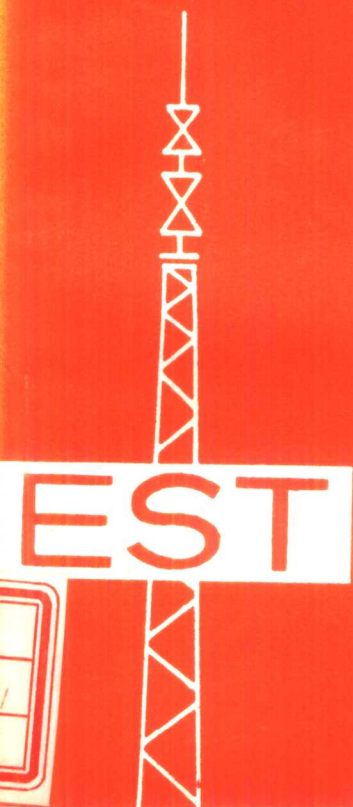


# 通信科技英语

## 文选

南京大学外文系公共英语教研室编



# 21

# 通俗科技英语文选

第二十一辑

南京大学外文系公共英语教研室编

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## Contents

1. Acid in the Rain .....	1
(雨中的酸)	
2. 'Cellular Garbage' Yields a Clue .....	2
('细胞废料'提供的线索)	
3. Zebras' Stripes Deter Tsetse Flies.....	5
(斑马条纹与采采蝇)	
4. Antibiotics Hit the Spot .....	7
(抗菌素找到感染部位)	
5. Why Do Cranes Dance? .....	10
(鹤为什么跳舞?)	
6. The Story of Salt .....	12
(盐的故事)	
7. You and Your World .....	16
(你和你的世界)	
8. Everyday Science .....	21
(科普知识)	
9. Root: Mit-, Miss-.....	25
(词根: Mit-, Miss-)	
10. Quakes to Come .....	30
(即将来临的地震)	
11. Arthritis .....	33
(关节炎)	
12. Paper Housing .....	37
(纸房子)	

13. Behind the Looking Glass .....	42
(镜子的故事)	
14. 科技英语新词的构成(五): 缩略(上).....	47
15. Wonderful World of Microbes .....	51
(奇妙的微生物世界)	
16. Does Walking on the Moon Mean Anything to Us?...55	
(登月对我们来说意义何在?)	
17. Electric Cars .....	62
(电动汽车)	
18. Steam from the Sunshine.....	67
(太阳能发电)	
19. Let the Great Whales Live.....	72
(让巨鲸生存下去)	
20. Fiber Optics—Harnessing Light by a Thread .....	77
(纤维光学——通过纤维利用光)	
21. Space and Man (Part Seven) .....	82
(太空与人第七部分)	
22. Test Yourself after the Reading.....	85
(读后测验)	
23. Do You Know?.....	92
(你知道吗?)	
24. Cooking Under Pressure .....	94
(利用压力烧煮食物)	
25. Key to the Test .....	96
(参考答案)	

## Acid in the Rain

Although the island of Bermuda lies 600 miles out in the Atlantic Ocean, it is periodically subject to acid rains derived from the combustion of sulphurous fuels in North America, according to a report in Nature journal.

The researchers conclude that a “large fraction” of① the sulphuric and nitric acids picked up by prevailing westerly winds as they cross the continent are carried out to sea.

In Bermuda, the acidity of rainwater is generally eight times the normal level for rainwater, they report, and is chiefly in the form of sulphuric acid. They find “a strong correlation between the presence of these strong acids” and the trajectories of storm paths from the continent.

### 词 汇

**derive** [di'raiv] *vi.* 起源于

**combustion** [kəm'bastʃən] *n.* 燃烧

**sulphurous** [səl'fjuəriəs] *a.* 含硫的

**nitric** ['naitrik] *a.* (含)氮的

**prevailing** [pri'veiliŋ] *a.* 盛行的

**correlation** [kəri'leifən] *n.* 相互关系

**trajectory** ['trædʒiktəri] *n.* 轨道

### 注 释

- ① a “large fraction” of 是量词,意思是“大量的”,修饰主语 acids, 因此谓语动词用 are.

