

通信科技英语

文选

南京大学公共外语教研室编



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A Lizard's Sorrow

The animal world is full of creatures that abandon a prize to placate an aggressor; the hyena drops its meal when a lion approaches, for instance, realizing it is better to be unfed than dead^①. But few creatures make a greater sacrifice than the lizard: it often allows predators to bite off its tail so that it can escape with its life. But now there is evidence that it^② robs a lizard of so much of its social status that its chances of survival are greatly reduced.

Stanley Fox of Oklahoma State University collected 60 lizards, 30 of each sex, and picked out pairs of equal length. He and graduate student Margaret Rostker first determined which member of the pair was dominant by toting up the aggressive acts of each. Then they broke off two-thirds of the tails from some lizards. "We found a significant change in social rank," Fox says. The subordinate lizard overthrew the handicapped one or at least closed the gap between them. As a result, the tailless lizard has a harder time winning^③ a good home range that will shelter it from predators — perhaps because a shorter tail indicates a smaller body and hence less strength, or because the wound signals that the animal is weak and not apt to put up much of a fight.

词 汇

lizard ['lɪzəd] *n* 蜥蜴

abandon [ə'bændən] *vt* 放弃

placate [plə'keɪt] *vt* 安慰; 使和

解

hyena [hai'i:nə] *n* 鬣狗, 土狼
 predator ['predətə] *n* 掠夺成性的捕食动物
 rob sb of sth 抢夺某人某物
 status ['steitəs] *n* 地位
 dominant ['dominənt] *a* 最有势力的
 tot (sth) up 把(某些数字)加起来
 subordinate [sə'bo:dinit] *a* 次要

的, 下级的
 handicapped ['hændikæpt] *a* 身体残废的
 home range 动物活动范围
 shelter ... from ... 保护.. 免受...
 apt [æpt] *a* 聪明的, 灵巧的
 be apt to do sth 善于做某物
 put up 进行

注 释

- ① It is better to be unfed than dead: = to be unfed is better than to be dead. *it* 为先行词.
- ② *it* 指前句讲的内容, 即: it often allows ... to bite off its tails.
- ③ has a harder time winning: winning 为动名词, 前面省略介词 *in*, 表示“在...方面”, 如: I spent three days (in) writing the thesis.

参考译文

蜥蜴的苦处

见到侵略者即放弃已捕获的猎物, 以求得缓和侵略者的暴力行为, 这样的动物充斥着整个动物世界。以鬣狗为例, 在狮子迫近时, 就丢下自己的美餐逃之夭夭, 因为它意识到挨饿总比送死强。然而, 就作出的牺牲而言, 则几乎没有什么动物比得上蜥蜴了。蜥蜴常常得让对方咬下自己的尾巴以便能求一生路。现有证据表明, 失去尾巴极大地剥夺了蜥蜴的社会地位, 大大地减少了它生存下去的机会。

俄克拉荷马州立大学的斯坦利·福克斯收集了六十只蜥蜴, 雌雄各三十, 按相等长度配成对。福克斯与研究生玛格丽特·罗斯特克一

起，通过统计各个蜥蜴发起攻击的次数，以首先确定各对中哪只是强者，然后，将其中一些的尾巴切掉三分之二。“我们发现社会地位发生了巨大变化，”福克斯说。原来处于次要地位的蜥蜴打败了截断尾巴的强者，至少两者的差距缩小了。结果，没有尾巴的蜥蜴就难于赢得其免遭掠夺者袭击的良好活动环境。——也许因为尾巴短，表明身材小，因此力量就小，或者因为伤口标志着体弱，不堪一击吧！

顾惠达 译注 文 建 校

Plants' Ups and Downs

What makes plants grow toward light? Why do roots grow down and stems up?

In 1926, Fritz Went, a plant physiologist, isolated the chemical responsible for^① the bending of plants toward light. He called it auxin, from the Greek for “to increase.” His work led to the discovery that when light strikes a shoot, auxin migrates to its shaded side. The accumulation causes cells there to elongate faster than those on the light side. This asymmetric growth makes the shoot bend toward the light.

A plant's awareness of up and down is believed to be first influenced by gravity. Stems “know” to head upward because they grow away from gravity's pull. Variations in the levels of auxin and gibberellin, another growth-regulating substance, mediate the process. If you turn a seedling on its side, its auxin and gibberellin soon rearrange themselves, causing growth to occur faster on the underside — and the stem to turn upward.

