

# 上海科技英

宋大新 韦正道 译

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English-Chinese Bilingual  
Dictionary of Biology

上海科学技术出版社

# 汉双解

# 生物

# 词典



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上海科学技术出版社出版、发行

(上海瑞金二路 450 号)

南京理工排版校对公司照排

新华书店上海发行所经销 上海市印刷十一厂印刷

开本 850×1156 1/64 印张 6.75 插页 4 字数 384 000

1998 年 12 月第 1 版 1998 年 12 月第 1 次印刷

印数 1—5 000

ISBN 7-5323-4900-4/Q · 70

定价:12.80 元

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**abdomen** the part of the body below the ♀ thorax, containing the stomach, intestines, liver, and kidneys; in insects and other arthropods, it is the hind part of the body. In mammals, the abdomen is separated from the thorax by the ♀ diaphragm, a sheet of muscular tissue.

**腹(部)** 躯体胸(部)(♀ thorax)以下的部位, 内含胃、肠、肝和肾; 在昆虫和别的节肢动物中, 它位于躯体的后部。哺乳动物的腹部是由一层薄的肌肉组织即膈(♀ diaphragm)与胸部分开的。

**abiotic factor** a non-living variable within the ♀ ecosystem that affects the life of organisms. Examples include temperature, light, and ♀ soil structure and composition. Abiotic factors can be harmful to the environment, as when sulphur dioxide emissions from power stations produce acid rain.

**非生物因子** 生态系统(♀ ecosystem)中, 可影响生物生存的非生命可变因素。例如温度、光和土壤(♀ soil)的结构和成分。非生物因子有可能对环境有害, 例如由发电厂排放的二氧化硫可形成酸雨。

**abscission** the controlled separation of a part of a plant from the main plant body—most commonly, the falling of leaves or the dropping of fruit. In ♀ deciduous plants the leaves are shed before the winter or dry season, whereas ♀ evergreen plants drop their leaves continually throughout the year. The process is thought to be controlled by the amount of ♀ auxin (growth hormone) present.

**脱落** 植物的器官从其主体上有节制地分离——最常见的是叶子和果

## 2 · absorption

实的脱落。落叶的(◇ deciduous)植物的叶子在冬天或旱季到来前便脱落,而常绿的(◇ evergreen)植物则整年连续不断地落叶。目前认为该过程是由含有的生长素(◇ auxin)(生长激素)的数量所控制的。

**absorption** the uptake of materials by organisms for use in their cellular processes. Any molecule small enough to pass through the pores of a semipermeable membrane can be absorbed by a cell, although the rate and extent of movement will depend on the relative concentrations of the molecules inside and outside the cell. Generally, molecules are absorbed by ◇ diffusion from a region of high concentration to a region of low concentration; in some instances, however, molecules are transported actively from a region of low concentration to one of high concentration (see ◇ active transport).

A simple example of absorption is found in the human lungs, where oxygen passes from the air sacs, or alveoli, into the blood capillaries by diffusing through a thin membrane. Absorption also occurs in the gut (alimentary canal) where small molecules of nutrient, such as sugars or amino acids, diffuse (or are actively transported) across the gut wall into the blood system.

**吸收** 生物吸收可用于其细胞内变化过程的物质。尽管某分子迁移的频率和程度取决于其在细胞内外的相对浓度,但任何小得足以通过半透膜微孔的分子都能被细胞吸收。通常,分子吸收是通过从高浓度区域向低浓度区域扩散(◇ diffusion);然而在某些场合下,分子是从低浓度区域向高浓度区域主动转运(见主动转运 ◇ active transport)。

人肺中已发现吸收作用的简单例子,即通过穿越薄膜的扩散作用,氧气从气囊(肺泡)进入毛细血管。在肠道(消化道)也发生吸收作用,小分子营养物如糖或氨基酸穿过肠壁扩散(或主动转运)到血液系统。

**accommodation** the ability of the vertebrate  $\diamond$  eye to focus on near or far objects by changing the shape of the lens.

For something to be viewed clearly the image must be precisely focused on the retina, the light-sensitive sheet of cells at the rear of the eye. Close objects can be seen when the lens takes up a more spherical shape, far objects when the lens is stretched and made thinner. These changes in shape are directed by the brain and by a ring of ciliary muscles lying beneath the iris.

