其变得跟岩石一样坚硬。当幼鳄开始在地下孵化出来时, 它们觉得要逃出洞穴几乎是不可能的, 便一齐发出呼救声。母鳄听到这种声音就将穴窝凿开。

当幼鳄爬出来的时候, 母鳄就把它一个个紧紧而轻轻地含在嘴



里。她似乎要将幼鳄吞下，而幼鳄一下就消失在母鳄的巨大的长满锯齿的喙囊中。有些幼鳄则是自己爬进去的。

鳄鱼蛋有些孵化得慢，也就是它们无法靠自己的力量孵化出。于是母鳄就用强有力的、足以卡断牛腿的鳄爪抓住蛋，将其坚韧的壳打破，然后轻轻地把蛋的内膜弄破，从而让幼鳄解出。

在这个过程中，“吞下”的幼鳄活得很好、很健康。它们一起舒适地生活在母鳄的腹部的育儿袋囊里。育儿袋囊是一整块沿着下颌延伸下去的有伸缩性的肉皮。

一窝二十余头幼鳄一旦全部被母鳄吞了进去，母鳄就把它们带到水边并溜入水中，张开双颌，将幼鳄从嘴里放出来。目的是要它们安抵水中。

起初幼鳄聚集在一起，爬到母鳄身上或跟其游泳。它们开始以蜗牛和昆虫为生，然后随着发育的增长逐步转到吃青蛙甚至小鸟和啮齿动物。然而，这些幼鳄需要好几年、长成好几英尺长才能变成大部分野生动物所惧怕的凶残食肉动物。在它们生活斗争的时间里，有的被鹰咬死，还有的被其它凶狠狡猾的食肉动物所残害。然而，在鳄鱼生命最早、最颠簸的阶段，也就是他们需要帮助的时候，则得到了体贴入微的不厌其烦的帮助。要不，要母亲干什么呢？

(徐丽卿)

## Cotton

Cotton, like silk, was discovered and made into cloth by man before the historical period began. Its first recorded use was in India, where cotton cloth of very fine texture, almost as fine as silk, was made.

Cotton is the most important of all textiles. Even now, with

many artificial materials available,<sup>①</sup> more than half of all textile products are made of cotton.

Cotton comes from a plant of that name. When the plant is mature, the cotton grows in a white ball around the seed. To prepare the cotton for market, the seed must be removed from the cotton fiber. This is done by a machine called the cotton gin. Then the cotton is packed into huge bundles called bales, which are sent to the mills. There the fibers are combed so that they will all be turned into the same direction. Next the fibers are spun into thread. From the thread, the cotton is woven into cloth.

The seed itself is an important product. When it is crushed by huge machines, it gives out oil. This oil is used to make margarine, a synthetic butter<sup>②</sup> as well as other foods. Even the shell of the seed is valuable. It is used to feed animals.

The most important thing about cotton in history is the part it played in the Industrial Revolution.<sup>③</sup> "Industrial Revolution" is the term that is used to describe the invention of the machines that are so important in modern life. It is the beginning of the Modern Period of history. The Industrial Revolution began in England in the 18th century. A large number of the first machines invented<sup>④</sup> were intended for use in spinning and weaving cotton. The first machines used water power; later on, steam was used for power. A section of England called Lancashire was the center of the textile industry. It was there that the first great factories were built.<sup>⑤</sup> From Lancashire, cotton cloth was sent all over the world. After the manufacture of cotton had been industrialized machines were also invented for the manufacture of woolen cloth.

The manufacture of cotton cloth is now done entirely by

machines, but raising and picking cotton is still done by hand in almost all parts of the world. The fields of white cotton, with the pickers moving slowly down the long rows,<sup>⑥</sup> are a familiar sight in many countries.

## 词 汇

**texture** ['tekstʃə] *n.* 组织,质地

**textile** ['tekstail] *n.* 纺织品,纺织原料

**artificial** [ˌɑːti'fiʃəl] *a.* 人造的

**available** [ə'veɪləbl] *a.* 可用的,可得到的

**mature** [mə'tjʊə] *a.* 成熟的

**seed** [siːd] *n.* 种子,籽

**fiber** ['faɪbə] *n.* 纤维

**gin** [dʒɪn] *n.* 轧花机

**bundle** ['bʌndl] *n.* 捆,束

**bale** [beɪl] *n.* 大包,大捆

**comb** [kəʊm] *vt.* 梳,精梳

**spin** [spɪn] (*spun* [spʌn], *spun*)

*vt.* 纺,旋转

**weave** [wiːv] (*wove* [wəʊv],

*woven* ['wəʊvən]) *vt.* 织,编

**crush** [krʌʃ] *vt.* 压榨,碾碎

**margarine** [ˌmɑːdʒə'riːn] *n.* 代黄油

**synthetic** [sɪn'θetik] *a.* 合成的,人造的

**shell** [ʃel] *n.* 壳,饼壳

**intend** [ɪn'tend] *vt.* 打算,想要

**section** ['sekʃən] *n.* 地区,一段

**Lancashire** ['læŋkəʃɪə] *n.* 兰开夏(英国郡名)

**manufacture** [ˌmænju'fæktʃə] *n.* 制造

## 注 释

① with many artificial materials available: 在句中作状语。注意介词后的宾语是一种复合结构: 由“名词+形容词”组成。例如: Why did you sleep with the windows open? (你为什么开着窗子睡觉?)

