English of Science & Technology

科技英语

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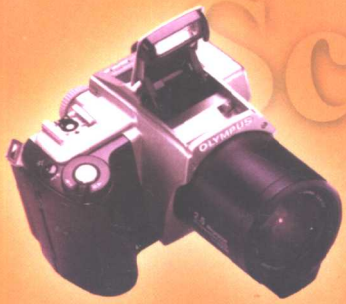

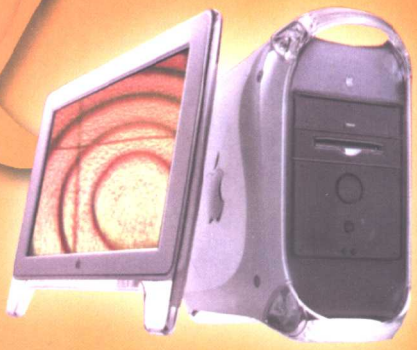

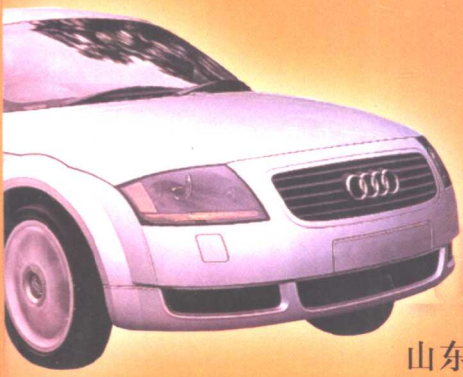

山东大学出版社

科技英语

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山东大学出版社

图书在版编目(CIP)数据

科技英语/董益坤,魏汝尧主编.—济南:山东大学出版社,2001.8
ISBN 7-5607-2307-1

Ⅰ.科...
Ⅱ.①董...②魏...
Ⅲ.科学技术-英语-高等学校-教材
Ⅳ.H31

中国版本图书馆 CIP 数据核字(2001)第 052227 号

山东大学出版社出版发行
(山东省济南市山大南路 27 号　邮政编码:250100)
山东省新华书店经销
山东省日照日报社印刷厂印刷
850×1168 毫米　1/32　11.125 印张　286 千字
2001 年 8 月第 1 版　2001 年 8 月第 1 次印刷
印数:1-6000 册
定价:15.00 元

前　言

大学英语这门课程自20世纪80年代中期实施新的教学大纲，实行分级教学，举行全国四、六级统一考试以来，取得了相当大的成绩，但教学中仍存在一些问题。其中之一就是基础阶段的英语教学完成以后，四年不断线的英语教学没有得到很好地实施，高年级的专业英语教学与基础阶段的英语教学之间出现了停顿和难以对接的现象，甚至使基础阶段的教学成果难以巩固。分析起来原因很多，但其中较为重要的一个原因是基础阶段向专业阶段过渡台阶过大、过高。基础英语与专业英语难以直接"对接"，需要在两者之间建立起有一定坡度能逐步过渡的"引桥"，使其能承上启下。承上即连接基础阶段英语教学，启下即与专业阶段英语教学对接。基于此，并结合相关专业设置等具体实际，我们编写了这本"科技英语"。

该书的特点是，在基础阶段英语教学结束的基础上，进一步提高学生获取英语知识和技能的能力，培养和拓展学生实际应用英语的能力和空间，以帮助学生掌握相应的方法技巧。

该书选材新颖，编写独特，每个单元各自成章，又相互关联，既重视了系统性、连贯性，又不忽略各章的特殊性和专业性，具有实用性和可摹仿性。是学习科技英语和进一步学习专业英语的必备的教科书。

在编写过程中，我们参阅了许多书籍和报刊，同时HAW CHENG

先生审阅了部分书稿，在此一并表示深深的谢意。

由于时间仓促，编写工作中难免疏漏和不足，敬请批评指正。

编　者

2001 年 6 月

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Unit One

Text	Reading Materials	Access To Scientific English	Usages And Expressions
Urban Planning	A: The City Layout of Peking B: The City Layout of London C: The City Layout of Buenos Aires	科技英语特点（一）	Ⅰ."形状"的表示法 Ⅱ."组成"、"构成"、"成分"等表示法

TEXT

Urban Planning

Urban planning and redevelopment is aimed at fulfilling social and economic objectives that go beyond the physical form and arrangement of buildings, streets, parks, utilities, and other parts of the urban environment. Urban planning takes effect largely through the operations of government and requires the application of specialized techniques of survey, analysis, forecasting, and design. It may thus be described as a social movement, as a governmental function, or as a technical profession. Each aspect has its own concepts, history, and theories. Together they fuse into the effort of modern soci-

ety to shape and improve the environment within which increasing proportions of humanity spend their lives: the city.

