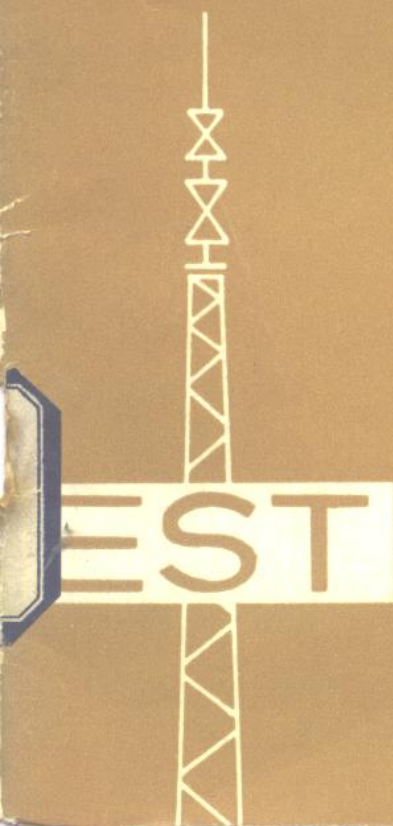


通信科技英语

文选

南京大学外文系公共英语教研室编



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通俗科技英语文选

第十五辑

南京大学外文系公共英语教研室编

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Giant-windmill Array^①

While^② they are not exactly sprouting like trees, giant windmills are starting to pop up^③ in many parts of our landscape. Blades on the world's biggest windmill to date^④ measure 300 feet from tip to tip. It stands 200 feet tall, and will generate 2.5 megawatts.^⑤ The first of three to be erected at Goodnoe Hills, Wash.,^⑥ the giant windmill was built by Boeing^⑦ for the DOE.^⑧ Unlike other large wind turbines, the Boeing design has blades mounted upwind of the tower.^⑨ Blade speed is controlled by varying the pitch of rotor tips,^⑩ instead of varying the pitch of the whole blade.

Another array of windmills will rise in Medicine Bow, Wyo.^⑪ The first of a planned 50-windmill farm should be operating by mid-1981. With 225-ft. blades mounted on a 262-ft.-tall tower, the windmill won't be the world's biggest. But it will be the most powerful, generating four MW — enough to meet the needs of 1200 families.

Hamilton Standard^⑫ is building the windmill for the Dept. of the Interior. The project's goal: to explore the feasibility of feeding wind-generated power directly into lines from hydroelectric plants.^⑬

With lines carrying wind-generated power, water levels could rise behind dams. When the wind slowed, the stored water would be used to generate power.

Notes

- ① giant-windmill array [ə'rei] 巨型风车群
- ② while = although
- ③ pop up 突然出现
- ④ to date = up-to-date 迄今
- ⑤ megawatt (MW) ['megəwɒt] *n.* 兆瓦
- ⑥ Goodnoe Hills, Wash. (美国)华盛顿州戈德诺山区
- ⑦ Boeing 波音飞机公司
- ⑧ DOE = Department of Interior (美)内政部
- ⑨ has blades mounted upwind of the tower: has sth done 意思是:
“使……做好”;即:把叶片安装在……; upwind *ad.* 顶风
- ⑩ pitch of rotor tips: (转子)叶梢部分的倾角
- ⑪ Medicine Bow, Wyo. (美)怀俄明州麦迪生高地
- ⑫ Hamilton Standard 汉密尔顿标准公司
- ⑬ the feasibility of feeding ... into: 将风力发的电直接输入水电厂的
线路
feasibility [ˌfi:zi'biliti] *n.* 可行性
hydroelectric plant [ˌhaɪdrə'lektrɪk] 水力发电站

参考译文

巨型风车群

尽管巨型风车不是象树木那样冒长出来的,它们还是在许多地方的景色中突然出现了。世界上至今最大的风车,其叶片两端间距,长达三百英尺。风车的高度是二百英尺,能产生2.5兆瓦的电力。

即将在华盛顿州戈德诺山建造的三个巨型风车中的第一个,是由波音公司为国家内政部建造的。波音公司的设计和其它大型风力涡轮机不同,叶片是安装在塔架迎风面上的。叶片的转速通过改变叶梢部分的倾角来控制,不改变整个叶片的倾角。

另一群巨型风车将耸立在怀俄明州的麦迪生高地。第一个设计拥

有 50 台风力发动机的农场，将在一九八一年中以前运转。虽然这种风车长二百二十五英尺的叶片，安装在二百六十二英尺高的塔架上，却并不是世界上最大的。但是它将具有最大的功率，发电 4 兆瓦，足以满足一千二百户家庭的需要。

汉密尔顿标准公司正在为内政部建造风车。这项工程的目标是探索把风力产生的电能直接输入水力发电厂电网的可能性。

由于水力发电厂的输电线能传输了风力产生的电能，水坝后面的水就可以积蓄起来。在风速变慢的时候，用存储的水来发电。

(东 福)

Laser Beacon^①

A collision-avoidance system to reduce the chance of midair collisions has been developed by Professor Richard Miles^② of Princeton University.^③ He proposes to use a one-milliwatt^④ laser beacon (sufficiently low in power to threaten no damage to the eyes) and a photo-detector^⑤ to inform pilots of the range and flight path of aircraft that may pose a collision threat.