② a synthetic butter: 是 margarine 的同位语

③ it played in the Industrial Revolution: 定语从句,修饰 the part

④ invented: 过去分词作定语,修饰 machines

⑤ It was there that the first great factories were built. 这是强调

结构,被强调成份为地点状语 there, 即 Lancashire

- ⑥ with the pickers moving slowly down the long rows: with  
后的宾语也是一种复合结构(参看注 1), 由“名词+现在分词短语”  
组成

## 参考译文

### 棉 花

棉花象丝绸一样,早在史前时期就被人们发现并把它织成布匹。据文字记载,首先使用棉花的是印度,当时所制成的棉布质地精良,几乎可与丝绸比美。

在所有纺织品原料中,棉花极为重要。即便是现在有了许多可利用的人造纤维织品,可是仍有一半以上的纺织品是由棉花制成的。

棉花产自同名的一种植物。当棉苗长大成熟并开花结果时,棉花便从果实中成长为带籽的白色纤维球体。棉花上市以前,必须棉花纤维中脱去棉籽。这道工序由轧花机来完成。接着便将棉花捆扎成大包送往工厂。在厂里,先经过精心梳理加工,棉花纤维便梳向同一方向,然后将纤维纺成纱。利用棉纱便织成布。

棉籽本身也是重要的产品,经过大型机器压榨,就可以榨出油来。这种油可用来制造代黄油(一种合成奶油)以及其它食品。甚至榨油残存下来的棉籽饼壳也有其用途,可用来喂养牲口。

历史上有关棉花的最重大事件是棉花在工业革命中所起的作用。“工业革命”是用来描绘机器发明的专门术语,这些机器在现代生活中极为重要。这是现代史的开端。工业革命于十八世纪开始发生在英国。最先发明的大批机器主要用来纺织棉花。最初的机器用水力作动力,后来才用蒸汽作动力。英国有一个叫做兰开夏的地区便是当时的纺织工业中心。就在这个地方兴建了第一流的大型工厂。兰开夏生产的棉布运往世界各地。在棉花加工实现工业化以后,又发明了生产毛织品的机器。

如今棉布生产全靠机器进行，但种植和采摘棉花在世界各地几乎仍用手工操作。因此在许多国家，人们常常可以看到，在白茫茫的棉田里，采棉工人沿着长长的一行行的棉花缓缓行进的熟悉景象。

(孙淑强)

## **Canadians Take a Sound Approach to Pest Control**

A Canadian electronics company has declared war on rats. It believes that the only way to control rats that are immune to commercial poisons is to annoy them to death with ultrasound.

Since the 1950s, the problem of "super rats" has been growing. First noticed in Scotland,<sup>①</sup> the problem of rats that cannot be easily poisoned has spread across the world and has become very expensive. On average, each rat in North America chops its way through \$25-worth of goods each year.<sup>②</sup> Only one part of the world is virtually free of rats, the province of Alberta in Canada, where regular border patrols against rats save an estimated annual \$200 million in losses and damage.

The sound frequencies that the company has chosen to cause the maximum discomfort to rats should have no effect on humans or domestic animals.<sup>③</sup> Ultrasonic vibration as a means of control is usually ineffective. After an initial period of discomfort, the rats simply learn to live with the nuisance of a monotonous hum, in the same way that people living next door to railway lines eventually tune out the roar of passing trains. But with a research budget of \$250000 and the help of

departments in two Canadian universities, the company found that constant and unpredictable variation of high frequency vibrations was far more disturbing. When electromagnetic pulses were added, the rats were unable to overcome their confusion.

In a commercial version of the machine, called "The Ecology Machine", five electromagnetic coils produce changing series of vibrations from a standard 120 V power source. Each of the coils operates independently so there is no possibility of a regular repetition of any pattern. The vibrations spread through the air and along the walls and floors of rooms within an effective area of 465 sq.m.<sup>④</sup> Usually there is a slight increase in activity among rats and mice<sup>⑤</sup> during the first weeks as they try to cope with the interference. Then their activity declines rapidly. Those animals which do not move out become easier to catch in conventional ways.