## 参考译文

### 雨 中 的 酸

根据《自然》杂志的一篇报道,虽然百慕大岛位于距美国 600 英里以外的大西洋中,但它周期性地遭到酸雨的袭击,酸雨是由北美洲的含硫燃料燃烧产生的。

调查者断定,当盛行西风吹越大陆时,带上了大量的硫酸和硝酸,并把它们送到海洋。

他们报道,在百慕大岛,雨水酸度一般是正常雨水含酸度的八倍,而且主要形式是硫酸。他们发现,这些强酸的存在和大陆风暴所经路线之间有着密切的关系。

(王银萍)

### 'Cellular Garbage' Yields a Clue

How old is that shrimp? Zoologists have long sought a foolproof method of determining the age of insects and crustaceans.

A possible solution has been discovered by an Australian scientist who has developed a promising new technique for determining the age of animals as diverse as fleas and shrimp①.

It involves measuring the level of some fluorescent pigments, called lipofuscins, which gather in the cells of the animals as a by-product of metabolic processes.

Dr George Ettershank, a zoologist at Monash University in Melbourne, found that lipofuscins in an insect's tissues could easily be extracted by solvents and, when measured② by a spectro-fluorimeter, indicated physiological

age.

Dr Ettershank described lipofuscins as “cellular garbage” that collects in the cells of ageing animals.

The zoologist believes that in choosing the level of lipofuscins as a metabolic marker he has solved the problem of insect age determination.

Such knowledge may be valuable because an insect may be more vulnerable to pest control methods at one age than another.

The studies may also shed light on the growth patterns of krill, the tiny Antarctic marine crustacean that is one of the world's largest protein sources, allowing them to be harvested at rates that will not imperil their future abundance.

## 词 汇

<b>cellular</b> ['seljʊlə] <i>a.</i> 细胞(形成)的	<b>extract</b> [iks'trækt] <i>vt.</i> 取出, 抽出
<b>foolproof</b> ['fu:l'pru:f] <i>a.</i> 十分简单明了的	<b>solvent</b> ['solvənt] <i>n.</i> (化)溶剂
<b>crustacean</b> [krʌs'teɪʃjən] <i>n.</i> 甲壳纲的动物	<b>spectro-fluorimeter</b> ['spektrəu fluə'rɪmɪtə] <i>n.</i> 荧光谱仪
<b>diverse</b> [dai'və:s] <i>a.</i> 多种多样的, 形形色色的	<b>physiological</b> [fɪziə'lɒdʒɪk(ə)l] <i>a.</i> 生理学的, 生理的
<b>flea</b> [fli:] <i>n.</i> 蚤	<b>vulnerable</b> ['vʌlnərəbl] <i>a.</i> 易受伤的, 易受攻击的
<b>fluorescent</b> [fluə'resnt] <i>a.</i> 荧光的	<b>shed light on</b> 阐明, 将...弄明白
<b>pigment</b> ['pɪgmənt] <i>n.</i> (生)色素	<b>krill</b> [krɪl] <i>n.</i> 克列尔(一种浮游性甲壳类动物)
<b>lipofuscin</b> <i>n.</i> 脂褐质	<b>imperil</b> [ɪm'perɪl] <i>vt.</i> 危害, 使处于危险
<b>metabolic</b> [ˌmetə'bɒlɪk] <i>a.</i> 新陈代谢的	



## 注 释

- ① (animals) as diverse as fleas and shrimp: = animals of different kinds, from fleas to shrimp
- ② when measured: = when they are measured; they 指 lipofuscins.

## 参考译文

### “细胞废料”提供的线索

那只虾活多久了？动物学家长期以来在探索一种测定昆虫和甲壳纲动物年龄的简便方法。

一位澳大利亚科学家已经发现了一种能解决这个问题的方法，他研制出了一种大有发展前途的能测定各类动物（由蚤类到河虾）年龄的新技术。

荧光色素，又称脂褐质，是动物新陈代谢的过程中聚积在细胞内的副产品，这个方法就涉及该色素的含量的测定。

墨尔本蒙那希大学的动物学家乔治·埃特希恩克博士发现，昆虫组织里的脂褐质很容易用溶剂提取，若用荧光谱仪测量，就可知道昆虫的生理年龄。

埃特希恩克博士把脂褐质描述为聚积在成熟动物的细胞内的“细胞废料”。

这位动物学家认为，他选择脂褐质的含量作为新陈代谢的标志，实际上已解决了昆虫年龄的测定问题。

了解这一点也许很有价值，因为昆虫在生命某个时期对治虫措施抗拒能力要比其它时期为弱。

克列尔是南极一种小型海洋甲壳纲动物，被视为世界上最大的蛋白质来源之一，这种研究则可搞清楚克列尔的生长规律，以便适时适量地捕捉它们，而不会影响今后的产量。

(王银萍)

## **Zebras' Stripes Deter Tsetse Flies**

Zebras may have developed their stripes in order to hide from the tsetse fly.