Small planes are not usually equipped with encoding transponders^⑥ that automatically transmit identity, speed, and altitude to the radar screens of ground controllers.^⑦ Thus the system would most benefit pilots licensed to fly^⑧ only under Visual Flight Regulations^⑨ conditions, when visibility must be at least one nautical mile and 1000 ft. altitude.

Miles's system, now undergoing ground tests, would require every plane to have a laser and detector. (The laser

would replace the rotating red light planes now use^⑩.) The distance and bearing^⑪ of any threat craft would be determined by how rapidly the laser swept across the detector. The closer it got to the threat aircraft, the slower the beam would sweep the detector. (It's as if you were standing just beyond the edge of a revolving carousel.^⑫ Over the same time span, horses on the outer edge cover a greater distance than horses near the center. Thus an outer horse sweeps past you faster than one in the center.)

A laser beam two inches wide remains two inches wide for over two kilometers. If the beam were to spread out with distance, sweep time (time on target) would vary, depending on the width of the beam—it wouldn't give the distance from the airplane the laser intercepted.^⑬

Miles calculates that in planes equipped with detectors having a two-kilometer range, VFR-licensed pilots would get at least 15 seconds' warning before a potential collision. This is a "worst case" estimate based on the fact that below 10,000 ft., maximum legal speed is 250 knots.

Notes

- ① laser beacon 激光信标
- ② Richard Miles (人名) 理查德·迈尔
- ③ Princeton University (美国) 普林斯顿大学
- ④ milliwatt ['miliwɒt] *n.* 毫瓦
- ⑤ photo-detector ['fəʊtə di'tektə] *n.* 光检测器
- ⑥ encoding transponder [in'kəʊdɪŋ træns'pɒndə] *n.* 编码应答器
- ⑦ ground controller 地面控制器
- ⑧ licensed to fly = who are licensed to fly; license (sb to do sth)
- ⑨ Visual Flight Regulations: 目视飞行条例
- ⑩ planes now use: 定语从句, 修饰前面的 light, 省略关系代词

which.

⑪ bearing = direction

⑫ It's as if you were ... revolving carousel: as if 引导的表语从句, 采用虚拟语气。

carousel [ˌkærəˈzel] n. 游艺场中的旋转木马

⑬ If the beam were to spread out ... the laser intercepted: were to spread out 为虚拟语气将来式, it 指前面整个一段话, the laser intercepted 作为定语从句修饰 the airplane.

参考译文

激 光 信 标

减少飞机在空中相撞的一种避撞系统已由普林斯顿大学的理查德·迈尔教授研制出来了。他提出用一个一毫瓦的激光信标(功率低得不会损伤人的眼睛)和一个光检测器使驾驶员知道可能构成碰撞威胁的距离和飞行路径。

小飞机一般不配备能把特征、速度、高度等信息自动发送到地面控制器雷达屏幕的编码应答器。因此该系统对仅在目视飞行条例规定的条件下才能飞行的驾驶员特别有利。在这种条件下,能见度至少要有一海里远,高度在一千英尺以上。

迈尔研制的系统目前正在作地面试验。该系统要求每架飞机带有一个激光器和检测器(激光器将取代现在飞机使用的旋转式红灯)。任何一架即将引起危险的飞机的距离和方位将由激光来扫描检测器的速度来确定:距离越近,激光束扫描检测器的速度就越慢(就象你站在游艺场转马外围的情形一样,在同一段时间里,外圈木马转过的距离比靠近中心的要长。所以外圈木马掠过你的速度比里圈的要快)。

两英寸宽的激光束在两公里多的距离中保持两英寸不变。如果激光束随距离而变宽,则扫描时间(在目标上的时间)就会改变,随激光束的宽度而变。这就不能提供被激光截获的飞机的距离。

迈尔估计在配备有可以检测两公里范围的检测器的飞机里,

获准根据目视条例进行飞行的驾驶员，在可能发生碰撞之前，至少有十五秒的预警时间。这是根据在一万英尺高度以下，最大法定速度为每小时二百五十海里这一事实所作出的最坏估计。

(东 福)

Why the Sky Looks Blue

Why is the sky blue?

Light from the sun is yellowish①-white, so why should the atmosphere, which receives this light, appear blue?

The answer is due to something called Rayleigh scattering② — the way light bounces off submicroscopic③ particles.