Roots “know” to grow in the direction of gravity’s pull by the same mechanism — the way^② in which growth-regulating substances line up within the root cells. Evidence suggests that gravity sensors called statoliths, which move toward the bottom of the individual root cells, may affect the distribution of growth-regulators in these cells. Although it is known that^③ the upper side of a horizontally placed root will grow faster than the lower, causing the root to grow downward, scientists don’t know what role statoliths actually play.

词 汇

Fritz Went [fritz 'went] 弗里

兹·温特(人名)

physiologist [fizi'ɒlədʒist] *n* 生
理学家

isolate ['aɪsəleɪt] *vt* 分离出

auxin ['ɔːksɪn] *n* 生长素, 生长
激素

strike [straɪk] *vt* (strike, struck,
stricken) (光)落在...上;照到

shoot [ʃuːt] *n* 芽, 苗

migrate [maɪ'greɪt] *v* 迁移

elongate ['iːlɒŋgeɪt] *v* 拉长, 伸
长

asymmetric [æsi'metrik] *a* 不对
称的

awareness of 意识, 认识, 知道

variation [vəəri'eɪʃən] *n* 变化

gibberellin [ˌdʒɪbə'relɪn] *n* 赤霉
素

mediate ['miːdiət] *vt* 调节

underside ['ʌndəsaɪd] *n* 下侧, 下
面

in the direction of 朝...方向

line up 排列; 集合

sensor ['sensə] *n* 传感器

statoliths ['steɪtəliθs] *n* 压力石

注 释

① responsible for: 字面意义为“对...负责”,但此处可译为“影响...的
因素”。

② the way == in the way, 作 by the same mechanism 的同位语,其
中in常可省略。

- ③ it is known that: it 为先行词,真正主语为 that 引导的名词从句。此类句型常有固定译法:“众所周知”“人们知道”等等。

参考译文

植物的上长和下伸

是什么使植物向光生长?为什么根向下长,而茎朝上长?

1926年,有一位名叫弗里兹·温特的植物生理学家分离出一种使植物向光曲伸的化学物质。他称该物质为生长素,系从希腊语而来,为“繁殖”的意思。温特的试验导致他发现,当光照射到植物新长出来的嫩芽或嫩叶上时,生长素就转移到其背光的一边。因为背光的一边积聚了生长素,细胞就比向光一边的延伸得快。这种植物背光面不对称的繁殖生长促使其新长出来的嫩芽或嫩叶向着光曲伸。

人们认为植物之所以会上长和下伸首先是受到地心吸力的影响。茎之所以“意识到”头向上,是因为它们是朝着与地心引力相反的方向生长的。由生长素和赤霉素(另一种生长调节物质)在植物体内含量的变化来调节生长过程。如果把一棵幼苗平放,它的生长素和赤霉素也就立即自动进行调整,使幼苗的下侧比上侧生长得快,这样茎就朝上长。

根部“意识到”朝着地心引力的方向生长,也是因为其内部的有机物同样地能自动进行调节,即有生长调节物质积聚在根细胞中的缘故。证据表明,重力传感器(称作压力石)若向各个根细胞的底部移动,就可能影响这些细胞中生长调节物质的分布。尽管大家知道,被平放着的幼苗根的上侧比下侧生长得快,从而使根部朝下生长,但科学家尚未搞清压力石的实际作用。

冯 卓 译注 商 英 校

Ice Making Warms Crops

Strange as it may sound①, a sheath of ice on a plant's tender buds can protect them from the ravages of sudden cold.

The trick is to sprinkle water on a plant when outside temperatures drop below freezing. While the water turns to ice, the plant is kept warm by means of a phenomenon known as heat of fusion. Water just at the freezing point (32 degrees Fahrenheit) must lose heat in order to become ice. This warmth is absorbed by the plant as the water freezes, keeping its temperature at safe levels.

Farmers have long taken advantage of the heat-of-fusion phenomenon by sprinkling their crops when spring temperatures suddenly fall. But now agricultural engineers have developed a system that will make the farmer's job easier: a computer that monitors weather conditions and automatically activates crop sprinklers when temperatures turn dangerously cold.

The researchers have worked out a procedure whereby② sensors are placed in a field of plants to keep track of relative humidity, wind speed, and air and soil temperature. The information is fed directly into a microcomputer bigger than a desk calculator, which uses it to determine③ just when to spray the plants and how much water to apply. Too much water can result in heavy ice buildup, breaking tender branches. A root system that is oversaturated can cut off the

plant's oxygen supply. And winds that are too strong can cause the heat of fusion to dissipate.

It is hopeful that the computer unit can ultimately be made available to farmers for as little as a couple of hundred dollars.