**调节** 脊椎动物的眼( $\diamond$  eye)通过改变晶状体形状来调节近或远物体焦距的能力。

对清晰看到的物体而言,其影象需精确地聚焦在视网膜即眼后部的一层光敏细胞上。晶状体收缩成球形时,可看到近物体,而晶状体伸长变薄时,则可看到远物体。这些形状的改变是由脑和位于虹膜底下的一圈睫状肌支配的。

**acid rain** acidic rainfall, thought to be caused principally by the release into the atmosphere of sulphur dioxide ( $\text{SO}_2$ ) and oxides of nitrogen. Sulphur dioxide is formed from the burning of fossil fuels, such as coal, that contain high quantities of sulphur; nitrogen oxides are contributed from various industrial activities and from car exhaust fumes.

Acid rain is linked with damage to and death of forests and lake organisms in Scandinavia, Europe, and eastern North America. It also results in damage to buildings and statues.

**酸雨** 认为酸雨主要由释放到大气层的二氧化硫( $\text{SO}_2$ )和氮氧化物造成的。二氧化硫由富含硫的矿物燃料如煤的燃烧形成,而氮氧化物则在各种工业生产中及汽车排放废气时产生。

斯堪的纳维亚半岛、欧洲和美洲东北部的森林及湖泊中生物的死亡,都与酸雨造成的损害有关。酸雨也导致建筑物和雕像的毁坏。

**acquired character** a feature of the body that develops during the lifetime of an individual, usually as a result of repeated use or disuse, such as the enlarged muscles of a weightlifter. Lamarck's theory of evolution (see ◊ Lamarckism) assumed that acquired characters were passed from parent to offspring.

Modern evolutionary theory does not recognize the inheritance of acquired characters because there is no reliable scientific evidence that it occurs, and because no mechanism is known whereby bodily changes can influence the genetic material.

**获得性状** 在生物个体一生中发育形成的躯体特征,通常作为反复使用或废弃的结果,如举重运动员扩增的肌肉。拉马克进化学说(见◊ Lamarckism)设想获得性状是由亲代传递到子代的。

现代进化理论不承认获得性状遗传,因为不存在可靠的科学证据证明它发生,也没有已知的机制使躯体的变化能影响到遗传物质。

**active transport** the use of energy to move molecules or ions across a cell membrane and against a concentration gradient (from a region of low concentration to a region of high concentration). The process is thought to involve the binding of the molecule to be absorbed with a protein carrier molecule in the cell membrane. Examples of active transport include, in animals, the absorption of amino acids by cells in the ileum wall and, in plants, the taking up of minerals by root hairs.

Active transport may be contrasted with ◊ diffusion, a passive process (requiring no input of energy) by which molecules are absorbed into a region in which they are in lower concentration, as when oxygen passes from the alveoli of the lungs into the blood capillaries.

**主动转运** 利用能量使分子或离子逆浓度梯度(从低浓度区域向高浓度区域)运动,穿过细胞膜。认为该过程涉及被吸收分子与细胞膜上

蛋白载体分子的结合。主动转运的例子,在动物中包括回肠壁上的细胞吸收氨基酸,在植物中如根毛吸收无机物。

主动转运与扩散( $\diamond$  diffusion)形成对照,后者是一个被动过程(不需要能量输入),被吸收的分子进入较低浓度的区域,如氧气穿过肺泡进入毛细血管。

**adaptation** any feature of an organism that allows it to survive and reproduce more effectively in its environment. The theory of evolution by natural selection holds that species become extinct when they are no longer adapted to their environment—for instance, if the climate becomes suddenly colder. By definition, all organisms existing now must be reasonably well adapted.

**适应** 允许生物在环境中更有效地生存和繁殖的生物特征。自然选择的进化论认为当物种不再适应其环境——例如气候骤然变冷时,便发生灭绝。根据定义,目前所有存在的生物谅必能很合理地适应。

**adaptive radiation** in evolution, the formation of several species, with adaptations to different ways of life, from a single ancestral type. Adaptive radiation is likely to occur whenever members of a species migrate to a new habitat, such as an island, with unoccupied ecological  $\diamond$  niches. It is thought that the lack of competition in such niches allows sections of the migrant population to develop new adaptations, and eventually to become new species.

