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科技分册

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科技分册

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前 言

随着社会的发展,人类越来越需要相互之间的交流和沟通。为了帮助读者对西方社会意识形态、社会制度、科技发展、日常生活的进一步了解,编者收集了大量的文献资料,精选成这套丛书。目的在帮助读者提高英语水平的同时,有机会进一步了解西方的政治、经济、文化、科技以及社会生活等诸多方面。为了使读者更有效地提高阅读速度和增强对原文的理解,在每篇文章之后安排了生词表,并对文章中的语法现象、复杂的句子结构和理解的难点作了详细的注释。

本套丛书分为五本:政治、经济、文化、科技和社会生活。可以满足不同层次英语水平读者的需要。对中级英语水平的读者,可以作为快速阅读理解的材料,尤其对准备参加四、六级考试和研究生入学考试的读者,不失为一套很好的阅读理解训练的资料;对高级英语水平的读者,可以提供一个更多了解西方社会的窗口。

本套丛书,取材广泛,注重介绍西方社会的同时,考虑了 文章的可读性和趣味性。可以帮助读者在轻松愉快的状态下, 掌握更多的知识,增加更多的见地。

本书由郑桂泉主编,副主编张志远、苏文颖。参加本书编写的还有张彩凤、许健玲、苏荣国、田德明、赵越、郑冀、韩晓华、韩晓果。

鉴于编者水平所限,书中存在的缺点和错误,恳请指正。

编 者 1997年6月于燕园

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The Facts About Animal Research

Four years ago I was part of a surgical team¹ trying to remove a malignant tumor² from the brain of a nine-year-old girl. The operation failed because we could not stem the hemorrhaging in the brain tissue. We were unable to separate the little girl from the cancer that was slowly killing her. To buy time, we put her on a program of radiation.

Concurrently we were experimenting in our brain-research laboratory with a new high-precision laser scalpel³. Working with monkeys and dogs that had been humanely treated and properly anesthetized, we perfected our operating technique. Then, in July 1985, my associate, pediatric neurosurgeon Matt Likavec, and I used the laser to remove all of that little girl's tumor. Now 13, she is healthy, happy, and looking forward to a full life. The animal experiments had enabled us to cure a child we could not help 15 months earlier.

There is virtually no major treatment or surgical procedure in modern medicine that could have been developed without animal research. Work with dogs and other animals <u>led to the discovery of insulin</u>⁵ and the control of diabetes, to open-heart surgery, the <u>cardiac pacemaker</u>⁶ and the whole area of organ transplantation. Polio, which once killed some 30,000 people annually and crippled thousands of children, has been almost totally eradicated in the United States by <u>preventive vaccines</u>⁷ perfected on monkeys. By working with animals, researchers

have raised the cure rate⁸ for children afflicted with acute lymphocytic leukemia from four percent in 1965 to 70 percent today.

Animal research has vanquished smallpox and enabled us to immunize our children against mumps, measles, rubella and diphtheria, and to defend them against infections by means of an arsenal of medical "magic bullets" called antibiotics.

Animals, too, have profited from this research. Many a family pet has had cataracts removed, has undergone openheart surgery or wears a pacemaker, and many animals have benefited from vaccines for rabies, distemper, anthrax, tetanus and feline leukemia.

Regulatory Straitjacket. The dramatic medical strides of the past 50 years far exceed the progress in all of previous history. Unhappily, the next 50 years may not see comparable accomplishments. We owe this cloudy outlook to a radical element within the animal-rights movement¹¹, spearheaded by People for the Ethical Treatment of Animals (PETA) and other antivivisectionist groups¹², whose leaders insist that all research involving animals must cease. These extremists are applying pressure at every level of government, trying to fashion a regulatory straitjacket that is sure to slow medical progress.

Rep. Robert Mrazck (D., N. Y.) and Sen. Wendell Ford (D., Ky.) have introduced companion bills in Congress that world effectively prohibit the sale of pound animals for any medical research funded by the National Institutes of Health (NIH). Twelve states already have banned such sales, and five

more have similar legislation under active consideration.

In addition, Rep. Charles Rose (D., N. C.) has introduced a bill that would, in effect, give animals "standing" in court. Should the bill pass, anyone who decides that an animal has been misused in an animal-research facility could file suit in the animal's behalf against the government. Thus, misguided radicals could choke our courts with nuisance suits.

Economic Realities. It is not hard to understand why opponents of research with animals have received such a sympathetic response. The idea conjures up¹³ images of experiments on beloved family pets. But the fact is that over 90 percent of the more than 20 million animals used annually in medical research are mice, rats and other rodents. A small percentage are farm animals and monkeys, and less than one percent are dogs and cats.