Sunlight, before being bounced, is actually made up of light of all different colors. Each color results from a certain wavelength of electromagnetic radiation④: blue from short wavelengths, red from longer ones, and the rest of the rainbow from wavelengths in between.

White corresponds to no specific wavelength. Instead, it's the color our eyes register when we see all colors at once, as when we look at the sun.

But when we look at the atmosphere, we see light that's been scattered by tiny oxygen and nitrogen atoms — small even compared with the minuscule⑤ wavelengths of light. Such tiny particles tend to scatter short-wavelength light more strongly than long-wavelength light. Blue light, with a wavelength 30 percent shorter than red's, is scattered five times more strongly. Hence the blue sky.⑥

But at sunset, when sunlight passes through air closer to the ground, it is more likely to encounter larger particles,^⑦ such as dust. These particles scatter more light of longer wavelengths, so the evening sky often appears reddish.

In the same way, pollution can cause brownish skies at midday.

Water droplets, larger still than dust particles, scatter all wavelengths of light fairly equally — thus clouds appear white.

Notes

- ① yellowish: yellow + ish 带黄色的; ish 是后缀, 构成形容词, 意谓: “稍带……的”, 又如文中: red + (d)ish 带红色的; brown + ish 带棕色的
- ② Rayleigh scattering 雷利散射 (Rayleigh ['reili] 英国物理学家)
- ③ submicroscopic ['sʌb,maɪkrə'skɒpɪk]: 亚微观粒子的, 肉眼看不见的
- ④ electromagnetic radiation [i'lekt'rəʊmæg'netɪk ,reɪdɪ'eɪʃən] 电磁辐射
- ⑤ minuscule ['mɪnəskju:l] *a.* = very small
- ⑥ Hence the blue sky: hence = for this reason, 作状语常引出省略句
- ⑦ it is more likely to encounter larger particles: it 指 sunlight; be likely to 可能; encounter [ɪn'kaʊntə] *v.t.* = meet

参考译文

为什么天空看起来是蓝的?

为什么天空是蓝的?

太阳光是带黄的白色, 那么为什么接收太阳光的大气竟然是蓝的呢?

答案是,这归因于一种称为雷利散射(光从亚微观粒子反射出的方式)的现象。

阳光在反射前实际上是由各种不同颜色的光组成的。每一种颜色都是由某种波长的电磁辐射所产生:短的波长产生蓝色,较长的波长产生红色,彩虹中其余的颜色是由这两种波长之间的光产生的。

白色没有相应的波长。它是我们同时看到所有颜色时眼睛所记录的颜色,就象我们观看太阳时的情形一样。

可是,我们观看大气层时,看到的是已经被微小的氧原子和氮原子散射过的光,这些原子小得甚至可以和波长极小的光相比。这种微粒散射短波长光的强度往往比散射长波长光的强度更大。蓝光波长比红光短百分之三十,被散射的程度要比红光强五倍。所以天空就是蓝的了。

然而在日落的时候,阳光穿过接近地面的空气时,更容易遇到象尘埃这类较大的微粒。这些微粒散射更多波长较长的光,所以傍晚的天空常常带红色。

同样,污染会使中午的天空呈棕黄色。

小水滴比尘埃微粒更大,相当均匀地散射各种波长的光——因而云就是白色的。

(林 柳)

An Automobile Factory

A steel mill, with its blast furnaces^① and chimneys and white hot fires, is a spectacular sight^②; so is an oil refinery^③, with its miles of different colored pipes. But more typical of industry in general, is an automobile factory.^④ In making automobiles, the assembly line^⑤ technique has been carried to its extreme^⑥.

In the assembly line, the product that is being manufactured moves, but the worker stays in the same place. He has one job, which he does on each piece that comes to him. For example, if the product is a radio, the worker stays in his place while the radio is brought to him on a conveyor belt^⑦. When it comes to his place, he puts in the tubes; then the radio moves on to the next worker, who performs his particular job.

An automobile factory is an enormous place, covering several hundred acres. There are several thousand workers in the factory. The heart of the factory is the executive section^⑧ — the offices. These contain the administrative^⑨ services, such as the personnel and the sales departments.^⑩ There are also design and engineering section, where plans for next year's cars are worked out, and where mechanical improvements are developed. There are also restaurants and recreation areas for the employees.

There is not just one assembly line in the factory, there are several. On the main one, the chassis^⑪ of the car is put together. The chassis is the frame on which the rest of the car is built. In another part of the factory, the body of the car is stamped out^⑫ on sheets of steel. The body is painted, and then the trim^⑬ — the chromium decoration, the door handles, and so on^⑭ — is put on.