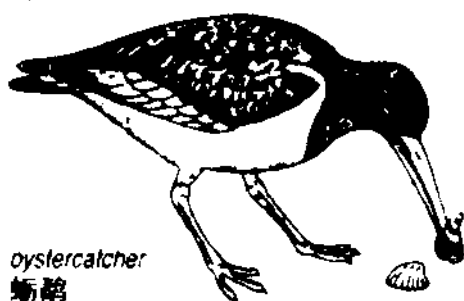
**适应辐射** 在进化过程中,不同物种的形成,是因为对起源于单一祖先种类生命的不同方式的适应。每当一个物种的成员移居到新的栖息地,如一个生态位( $\diamond$  niches)从未占用的岛屿时,适应辐射便可能发生。一般认为该生态位中因缺乏竞争,故允许部分迁移群体产生新的适应,最终成为新的物种。



## 6 · adaptive radiation

### adaptation 适应

The beaks of birds are adapted to suit their diet  
鸟嘴对食物形状的适应



*oystercatcher*  
蛎鹬

long, straight beak to prise open shells of bivalve molluscs, such as mussels  
长直嘴撬开双壳类软体动物贻贝的外壳



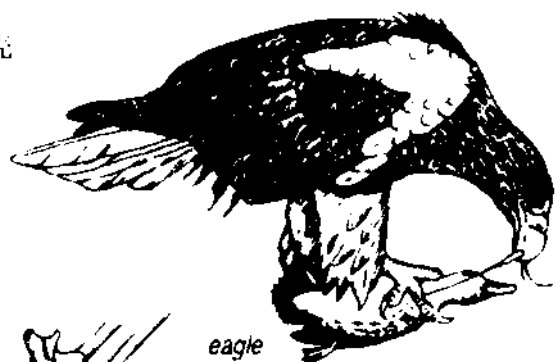
*nightjar*  
欧夜鹰

wide gape and bristles around beak to trap flying insects  
刚毛环绕的阔喙裂嘴捕捉飞虫



*toucan*  
巨嘴鸟

long beak to pick berries from thin twigs  
长嘴啄去细枝上浆果



*eagle*  
鹰

sharp, hooked beak to tear flesh from prey  
尖钩嘴撕猎物的肉



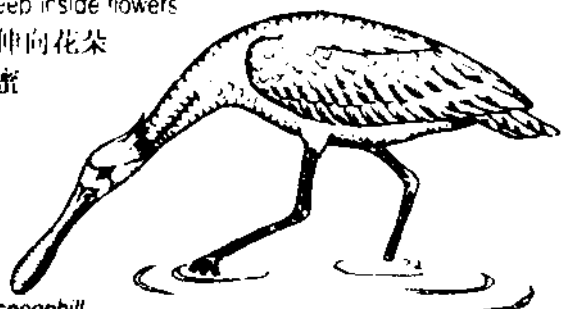
*hummingbird*  
蜂鸟

long, pointed beak to reach nectar deep inside flowers  
长尖嘴伸向花朵深处花蜜



*skimmer*  
剪嘴鸥

scoops up fish and traps them in its scissor-like beak  
剪状嘴舀鱼和捕鱼



*spoonbill*  
琵鹭

swings long, wide beak from side to side underwater to capture fish and aquatic insects  
长阔嘴在水中左右摆动, 捕捉鱼和水昆虫

**additive** in food technology, any natural or artificial chemical added to prolong the shelf life of processed foods (salt or nitrates), alter the colour or flavour of food, or improve its food value (vitamins or minerals). Many chemical additives are used and they are subject to regulation, since individuals may be affected by constant exposure even to traces of certain additives and may suffer side effects ranging from headaches and hyperactivity to cancer. Within the European Community, approved additives are given an official *E number*.

**flavours** are said to increase the appeal of the food. They may be natural or artificial, and include artificial sweeteners and monosodium glutamate (m. s. g.).

**colourings** are used to enhance the visual appeal of certain foods.

**enhancers** are used to increase or reduce the taste and smell of a food without imparting a flavour of their own.

**nutrients** replace or enhance food value. Minerals and vitamins are added if the diet might otherwise be deficient, to prevent diseases such as beri-beri and pellagra.

**preservatives** are antioxidants and antimicrobials that control natural oxidation and the action of microorganisms. See ◊ food technology.

**emulsifiers** and **surfactants** regulate the consistency of fats in the food and on the surface of the food in contact with the air.