About 200,000 dogs and cats are abandoned each week in the United States. These are animals that people have left to roam the streets, forage in garbage dumps and run wild. After a waiting period in the pound, during which time any pet picked up accidentally may be claimed by its owner or adopted, the animals are put to death. It is only after this waiting period has expired that medical researchers purchase a few already doomed animals—in 1986, for example, less than two percent of them. That same year, about one-tenth of our dog and cat populations—some ten million animals—were destroyed.

Researchers obtain animals from pounds because the cost for each is usually \$15 of less, while animals bred by commercial suppliers for research purposes cost several hundred dollars. If medical centers are prohibited from purchasing pound animals, many researchers will not be able to afford to 14 continue their work.

This is nowhere more evident than in Massachusetts, one of the world's most productive medical-research centers and the first state to ban totally the sale of pound animals for medical-research purposes. The high cost of commercially supplied dogs has forced noted Harvard Medical School physiologist Dr. A. Clifford Barger to cut back on work aimed at 15 finding cures for hypertension and coronary-artery disease 16. "The dog is essential to the study of such diseases, "says Dr. Barger. "In the end, it's the public that is going to suffer."

In the November 1986 issue of The Washingtonian magazine, Katie McCabe recounted another aspect of the Massachusetts pound law at Massachusetts General Hospital "cost factors have forced Dr. Willard Daggett to limit his cardiovascular studies to the rat heart, which severely limits the research questions that can be explored and applied to human cardiac patients."

Additionally, regulations governing the way we <u>care for</u> research animals¹⁷ have already increased costs substantially, and animal-rights activists continue to make new proposals to drive costs higher. "It has even been proposed that dogs used in research have individual, isolated runs so they can defecate in privacy," says Dr. Mark Ravitch, surgeon-in-chief-emeritus at the University of Pittsburgh's Montefiore Hospital. "All of this

has little to do with dog welfare, and everything to do with raising the price of medical research."

Shackled Experiments. The public should have confidence that the animals used in our medical-research laboratories are well treated. Every federally funded facility has an "institutional animal-care-and-use committee," one of whose functions is to ascertain that animals are being cared for properly. The committee must inclued a medical-research scientist, a non-scientist, someone not affiliated with the institution, and a veterinarian, Additional monitoring is provided by federal agents.

I certainly have no objection to these safeguards. Governmentfunded projects involve many thousands of scientists in some 800 institutions, and the probability that there won't be some carelessness is zero. But all good researchers insist that animals be treated humanely—not only out of compassion but also because valid work depends on clean, healthy research subjects that are not victims of physical or emotional stress.

Charles McCarthy, Director of NIH's Office for Protection from Research Risks, says, "We have had a half-dozen abuse cases since 1981. Either animals have not been properly cared for-usually over a long weekend—or an attendant has not conscientiously provided an animal with adequate anesthetics. But we have never run into a sadist who got his kicks inflicting pain on animals."

My main objection is to regulations requiring animal-careand-use committees to pass on all research proposals involving animals. While experiments begin with specific goals, a scientist never knows at the outset where the research will lead. Yet he may not deviate from 19 the original plan-in order to 20 pursue an unexpected opportunity—without first filling out costly, time-consuming paper work to obtain committee approval. New regulations governing the use of animals have already increased the financial burden on the nation's 127 medical schools by many millions of dollars annually. "But the real cost is that there will be less research," says Carol Scheman of the Association of American Universities, "and when research is slowed, people die."

Damaging Setbacks. Public-opinion polls²¹ have shown that nearly 80 percent of us approve of²² the use of animals in medical experimentation. I am convinced that most Americans are unaware of the devastating effect animal-rights extremists are having on such research. Frankie L. Trull, president of the Foundation for Biomedical Research, says, "People don't realize that they are being steamrollered. They may not recognize what is happening until a lot of damage has been done."

The damage is already considerable. For example, Stanford University's proposal to build a state-of-the-art animal laboratory and a new biology building met with opposition from the Palo Alto Humane Society. First objecting to the lab, partly out of concern for the well-being of Stanford's animals, the Society later joined in an appeal to delay construction of the biology building on the basis of possible environmental damage. These delays will cost Stanford some \$2 million.

What are the human stakes? Stanford University scientists

have already developed a permanent cure for diabetes in mice. It isn't known yet whether this will lead to a permanent cure for human diabetes, but there is a strong basis for optimism. If this dream is to be realized, research must proceed with more mice, then with larger animals.