Meanwhile, in still another part of the factory, the engine is being put together on another assembly line. The central part of the engine is called the block, and the various other parts of the engine are re-fitted to it by different workers as it passes down the line. An internal combustion engine is a complicated piece of machinery, and this work must be done with

great care. A piece which does not fit properly, or which is badly made, may spoil the engine.

When the engine is completed, the assembly line on which it has been put together joins the main one, where the chassis and the body have fitted together. The engine is then placed in the car. After final adjustments have been made, the car can be rolled off the end of the assembly line to a parking lot, where it awaits shipment to the dealer who will sell it to the customer.

The automobile, a complicated machine with hundreds of different parts, is made quickly and efficiently by using the assembly line technique to its fullest extent.

Notes

- ① blast furnace ['blɑ:st 'fə:nɪs] 鼓风机
- ② spectacular sight [spek'tækjʊlə 'saɪt] 壮观的景象
- ③ so is an oil refinery: 倒装句, 以 so 开头的句子要倒装, 表示情况与前者一样. oil refinery [ri'fainəri] 炼油厂
- ④ more typical of ... factory: 倒装句, 主语是 an automobile factory. more typical: 更为典型的是
- ⑤ assembly line [ə'sembli] 装配线, 组装线
- ⑥ to its extreme [iks'tri:m] 达到顶点
- ⑦ conveyor belt [kən'veiə 'belt] 传送带
- ⑧ executive section [ig'zekjʊtɪv] 决策并执行的部门, 行政部门
- ⑨ administrative [əd'mɪnɪstrətɪv] a. 管理的, 行政的
- ⑩ personnel and sales departments: 人事部门和销售部门
- ⑪ chassis ['æsi] n. (汽车) 底盘
- ⑫ stamp out 冲压出
- ⑬ trim [trim] n. 汽车上的装潢
- ⑭ the chromium decoration, the door handles, and so on: 作 trim 的同位语。

参考译文

汽车制造厂

有鼓风机、烟囱和白炽火焰的钢铁厂是一个很壮观的景象，有长达若干英里不同颜色管道的炼油厂也很壮观。但是，在一般工业上更为典型的却是汽车制造厂。在汽车制造方面，装配线技术得到了充分的发挥。

在装配线上，所制造的产品往前移动，而工人则停留在原地。一个工人只干一样活，在来到他面前的每个部件上干这个活。例如，如果产品是收音机，工人站在自己的位置上，而收音机却由传送带给他送来。收音机来到他面前时，他就把电子管装进去，然后收音机继续往前移动到下一个工人那里，那个人又完成他的特定工作。

汽车厂是一个巨大的场所，占地好几百英亩。工厂里有几千名工人。工厂的心脏是行政部门即各个办公室。其中包括各种管理机构，如人事处和营业部。还有设计和工程部门，在这些部门里制定下一年汽车生产计划，并研究机械方面的改进办法。还有供职工使用的食堂和娱乐场所。

工厂里的装配线不只一条，而是几条。在主装配线上装配汽车底盘。汽车底盘是安装汽车其余部分的框架。在工厂的另一部分，用钢板冲压出车身。车身喷上漆，然后装上镀铬饰件、车门把手等装饰件。

与此同时，在工厂的另一个部分，在另一条装配线上正在组装汽车发动机。发动机的中心部分叫做机体，在机体经过装配线时，由不同的工人把发动机的各种其他部件准确无误地装到机体上。内燃机引擎是一个很复杂的部件，装配工作必须十分细心。没装好或零件不合格，都可能使发动机报废。

发动机装好后，组装发动机的装配线就同主装配线会合，在主装配线上底盘和车身已经装在一起。于是就把发动机装进了汽车。经最后调试后，汽车就可从装配线终点开到停车场，在那里等待装车，送到出售汽车给顾客的商人那里。

汽车,这种由数以百计的不同部件组成的复杂机器,由于充分利用了装配线技术,生产的速度快,质量好。

(北 海)

Ecology^①

The environment is everything that surrounds us: plants, animals, buildings, country, air, water — literally everything that can affect us in any way.^② The environment of a town, with its buildings and traffic and its noise and smells, where everyone is on top of^③ everyone else, is a far cry from^④ that of the countryside, with its fields and crops, its wild and domestic animals and its feeling of spaciousness. And the environment differs in different parts of the world.

Ecology is the science of how living creatures^⑤ and plants exist together and depend on each other and on the local environment. Where an environment is undisturbed, the ecology of an area is in balance, but if a creature is exterminated or an alien^⑥ species introduced, then the ecology of the district will be upset — in other words, the balance of nature will be disturbed.

Man is a part of the environment and has done more to upset the ecology during his short span on earth than any other living creature. He has done this by his ignorance, his greed, his thoughtless folly and his wanton wastefulness.

He had poisoned the atmosphere and polluted both land and water. He has squandered the earth's natural resources with no thought for the future, and has thought out the