**thickeners**, primarily vegetable gums, regulate the consistency of food. Pectin acts in this way on fruit products.

**leavening agents** lighten the texture of baked goods without the use of yeasts. Sodium bicarbonate is an example.

**acidulants** sharpen the taste of foods but may also perform a buffering function in the control of acidity.

**bleaching agents** assist in the ageing of flours.

**anti-caking agents** prevent powdered products coagulating into solid lumps.

**humectants** control the humidity of the product by absorbing and retaining moisture.

**clarifying agents** are used in fruit juices, vinegars, and other fermented liquids. Gelatin is the most common.

**firming agents** restore the texture of vegetables that may be damaged during processing.

**foam regulators** are used in beer to provide a controlled 'head' on top of the poured product.

**添加剂** 在食品工艺中,为了延长加工食品(食盐或硝酸盐)的保存期限,改变食品的颜色或味道,或增加其食品价值(维生素或无机物)而添加的天然或人造的化学制剂。许多化学添加剂在使用时受到控制,因为个体可能受到不断接触添加剂的影响,甚至某些添加剂的微量加入就可产生从头痛和功能亢进直到癌症的副作用。欧洲共同体批准的添加剂均标明许可的E数。

**调味品** 估计可增加食品的吸引力。它们可能是天然或人造的,包括人造的甜味剂和谷氨酸钠。

**色素** 用于增加某些食品视觉上的吸引力。

**强化剂** 用于增强或减弱食品的味觉和嗅觉,但不带有强化剂自身的味道。

**营养素** 取代或增加食品的营养价值。若食物的营养不足,则添加无机物和维生素以防止如脚气病和糙皮病等的发生。

**防腐剂** 指控制自然氧化作用和微生物活动的抗氧化剂和抗菌剂。见食品工艺(◇ food technology)。

**乳化剂和表面活性剂** 调节食品中和接触空气的食品表面上的脂肪密度。

**增稠剂** 主要是植物胶,调节食品的稠度。在水果产品上,果胶起这方面的作用。

**发酵剂** 使烘烤食品的质地变松,但并不使用酵母。碳酸氢钠是一个例子。

**酸味剂** 加重食品的味道,但也可能在酸度控制中履行缓冲的功能。

**脱色剂** 帮助面粉的熟化。

**抗凝剂** 防止粉状产品凝结成固体块状。

**持湿剂** 通过吸收和保持水分,控制产品的湿度。

**净化剂** 用于水果汁、醋和别的发酵液。最常见的是明胶。

**固化剂** 使加工时受到损伤的蔬菜质地得以恢复。

**泡沫调节剂** 用于啤酒中,在倾注该产品时形成的液面上提供有节制的“泡沫”。

**ADH** (abbreviation for *antidiuretic hormone*) hormone secreted by the  $\diamond$  pituitary gland that plays a role in maintaining a correct salt/water balance in the blood. It stimulates the kidneys to conserve water more efficiently, thereby allowing the body to compensate for a varying water intake.

In conditions of water shortage, the concentration of the blood is raised triggering receptors, which in turn bring about the secretion of ADH by the pituitary. The resulting high levels of ADH in the blood stimulate the kidneys to produce more concentrated urine so that less water is lost from the body. When the animal is able to drink plenty of water, decreased ADH secretion causes the kidneys to produce more dilute urine so that more water leaves the body and the blood does not become too dilute.

**抗利尿激素** 由垂体( $\diamond$  pituitary)分泌的激素,在维持血液合适的盐/水平衡中起作用。它促使肾更有效地保水,从而使身体补偿水摄入的不足。

在水不足的情况下,因血液浓度升高而触发受体,依次引起垂体分泌 ADH。血液中产生的高水平 ADH 促使肾产生较浓的尿,使得身体失去较少的水分。当动物能喝到充足的水时,ADH 分泌的减少使肾产生较淡的尿,使身体失去较多的水而血液不至于变得太淡。

**adipose tissue** a type of  $\diamond$  connective tissue that serves as an energy re-

serve, and also pads some organs. It is commonly called fat tissue, and consists of large spherical cells filled with fat. In mammals, major layers are in the inner layer of skin and around the kidneys and heart.