Animal-rights activists like to claim that work accomplished with animals can be done by other means, that we can unlock medical mysteries with computers and with cell cultures grown in test tubes. But, as yet, there is no computer that can even come close to matching the nervous system that tells a mouse how to move a leg or a monkey a finger.

How can researchers using cell cultures, which do not have bones, develop a treatment for arthritis or other bone diseases? How can cell cultures help us to perfect the surgical techniques used in organ transplantation? For the foreseeable future the answers to such questions can be found only by scientists working with living species.

Intimidation Tactics. Not content to impose their views through lawful means, fringe elements of the animal-rights movement have resorted to terrorist activity. Last April, intruders who left behind graffiti and vandalized university vehicles set afire an unfinished veterinary diagnostic laboratory at the University of California's Davis campus, causing damage estimated at \$ 3.5 million. A few months later a group calling itself "The Band of Mercy" took 28 cats from a Department of Agriculture research center in Beltsville, Md. Eleven of these cats had been infected with a parasite, Toxoplasm gondii, which

infects pregnant women and causes some 2000 birth defects annually in the United States. The incident severely hampered the work of researchers who were investigating the effects of the parasite in animals as a potential source for infection in not only pregnant women but alse victims of AIDS and other diseases that weaken the immune system²⁴.

The international Animal Liberation Front (ALF) was identified by California's attorney general, John Van De Kamp, as among the state's three most active terrorist organizations²⁵ during 1985. In a foray into the City of Hope National Medical Center in Duarte, the ALF did sufficient damage to set back a cancer research project by two Years. At a University of California at Riverside research facility, the ALF destroyed \$683 500 worth of equipment and records, painted walls with slogans and turned loose 467 animals, including a monkey involved in a program to improve the lives of blind children. By last September, animal-rights groups throughout the country had perpetrated 26 such serious crimes at medical-research facilities over a two-year period.

We are a people who love animals, but we must be realistic. Through the ages we have harvested animals for food, clothing, shelter, and in this century alone medical scientists working with animals have played a major role²⁶ in increasing our average life-span from 50 to 75 years. What a tragic disservice to ourselves and future generations if we allow the animal-rights extremists to quell this marvelous momentum!

What to do? First, an important don't; Don't be misled by

emotional and false propaganda. The animals in our reputable research laboratories are not being wantonly tortured by sadistic scientists. Such reports should not be taken seriously.

Do let your representatives in Congress know:

- That you oppose the so-called pet-protection bills²⁷. The Mrazek bill is H. R. 778; the Ford bill is S. 1457. It makes no sense to require scientists to pay exorbitant prices to commercial suppliers for animals while countless millions are put to death in punds.
- That you oppose legislation permitting animal-rights nuisance suits aimed at stopping research.
- That you oppose the bureaucratic regulations that already have added far too much to the cost of medical research.

Do we want to wipe out 28 leukemia? Alzheimer's? AIDS? Diabetes? Do we want better vaccines, more effective treatments and cures for high blood pressure, coronary-artery disease, stroke and myriad other ills? All of these things and more are possible within the next 25 years, some of them sooner, because of the work medical scientists are now doing with animals. But they can't be accomplished if we surrender to the mindless emotionalism and intimidation of the animal-rights fanatics. The choice is ours.

Vocabulary

- 1. malignant [məˈlignənt] adj. (医)恶性的,癌的
- 2. stem [stem] vt. 阻挡,遏止,制止
- 3. hemorrhage ['hemərid3] n. 出血

- 4. scalpel ['skælpəl] n. 解剖刀
- 5. pediatric [pi:di'ætrik] ad j. 儿科的, 儿科学的
- 6. neurosurgeon [ˌnjuərəu'səːdʒən] n. 神经外科医师
- 7. insulin ['insjulin] n. 胰岛素,胰岛素制剂
- 8. diabetes [daiə'bi:tiz] n. 糖尿病,多尿症
- 9. cardiac ['ko:diæk] adj. 心脏的,心脏病的
- 10. pacemaker ['peis, meikə] n. 起搏器
- 11. polio ['pəuliəu] n.(医)脊髓灰质炎,小儿麻痹症
- 12. cripple ['kripl] vt. 使跛,使瘫痪
- 13. eradicate [i rædikeit] vt. 根除,使断根
- 14. afflict [əˈflikt] vt. 使折磨,使痛苦
- 15. lymphocytic [ˌlimfəu'sitik] adj. 淋巴细胞的,淋巴球的
- 16. leukemia [lju: ki:miə] n. 白血病
- 17. vanquish ['vænkwi]] v. 征服,控制
- 18. immunize ['imju:naiz] vt. 使免疫
- 19. mumps [mamps] n. 流行性腮腺炎
- 20. rubella [ruːˈbelə] n. /adj. 风疹(的)
- 21. diphtheria [dif biəriə] n. 白喉
- 22. arsenal ['q:sənəl] n. 储藏武器的仓库
- 23. antibiotic [wentibai btik] n. 抗菌素,抗生素
- 24. cataract ['kætərækt] n. (医)白内障
- 25. distemper [distempe] n. (兽医)温热(一种动物传染病)
- 26. anthrax ['ænθræks] n. (医)炭疽,炭疽浓疱
- 27. tetanus ['tetənəs] n. 破伤风
- 28. feline ['fi:lain] adj. (动)猫的,猫科的
- 29. straitjacket ['streit,dgækit] n. 约束物,束缚
- 30. stride [staid] n. 进步,进展