词 汇

sheath [ʃi:θ] *n* 护套,鞘

ravage ['rævɪdʒ] *n* (通常用复数)

灾害,损害

trick [trɪk] *n* 诀窍

fusion ['fju:ʒən] *n* 聚变

monitor ['mɒnɪtə] *vt* 监听

activate ['æktɪveɪt] *vt* 使活动

sprinkler ['sprɪŋklə] *n.* 喷水装

置

procedure [prə'si:dʒə] *n* 程序

whereby ['weəbaɪ] *conj* (关系副

词)靠那个

keep track of 记录,保持对...联系

sensor ['sensə] *n* 传感器

humidity [hju:'mɪdɪtɪ] *n* 湿度

feed [fi:d] (feed, fed, fed) *vt* 馈

入,供给

spray [spreɪ] *vt* 喷

oversaturate [ˌəʊvə'sætʃəreɪt] *vt*

使...过度饱和

dissipate ['dɪsɪpeɪt] *vt* 消散

ultimately ['ʌltɪmɪtli] *ad* 最终

注 释

① Strange as it may sound: = Although it may sound strange; as 引导让步状语从句时,从句要用倒装语序.

② whereby: = by means of which, 是关系副词,引导定语从句.

③ which uses it to determine: which 引导非限制性定语从句,which 指 a microcomputer, it 指 the information.

参考译文

作为庄稼防冻的冰

乍听起来也许令人觉得奇怪: 植物嫩芽上冻结的一层冰能保护嫩

芽不受寒冷的突然袭击。

当室外气温降到冰点以下时,要在植物上面洒些水,这算是一个诀窍。植物上的水结成冰,便借助熔解热现象进行保暖。水刚到冰点(华氏 32 度)时要结成冰就得放出热。植物吸收这种结冰时放出来的热量,便将其温度保持在不受冻坏的安全水平。

很久以来农民们就一直利用这种熔解热现象来保护庄稼。每当春寒来临、气温骤然下降时,他们就在农作物上面洒些水。不过农业工程师们现在已研制出一种能减轻农民劳动的方法:用计算机监测气候,当气温下降到给农作物带来危害时,计算机便自动地使农作物喷水器进行工作。

研究人员已设计出一套程序,借助该程序能使放置在作物地里的传感器记录相对温度、风速、气温以及土壤温度。把收到的信息直接输入比台式计算机稍大的微型电子计算机里。微型电子计算机利用所获信息便准确地对农作物的喷水时间和喷水量的多少作出决定。水喷得过多,会结成厚厚的冰块,压断作物的嫩枝;根部系统的水分过于饱和,则会切断氧对作物的供应;风太大,则会使熔解热消散。

电子计算机装置的价格最后可望降到两、三百美元一台,以便农民购买。

陈永芳 译注 洋 言 校

Tracking Insects with Radar

Under cover of darkness, swarms of agricultural pests are in flight and on the lookout for new territory to invade. But the insects may no longer be able to keep their nighttime migration a secret — they're being spied on with radar.

Encouraged by the results of British scientists in the late

sixties who employed similar techniques, researchers in the United States have begun to use radar to study the nocturnal behavior of insects. Wayne Wolf, an engineer with the U.S. Department of Agriculture, recently adapted a radar unit, normally used on tankers, for tracking bugs. By attaching an antenna that transmits a pencil-thin beam of high-frequency radio waves, he provided the unit with such sensitivity that it can detect a single insect almost a mile away. As the beam sweeps back and forth through the darkness, it reflects off the insects, which show up on a monitor screen as small, discrete dots.

Working at the University of Georgia's agricultural station, Wolf has used radar to measure several parameters of local moth swarms: number of individuals, body orientation to the wind, altitude, air speed, flight time, and distance traveled. His findings have uncovered glimpses of the insects' night life. Right after sunset, there are but^① few moths on the scene. About 30 minutes later, the moths come out in numbers, reaching a peak one to two hours later. Wolf has found that insects behave differently according to their species, the time of year, and environmental conditions.

Attempting to develop pest-control techniques without knowledge about insect flight is like trying to fight a war while ignoring the enemy's air force. It is believed that^② the information turned up by means of the radar unit will help entomologists more effectively battle the bugs. Once perfected^③, the monitor could be used to alert farmers to the course of spreading infestations. With enough advance warning, they would be able to take the precautions necessary to avoid devastating crop damage^④.