In the insect-infested parts of Africa, the tsetse fly, which transmits animal sleeping sickness<sup>①</sup>, attacks donkeys, horses, wild-beasts and other solid-colored animals while leaving zebras relatively unmolested. British zoologist Jeffrey Waage believes the animal's striping evolved as a means of camouflage. "Tsetse flies orient visually to rounded, solid-colored forms," he explains. "They may not pick up a black and white striped form nearly so well."

To test his theory, Waage went to Zimbabwe, with barrels solid black, solid white and striped to mimic the hides of zebras and other animals. The barrels were wired, set on carts and pulled through the bush. Any flies that settled on the barrels were electrocuted. The corpses dropped to a collecting pan and were counted.

"The striped model caught fewer tsetses," reports Waage. He thinks that the fly may see only a vague gray form when looking at<sup>②</sup> a zebra from afar. So why aren't the animals just gray? Because close up, gray is easily distinguished, suggests Waage<sup>③</sup>. But not stripes. Perhaps as the tsetse approaches, the distant gray resolves into stripes each too thin to catch its notice. As a test, Waage plans to compare the fly-attracting capacity of a gray barrel to the striped one.

## 词 汇

deter [di'teɪ] *vt.* 威慑, 拉住  
tsetse ['tsetsi] *n.* 舌蝇, 采采蝇  
infest [in'fest] *vt.* (害虫、盗贼等) 大批出没于, 寄生于  
sleeping sickness 昏睡病(会导致神经系统衰弱而死亡)  
solid-coloured ['sɒlɪd'kələd] *a.*  
单一色调的  
unmolested ['ʌnməu'lestɪd] *a.*  
不受烦扰的, 平安的

orient ['ɔ:riənt] *vt.* 适应形势  
Zimbabwe [zim'ba:bwei] *n.* 津巴布韦  
mimic ['mimɪk] *vt.* 模仿, 酷似  
hide [haɪd] *n.* 兽皮  
electrocute [i'lektɹəkjʊ:t] *vt.* 使触电而死  
corpse [kɔ:ps] *n.* 死尸, 尸体  
vague [veɪg] *n.* 模糊的

## 注 释

- ① which transmits animal sleeping sickness: 非限制性定语从句, 修饰 fly; transmits = spreads 传播。
- ② when looking at: = when it is looking at
- ③ suggests Waage: = Waage suggests, 句中作插入语。

## 参考译文

### 斑马条纹与采采蝇

斑马身上的条纹可能是为躲避采采蝇而演化出来的。

在非洲那些昆虫孳生的地区, 传播动物昏睡病的采采蝇攻击驴、马、野兽以及其它皮色单一的动物, 而对比之下只有斑马不受什么打扰。英国动物学家杰弗里·韦埃基认为斑马演化的条纹是一种伪装手段。“采采蝇的视力只适应浑圆、单一色调的形体,” 他解释道。“对于黑白条纹的形体, 它们的分辨能力就差了。”

为了证明他的理论, 韦埃基到津巴布韦, 并带去涂有仿照斑马及其它动物皮色的圆桶, 有的全黑, 有的全白, 还有黑白相间的条纹。圆桶

上都接有电线，桶放在小车上，拉着穿过灌木林。落到圆桶上的采采蝇都被电击倒，死蝇落入一只收集盘中，数目都逐一清点。

“条纹模型捕到的蝇较少。”韦埃基报告说。他认为当蝇从远处看斑马时，所看到的只是一个模糊的灰色形体。那么这种动物又为什么不长成灰色的呢？他的看法是在近处，灰色易于分辨，而条纹则不易分辨。或许当采采蝇靠近时，远处看到的灰色便分解成条纹，每一条都很细窄，使它们不注意。韦埃基打算再作一个实验，以比较灰色圆桶和条纹圆桶对蝇的吸引力。

(陈 海)

## Antibiotics Hit the Spot

During an infection, white blood cells stream toward the trouble spot. Can antibiotics fortify these cells in their fight against microbial invaders?

To answer this question, Maximo Deysine, professor of surgery at the State University of New York, has placed antibiotics in white blood cells. The cells ferry the drug straight to the infection, “a method of delivery that’s a thousand times more efficient than oral administration,” says Deysine. As a result, lower doses can be used, and organs such as the liver and kidneys — in which large amounts of antibiotics can cause toxic effects — remain unaffected.