**脂肪组织** 一种结缔组织(◇ connective tissue), 用于能量储备和衬填某些器官。一般称其为脂肪组织, 由充满脂肪的大型球状细胞组成。在哺乳动物中, 脂肪主要分布在皮肤内层及肾和心脏的周围。

**adolescence** in the human lifecycle, the period between the beginning of puberty and adulthood.

**青春** 在人类生活周期中, 从青春期开始至成年之间的时期。

**ADP** abbreviation for *adenosine diphosphate*, a raw material in the manufacture of ◇ ATP (adenosine triphosphate), the molecule used by all cells to drive their metabolic reactions.

**腺苷二磷酸** 一种制造腺苷三磷酸(◇ ATP)的原料, 所有细胞利用 ATP 分子推动其代谢反应。

**adrenal gland** or *suprarenal gland* a gland situated on top of the kidney.

The adrenals are soft and yellow, and consist of two parts: the outer cortex and the inner medulla. The *cortex* secretes various hormones, controls salt and water metabolism, and regulates the use of carbohydrates, proteins, and fats. The *medulla* secretes the hormones adrenaline and noradrenaline, which constrict the blood vessels of the belly and skin so that more blood is available for the heart, lungs, and voluntary muscles in emergency 'fight or flight' situations.

**肾上腺** 位于肾上方的腺体。肾上腺柔软、黄色, 由两部分组成: 外部皮质和内部髓质。皮质分泌多种激素, 控制盐和水的代谢, 调节碳水化合物、蛋白质和脂肪的利用。髓质分泌的肾上腺素和去甲肾上腺素可收缩腹腔和皮肤的血管, 致使在“搏斗或逃跑”的紧急情况下, 使心、肺和随意肌得到更多的血供。

**adrenaline** or *epinephrine* hormone secreted by the medulla of the ♢ adrenal glands.

**肾上腺素** 由肾上腺(♢ adrenal glands)髓质分泌的激素。

**aerobe** organism that respire aerobically. Almost all living organisms (plants as well as animals) are aerobes, and will die in the absence of oxygen. Compare ♢ anaerobe.

**需氧生物** 须呼吸氧气的生物。几乎所有活的生物(植物和动物)都是需氧生物,在无氧时会死亡。比较厌氧生物(♢ anaerobe)。

**aerobic respiration** form of respiration that requires the presence of oxygen (usually dissolved in water) for the efficient release of energy contained in food molecules, such as glucose.

Aerobic respiration occurs inside the ♢ mitochondria of the cell and, unlike ♢ anaerobic respiration, involves the complete breakdown of glucose to give carbon dioxide, water, and large amounts of energy (stored in the form of ♢ ATP molecules), which will subsequently be used by the cell for driving its metabolic processes.



**需氧呼吸** 需要氧气(通常溶于水)的呼吸方式,以使食物分子如葡萄糖中含有的能量高效释放。

需氧呼吸发生在细胞线粒体(♢ mitochondria)的内部,它不同于厌氧呼吸(♢ anaerobic respiration),它必须包括葡萄糖的完全分解,产生二氧化碳、水和大量的能量(以腺苷三磷酸 ♢ ATP 分子的形式贮存),该能量随后被细胞利用以推动其代谢进程。



**afterbirth** the placenta and other material, including blood and mem-

branes, expelled from the mammalian uterus soon after birth. In the natural world it is often eaten.

**胞衣** 胎盘及其他物质, 包括血和胎膜, 分娩后不久便从哺乳动物的子宫排出。在自然界它常被吃掉。

**agar** jellylike substance, obtained from seaweeds. It is used mainly in microbiological experiments as a culture medium for growing bacteria and other microorganisms.

**琼脂** 海藻中得到的胶状物质。它作为细菌和其他微生物生长的培养介质, 主要用于微生物实验中。

**agglutination** the clumping together of  $\diamond$  antigens, such as blood cells or bacteria, to form larger, visible masses, under the influence of  $\diamond$  antibodies. As each antigen clumps only in response to its particular antibody, agglutination provides a way of determining  $\diamond$  blood groups and the identity of unknown bacteria. See  $\diamond$  immunity.

**凝集作用** 在抗体( $\diamond$  antibodies)的影响下, 使抗原( $\diamond$  antigens)如血细胞或细菌彼此凝集形成较大的可见团块。由于每种抗原仅与它的特定抗体反应而凝集成块, 因此凝集作用提供了一个测定血型( $\diamond$  blood groups)和鉴定未知细菌的方法。见免疫( $\diamond$  immunity)。

**aggression** behaviour used to intimidate or injure another organism (of the same or of a different species), usually for the purposes of gaining a territory, a mate, or food. Aggression often involves an escalating series of threats aimed at intimidating an opponent without having to engage in potentially dangerous physical contact ('fights to the death' are rare in nature). Aggressive signals include roaring by red deer, snarling by dogs, the fluffing up of feathers by birds, and the raising of fins by some species of fish.