## 词 汇

**pest** [pest] *n.* 害虫

pest control 控制害虫

**immune** [i'mju:n] *a.* 免疫的, 不受(影响)的

**annoy** [ə'noi] *v.* 惹恼; 使烦

**chop** [tʃɒp] *v.* 砍; 开路(前进)

free of 无, 没有

**patrol** [pə'trəʊl] *n. & v.* 巡逻

have an effect on 对...有影响;

对...起作用

**vibration** [vai'breiʃən] *n.* 振动

**nuisance** ['nju:ns] *n.* 麻烦事情

**monotonous** [mə'nɒtnəs] *a.* 单调的

tune out 无视, 注意到别处; 关掉

**budget** ['bʌdʒɪt] *n.* 预算

**unpredictable** [ʌnpri'diktəbl] *a.* 无法预言的

**version** ['vɜ:ʃən] *n.* 译文; 说明

**ecology** [i:'kɒlədʒi] *n.* 生态学

**mice** [maɪs] *n.* 小耗子, 老鼠 (mouse 的复数)

cope with 应付, 处理

**decline** [di'klaɪn] *v.* 下降

**conventional** [kən'venʃənəl] *a.* 常规的; 惯例的

## 注 释

- ① First noticed in Scotland: noticed 是过去分词,其逻辑主语是 the problem.
- ② chops its way through \$25-worth of goods each year: 字面意思是: (每只老鼠)每年在价值 25 美元的货物中开出一条路, 可以译为: 每年要损坏价值 25 美元的货物。
- ③ The sound frequencies ... animals. 主从复合句, that the company ... rats 为定语从句,但译时可处理成并列句。
- ④ 465 sq.m. = 465 square metres, 即 465m<sup>2</sup>
- ⑤ rats and mice: rats 大老鼠 mice 小老鼠

## 参考译文

### 加拿大人研究用声波控制鼠害

加拿大一家电子公司已向老鼠“宣战”。该公司认为控制对市场出售的毒药已具有免疫力的老鼠的唯一办法,是用超声波使它们烦躁而死。

自五十年代以来,“超级老鼠”的问题日益突出。用毒药很难毒死老鼠这个问题,首先在苏格兰引起了人们的注意,现已波及全世界,而且造成巨大浪费。在美国南方每只老鼠每年平均要损坏价值 25 美元的货物。世界上只有一个地方真正没有老鼠,那就是加拿大的爱伯塔省。人们定期在这个省的边界上巡逻,以防止老鼠进入。这样,估计每年可避免 2 亿美元的损失和破坏。

那家电子公司所选定的声波频率是引起老鼠极大的不安;对人或家畜来说,则不起作用。可是把超声波振动作为控制老鼠的一种手段往往是无效的。起初老鼠感到很不舒服,时间一久,它们就学会了在单调的嗡嗡声中生活,这跟居住在铁路附近的人一样,日子一久也就不再注意来往火车的轰鸣声了。然而,该公司由于获得 25 万美元的研究预

算经费,由于加拿大两所大学有关专业系的帮助,便认为经常不断地无法预测地改变高频振动会产生更大的干扰。如果加进电磁脉冲波,老鼠就无法克服其混乱状态。

供出售用的灭鼠设备,取名“生态学机器”由五组电磁线圈(由 120 V 标准电源供电)产生变化的振动系列。由于每组线圈独立工作,就不可能产生任何规律性重复。振动通过天空沿着房间的墙壁和地板,在有效面积 465 平方米的范围内传播。通常在最初几周内,大小老鼠的活动略有增加,因为它们试图克服干扰。随后它们的活动就迅速下降。对于不出来活动的老鼠,用一般捕鼠的常规方法就比较容易捕捉了。

(赵启秀)

## How Much Sleep Do We Need?

It is probably true to say that up to thirty years ago not only could we not answer this question, but we could see no research tools which might eventually enable us to do so. Since then there have been important developments which have changed the picture; in particular new forms and techniques of neurophysiological measurement have emerged, and, secondly, experimental psychology has developed better methods of evaluating human performance and behaviour. Studies, for example, of body and eye movements, of sensory thresholds, and, above all, of the electrical potentials of the brain during sleep,<sup>①</sup> encourage us to think that we may be able to assess with useful accuracy the depth of quality of sleep.<sup>②</sup> In carefully controlled experiments also the amount of sleep has been varied to find the effects of lack of sleep upon performance and upon physiological changes in the body,<sup>③</sup> especially those which accompany



the effort to maintain normal behaviour and working standards in spite of deprivation of sleep.

From animals we get the impression that it is satiation rather than fatigue which promotes sleep; many of them appear to wake mainly to satisfy their bodily needs; during the rest of the time they return to the negative state of sleep. This may be true for adult humans also, but with the important difference that their needs are often so complex and long-term in nature that they can never be completely satisfied.

Other people feel sure that the current trend is towards too little sleep. What could be disastrous is that we should sacrifice sleep only to gain more time in which to jeopardize our civilization by actions and decisions made weak by fatigue and neurosis.<sup>④</sup>

Then to complete the picture,<sup>⑤</sup> there are those who believe that most people are persuaded to sleep too much. One can see the point of this<sup>⑥</sup> also; it would be a pity to<sup>⑦</sup> retard our development by holding back those people who are gifted enough to work and play well with less than the average amount of sleep, if indeed it does them no harm.<sup>⑧</sup>

Of course, we are not sure. Not only are we unable to give a formula for individual sleep requirement, we cannot even give confident averages for the different age groups. This is because we have no substantial scientific evidence to draw from, and opinions based on clinical evidence present a picture which is too contradictory to be a dependable guide. Indirect evidence on the amount of sleep we need comes from studies of what happens when we do without it.<sup>⑨</sup> At first sight these suggest that we do not need as much as we take. It has been difficult to show any effect on performance of as little as one night's