To fill the blood cells with antibiotics, Deysine coats small particle of plastic with the drug. Using dogs as subject, he withdraws white blood cells from an infected animal, mixes them with the drugcoated particles, which the

cells then engulf, and injects the antibiotic mixture back into the dog.

“So far, this work has proved that site-specific transport by white blood cells<sup>①</sup> is possible,” says Deysine. “But we have used only low drug doses so far. Now we want to see if the method will be effective in actually fighting the infection when higher doses are employed.”

Deysine has also shown that coated particles injected directly into dogs wind up at the infection site only. The white blood cells are believed to pick up the particles in the same manner inside the body as they do in the test tube.<sup>②</sup> He now wants to determine if albumin, a protein found in eggs and blood, can be substituted for the plastic.<sup>③</sup>

## 词 汇

**antibiotic** [ˌæntibai'ɒtɪk] *n.* 抗

菌素, 抗生素

**stream toward** 涌向

**fortify** ['fɔ:tɪfaɪ] *vt.* 增强

**microbial** [maɪ'krəubiəl] *a.* 微

生物, 细菌的

**ferry** ['feri] *vt.* 运送

**delivery** [di'livəri] *n.* 传送

**oral administration** 口服

**dose** [dəʊs] *n.* 剂量

**liver** ['lɪvə] *n.* 肝

**kidney** ['kidni] *n.* 肾

**toxic** ['tɒksɪk] *a.* 有毒的, 中毒的

**withdraw ... from** 从...中提取

**engulf** [ɪn'gʌlf] *vt.* 吞没, 吞食

**wind up** 结束, 停止

**albumin** ['ælbjumin] *n.* 白蛋白, 白朊

**substitute sth. for sth.** 用...取代...

## 注 释

- ① site-specific transport by white blood cells: 由白血球定点运送; 这是名词短语, 作从句的主语。

- ② in the same manner inside the body as they do in the test tube: 主要结构为 the same ... as; do 替代主语中出现过的谓语 pick up the particles, 以免重复。
- ③ can be substituted for the plastic: 用以取代塑料, for 引出的为被取代之物。

## 参考译文

### 抗菌素找到感染部位

感染期间, 白细胞会涌向感染部位。抗菌素能增强这些细胞以抵抗入侵的细菌吗?

为了回答这个问题, 纽约州立大学外科教授马克西姆·德西在白细胞中放置了抗菌素。这些白细胞能将药物直接送到感染部位。德西说: “这是胜过口服千倍的送药方法。”因而可以使用小剂量, 肝、肾等器官也就不会受影响, 这些器官内若积存大量的抗菌素则有可能引起中毒。

为了给白细胞注入抗菌素, 德西在小塑料颗粒上涂上抗菌素。他用狗做试验。首先从一只被感染的狗身上提取白细胞, 然后与涂有药物的颗粒混合, 让白细胞将颗粒吞噬, 最后把这个含有抗菌素的混合物注回到狗的体内。

德西说: “到目前为止, 这项工作已经证明通过白细胞进行定点输送是有可能的。不过我们只试验了小剂量而已。现在我们想知道, 在使用大剂量实际抗感染时, 这种方法是否有效。”

德西还证明了, 直接注入狗体内涂有药物的颗粒最后都集中到感染部位。科学家认为, 白细胞在体内摄取药粒的方法与其在试管内摄取的方法是一样的。下一步他想确定能否用白蛋白(一种存在于卵细胞和血液中的蛋白质)来取代塑料颗粒。

(郭同庆)

## Why Do Cranes Dance?

If cranes didn't dance, there would be no crane chicks every year. For young cranes that have never mated, dancing is a necessary part of choosing a lifetime partner. For older cranes that have already paired off, dancing reinforces the union — it's a sort of annual renewal of "vows." Interestingly enough, there are 15 different species of cranes and they all dance to the same steps.

These courting ballets have a definite physiological effect: They synchronize the male and female sexually. Thus, when the birds arrive at their breeding grounds, the male will have viable sperm ready to fertilize his mate's developing eggs.

Dr. George Archibald, whose International Crane Foundation in Baraboo, Wisconsin, is dedicated to preserving endangered cranes, dances with females all the time. He does this in order to prepare them for artificial insemination. Without the dancing, the female won't be ready to accept the semen when it is injected. Unless the ancient rites are observed, there will be no fertile eggs.