- 31. spearhead ['spiəheid] vt. 当 ····· 先锋,带头
- 32. ethical ['etikəl] ad j. 伦理的,道德的
- 33. vivisectionist 「vivi'sekfənist] n. 活体解剖者
- 34. extremist [ik'stri;mist] n. 极端主义者,过激分子
- 35. choke [t[əuk] vt. 振杀, 使窒息
- 36. nuisance ['nju:səns] n. 讨厌(或有害)的人(或东西)
- 37. conjure ['kʌndʒə] w. 如魔术般地作成(或变出)
- 38. beloved [bi'lavid] adj. 受爱戴的,被热爱的
- 39. rodent ['rəudənt] n. 啮齿类动物
- 40. forage ['forid3] vi. 搜寻食物
- 41. expire [ik'spaiə] vi. 开始无效,终止
- 42. doomed [du:mid] ad i. 注定死亡的
- 43. pound [paund] n. 牲畜栏
- 44. hypertension [, haipə'ten [ən] n. 高血压, (情绪)过度紧张
- 45. coronary ['kɔrənəri] ad j. 冠状的
- 46. cardiovascular [ˌkaːdiəuˈvæskjulə] ad j. 心血管的
- 47. defecate ['defikeit] vt. /vi. 排除
- 48. emeritus [i'meritəs] n. 荣誉退休者
- 49. shackle ['ʃækl] vt. 束缚,约束,阻挠
- 50. affiliate [əˈfilieit] vt. 隶属
- 51. veterinarian [vetəri neəriən] n. 兽医
- 52. attendant [əltendənt] n. 倚者,护理者
- 53. conscientious [ˌkənʃi'enʃəs] ad j. 小心谨慎的,认真的
- 54. biomedical [,baiəu'medikəl] ad j. 生物医学的
- 55. stake [steik] n. 利害关系
- 56. tactics ['tæktiks] n. 策略,战略
- 57. fringe [frind3] adj. 从属的,次要的,附加的

- 58. resort [rizo:t] vi. 诉诸,求助
- 59. vandalize ['vændəlaiz] vt. 肆意毁坏
- 60. veterinary ['vetərinəri] adj. 兽医的
- 61. parasite ['pærəsait] n. 寄生虫,寄生生物
- 62. incident ['insident] n. 事件
- 63. foray ['forei] n. 突袭,侵袭
- 64. tragic ['trædʒik] adj. 可悲的,悲剧性的
- 65. disservice [ˌdis'səːvis] n. 损害,危害
- 66. reputable ['repjutabl] adj. 享有声望的,声誉好的
- 67. wanton ['wonten] adj. 恣意的。
- 68. torture ['to:tʃə] n. 折磨
- 69. sadistic [səˈdistik] ad j. 施虐狂的
- 70. exorbitant [ig'zo:bitant] adj. 过高的,过度的
- 71. bureaucratic [ˌbjuərəukrætik] adj. 官僚的,官僚主义
- 72. alzheimer's [æltshaiməz] n. 早老性痴呆病
- 73. myriad ['miriəd] adj. 无数的
- 74. intimidation [in timideisn] n. 威胁,恫吓
- 75. fanatic [fəˈnætik] n. 狂热者

Notes

- 1. part of a surgical team 外科医疗小组中的一员
- 2. malignant tumour 恶性肿瘤
- 3. high-precision laser scalpel 高精度的激光刀
- 4. look forward to 期待
- 5. led to the discovery of insulin 导致了胰岛素的发现
- 6. cardiac pacemaker 心脏起搏器
- 7. preventive vaccines 预防接种

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