**侵犯** 用来恫吓或损害别的生物(相同或不同物种)的行为, 通常以获

得领地、配偶或食物为目的。侵犯常包括针对敌手的逐步升级的连续威胁,而非必须参与有潜在危险的身体接触(在自然界,“搏斗到底”是罕见的)。攻击信号包括赤鹿吼叫、狗吠、鸟抖松羽毛和某些鱼类扬起鱼鳍。

**agriculture** the cultivation of land and the raising of domesticated animals in order to provide food or materials such as wool and cotton. The development of agriculture was a significant step in the history of humankind. Previously, food had been obtained only by hunting and by gathering wild vegetation. The selective breeding (see ◊ artificial selection) of reliable and productive animals and crop plants and the improvement of soil by ploughing, irrigation, ◊ crop rotation, and the use of organic ◊ fertilizers, such as manure and ashes, meant that communities could become more stable, giving rise to fixed villages and towns and to complicated social systems. The increased demands made upon agriculture by the growing world population have led to greater land clearance and the intensification of farming methods, which now include the use of chemical pesticides such as ◊ herbicides (weedkillers) and ◊ insecticides and of artificial, non-organic fertilizers.

In the 20th century some of the methods used in agriculture have caused concern. Land clearance and ◊ deforestation has destroyed the natural habitats of many animal and plant species (see ◊ endangered species and ◊ extinction) and has also led to ◊ soil erosion in which the top, fertile layer of soil—no longer anchored by tree and shrub roots—is blown or washed away, leaving behind a barren desert or 'dust bowl'. Fertilizers can leach away from the soil to pollute water supplies and aquatic ecosystems, and pesticides can pass through food chains, accumulating in the diets of animals, including humans, at the highest trophic levels. The intensive rearing (factory farming) of animals such as pigs and chickens has lowered the cost of meat, but has also aroused contro-



versy about its cruelty and about possible health hazards such as salmonella food poisoning.

**农业** 耕作土地和饲养驯化的动物,以供给食品或羊毛和棉花等材料。农业的发展是人类历史上一个有意义的阶段。以前仅靠打猎和采集野生植物来获得食物。对可靠而多产的动物和作物的选择育种(见人工选择 ◇ artificial selection),土壤经耕犁、灌溉、轮作(◇ crop rotation)和有机肥料(◇ fertilizers)如粪尿和灰的使用而得到的改良,这些意味着社会可能变得更稳定,出现固定的乡村和城镇以及复杂的社会体系。由于世界人口的增长导致对农业需要的增加,使更大量的土地被清理,耕作方法得到强化,目前这包括化学农药如除草剂(◇ herbicides)、杀虫剂(◇ insecticides)和人造的非有机肥料的使用。

在 20 世纪农业上使用的某些方法已引起忧虑。土地的清理如森林滥伐(◇ deforestation)已破坏了许多动植物物种[见濒危物种(◇ endangered species)和灭绝(◇ extinction)]的自然聚居地,也导致土壤侵蚀(◇ soil erosion),土壤表面的肥沃层——不再由乔木和灌木的根固定——被刮走或冲去,于是留下贫瘠的不毛之地或“干旱尘暴区”。肥料从土壤中淋失,污染水源和水生生态系统,农药经过食物链积累在包括处于最高营养层次上的人类在内的动物饮食中。动物如猪和鸡的精细饲养(工厂化畜牧),降低了肉类的成本,但也引起了关于它的非人道待遇和关于可能发生的对健康的危害如沙门菌食物中毒的争论。

**AIDS** (acronym for *acquired immune deficiency syndrome*) the newest and gravest of the sexually transmitted diseases (STDs). It is caused by the *human immunodeficiency virus* (HIV), which is transmitted in body fluids—mainly blood and sexual secretions. Sexual transmission of the AIDS virus endangers heterosexual men and women as well as high-risk groups, such as homosexual and bisexual men, prostitutes, intravenous drug-users sharing needles, and haemophiliacs and surgical patients treated with contaminated blood products. The virus has a short