In the wild, cranes go through their dancing ritual in the morning and evening. With wings outstretched the male and female circle each other, bowing their heads repeatedly and occasionally flinging twigs or earth into the air with their beaks. Now and then, they leap straight up, then go into a wing-flapping run, side by side. In a furious finale,

the birds bring their heads low between their legs and flap their wings wildly. As the wings close, the dancers snap their heads up and back, then quickly resume the normally erect posture. Saturday night fever① it may not be, but to the cranes, it is no mere play.②

## 调 汇

<b>chick</b> [tʃɪk] <i>n.</i> 小鸟	对...施人工受精
<b>union</b> ['juːnjən] <i>n.</i> 结合, 结婚	<b>semen</b> ['semən] <i>n.</i> 精液
<b>annual</b> ['ænjuəl] <i>a.</i> 每年的	<b>rite</b> [raɪt] <i>n.</i> 礼节, 仪式
<b>renewal</b> [ri'njuəl] <i>n.</i> 重申, 重做	<b>observe</b> [əb'zə:v] <i>vt.</i> 遵守, 奉行, 观察
<b>vow</b> [vaʊ] <i>n.</i> 誓言	<b>ritual</b> ['ritʃuəl] <i>n.</i> 仪式
<b>physiological</b> [fɪziə'lɒdʒɪkəl] <i>a.</i> 生理的	<b>fling</b> [flɪŋ] (fling, flung, flung) <i>vt.</i> 用力扔或抛
<b>synchronize</b> ['sɪŋkrənaɪz] <i>vt.</i> 同步, 同时发生	<b>beak</b> [bi:k] <i>n.</i> 嘴
<b>viable</b> ['vaɪəbl] <i>n.</i> 能活的, 能生长发育的	<b>furious</b> ['fjuəriəs] <i>a.</i> 强烈的, 兴奋的
<b>fertilize</b> ['fɜːtɪlaɪz] <i>vt.</i> 使受精	<b>finale</b> [fi'nɑːli] <i>n.</i> 最后一幕, 结尾
fertile egg 受精卵	<b>snap</b> [snæp] <i>vt.</i> 急射, 乱射
be dedicated to 献身, 把(时间、力量等)用在	<b>fever</b> ['fi:və] <i>n.</i> 狂热; 发烧
<b>insemination</b> [ɪn,semi'neɪʃən] <i>n.</i>	

## 注 释

- ① **Saturday night fever**: “周末的狂热”; 人们一般在星期六晚上尽情玩耍
- ② **It is no mere play**: “这绝不仅仅是玩玩而已”。no play 比 not a play 更为强烈。如: He is not a soldier. (他不是士兵。) He is no soldier. (他根本不是士兵。)



## 参考译文

### 鹤为什么跳舞？

鹤如果不跳舞，每年就不会有小鹤出世。对于那些未曾有配偶的新鹤来说，跳舞是选择终身伴侣的必要手段。对于已有配偶的成年鹤来说，舞蹈会加强相互间的结合——这成了每年都要举行的一种重温“山盟海誓”的仪式。有趣的是十五种不同种类的鹤都按同一舞步跳舞。

这些求爱的舞蹈具有一定的生理作用：能使雌鹤和雄鹤交配和谐。这样，当鹤来到交配地时，雄鹤就具备了充满生命力的精子，可使其配偶的成熟卵受精。

在以保护受威胁的鹤为宗旨的威斯康星州巴拉布国际鹤类基金会工作的乔治·阿奇博尔德博士常与雌鹤共舞，目的是让这些雌鹤作好人工受精的准备。若不跳舞，在注射精液时，雌鹤就不会作好接受精液的准备。因而如果不遵守这个古老的仪式，就不会有受精卵。

在野地里，鹤的舞蹈仪式是在早、晚进行的。雄鹤和雌鹤各自展开翅膀，围着对方转，不断地点着头，还偶尔用嘴挑起地上的树枝和泥巴，又不时地跳起身子，然后拍打着翅膀并排地奔跑。在兴奋的最后阶段，它们把头低垂在两腿之间，拚命地拍打翅膀。当最终翅膀收起时，又快速地作着点头动作，然后迅速恢复正常的站立姿势。这也许算不上周末的狂热，不过对鹤来说，这也绝不是单纯的嬉闹。

(沥 清)

## The Story of Salt

We do not know when man first began to use salt, but we do<sup>①</sup> know that it has been used in many different ways throughout history. Historical evidence shows, for