词 汇

track [træk] *vt* 追踪
swarm [swɔ:m] *n* 群
migration [mai'greifən] *n* 迁移
spy on 侦探, 侦察
nocturnal [nɒk'tə:nl] *a* 在夜间的, 在夜间活动的
adapt [ə'dæpt] *vt* 适合, 改
bug [bʌg] *n* 虫子 (尤指蟑螂等害虫)
antenna [æn'tenə] *n* 天线
back and forth 来回
discrete [dis'kri:t] *a* 分立的, 不连续的
parameter [pə'ræmitə] *n* 参数
orientation [ɔ:rien'teifən] *n* 方

向, 方位
glimpse [glɪmps] *n* 一瞥, 短短的一看, 瞥见
species ['spi:ʃi:z] *n* 种类
ignore [ig'nɔ:] *vt* 忽视, 不顾
turn up 发现, 找到
entomologist [entə'mɒlədʒɪst] *n* 昆虫学家
alert sb to sth 提醒某人注意某事
infestation [ˌɪnfes'teɪʃən] *n* (老鼠, 虫类等) 大批出没
devastate ['devəsteɪt] *vt* 毁坏, 破坏

注 释

- ① but: = only
- ② It is believed that: It 为先行代词, 真正主语为 that 引导的从句; 其主要结构是: the information will help entomologists battle its bugs. battle the bugs 为宾语补足语, battle 前省略不定词符号 to.
- ③ Once perfected: = As soon as it is perfected, once 为连接词.
- ④ to avoid devastating crop damage: avoid 后用动名词短语作宾语.

参考译文

用雷达追踪害虫

在夜幕的笼罩下, 成群的农作物害虫在飞行, 寻找着可以侵占的新

地盘。但是，这些害虫也许再也不能在夜间偷偷地迁徙了——它们正在受到雷达的监视。

六十年代后期，英国的科学家们采用过类似雷达的技术研究害虫，取得了一定的成果。在这些成果的鼓舞下，美国的科研人员便开始了使用雷达来研究害虫夜间活动的情况。美国农业部工程师韦恩·沃尔夫最近将平常应用于空中加油飞机上的一台雷达装置加以改装，使之适用于追踪害虫。他在雷达上装一根发送铅笔一样细的高频无线电波束的天线，这样就大大地提高了该雷达装置的灵敏率，差不多在一英里远的地方，连一只盘旋的昆虫也能探测到。当无线电波束穿过夜幕来回扫描时，便把害虫从远远的地方反射出来，害虫就成为细小的分立的光点显示在监测的屏幕上。

沃尔夫在乔治亚大学的农业站工作的时候，用雷达测量过当地蛾群的几个参数：蛾的数量，蛾群向着风向飞行，飞行高度，空中飞行速度，飞行时间以及飞行距离。他调查的结果揭示了蛾群夜间生活的一些规律。太阳刚落山，那里只出现很少几只飞蛾，大约三十分钟后，飞蛾蜂拥而出，一、两小时之后，便达到了顶峰。沃尔夫发现，飞蛾的活动方式随其种类及季节和环境条件的不同而变化。

不了解害虫飞行的情况便试图研究控制害虫的方法，就象不了解敌人的空军力量便试图去进行一场战争一样。科学家相信，通过雷达装置获得的资料将有助于昆虫学家更有效地和害虫作斗争，一旦监测装置获得改进，就能用来提醒农民注意害虫大批出沒的飞行路线。有了及早的虫情警报，农民们便能采取必要的预防措施使庄稼免遭毁灭性的破坏。

王银萍 译注 公汝校

Hibernation "PILL"

Imagine going on a 20-year journey into outer space —

without growing any older. Sounds like science fiction①? Well, one day it may not be②! One day, astronauts may be able to do just that — if they hibernate along the way!

Right now, “people hibernation” is just an idea. But it may not be for long. Why? Because scientists have discovered a special chemical in the blood of hibernating animals. And it is this “Hibernating” chemical that sets off the animals’ long winter sleep③.

True hibernators, such as ground squirrels (bears just doze off for a while) really slow down their bodies when they hibernate. In fact, their body temperatures drop almost to freezing. And their heart rate becomes extremely slow. In the ground-squirrel, for instance, the heart rate drops from 350 beats per minute to about three or four — as long as the animal stays in its deep sleep. (Even hibernators wake up once in a while, although scientists don’t know why.)

Scientists studying hibernation have removed a small protein from the blood of hibernating animals. It’s this protein that seems to cause these changes. That protein, called Hibernation Induction Trigger (HIT), seems to be produced by the brain. And the animal’s own “biological clock” seems to “tell” the brain when to produce HIT. And this seems to happen even to laboratory animals that are protected from cold weather. So even lab animals hibernate at the right time.

What’s more, when HIT is injected into non-hibernators, such as monkeys, it causes hibernation-like changes. The monkeys’ pulse rate drops by 40 to 50 percent④ and their bodies cool down by several degrees. The monkeys also lose their appetites.