There are examples from the earliest times of efforts to plan city development. Evidence of planning appears repeatedly in the ruins of cities in China, India, Egypt, Asia Minor, the Mediterranean world, and South and Central America. There are many signs: orderly street systems that are rectangular and sometimes radial; divisions of a city into specialized functional quarters; development of commanding central sites for palaces, temples, and what would now be called civic buildings; and advanced systems of fortifications, water supply, and drainage. Most of the evidence is in smaller cities, built in comparatively short periods as colonies. Often the central cities of ancient states grew to substantial size before they achieved governments capable of imposing controls. In Rome, for example, the evidence points to no planning prior to late applications of remedial measures.

For several centuries during the Middle Ages, there was little building of cities in Europe. There is conflicting opinion on the quality of the towns that grew up as centers of church or feudal authority, of marketing or trade. They were generally irregular in layout, with low standards of sanitation. Initially, they were probably uncongested, providing ready access to the countryside and having house gardens and open spaces used for markets and fairs or grazing livestock. But, as the urban population grew, the constriction caused by walls and fortifications led to overcrowding and to the building of houses wherever they could be fitted in. It was customary to allocate certain quarters of the cities to different nationalities, classes, or trades, as in cities of East Asia in the present day. As

these groups expanded, congestion was intensified.

The physical form of medieval and Renaissance towns and cities followed the pattern of the village, spreading along a street, a crossroad, in circular patterns or in irregular shapes-though rectangular patterns tended to characterize some of the newer towns. Most streets were little more than footpaths-more a medium for communication than for transportation-and even in major cities paving was not introduced until 1184 in Paris, 1235 in Florence, and 1300 in Lübeck. As the population of the city grew, walls were often expanded, but few cities at the time exceeded a mile in length. Sometimes sites were changed, as in Lübeck, and many new cities emerged with increasing population-frequently about one day's walk apart. Towns ranged in population from several hundred to perhaps 40,000 (London in the 14th century). Paris and Venice were exceptions, reaching 100,000.

Housing varied from elaborate merchant houses to crude huts and stone enclosures. Dwellings were usually two to three stories high, aligned in rows, and often with rear gardens or inner courts formed by solid blocks. Windows were small apertures with shutters, at first, and later covered with oiled cloth, paper, and glass. Heating improved from the open hearth to the fireplace and chimney. Rooms varied from the single room for the poor to differentiated rooms for specialized use by the wealthy. Space generally was at a premium. Privacy was rare and sanitation primitive.

During the Renaissance, however, there were conscious attempts to plan features, such as logistically practical circulation patterns and encircling fortifications, which forced overbuilding as population grew. As late as the 1860s, the radial boulevards in Paris

had military as well as aesthetic purposes. The grand plan, however, probably had as its prime objective the glorification of a ruler or a state. From the 16th to the end of the 18th century, many small cities and parts of large cities were laid out and built with monumental splendor. The result may have pleased and inspired the citizens, but it rarely contributed to the health or comfort of their homes or to the efficiency of manufacturing, distribution, or marketing.

The planning concepts of the European Renaissance were transplanted to the New World. In particular, Pierre l'Enfant's plan for Washington, D. C. (1791), illustrated the strength and weakness of these concepts; it was a plan ably designed to achieve monumentality and grandeur in the sitting of public buildings but was in no way concerned with the efficiency of residential, commercial, or industrial development. More prophetic of the layout of U. S. cities was the rigid, gridiron plan of Philadelphia, designed by William Penn (1682), with a layout of streets and lots (plots) adaptable to rapid changes in land use but wasteful of land and inefficient for traffic. The gridiron plan traveled westward with the pioneers, since it was the simplest method of dividing surveyed territory. Its special advantage was that a new city could be planned in the eastern offices of land companies and lots sold without buyer or seller ever seeing the site.

The New England town also influenced later settlement patterns in the United States. The central commons, initially a cattle pasture, provided a focus of community life and a site for meetinghouse, tavern, smithy, and shops. It became the central square in county seats from the Alleghenies to the Pacific and remained the focus of urban activity. Also from the New England town came the

tradition of the freestanding, single-family house. Set well back from the street and shaded by trees, it had an ornamental front yard and a working backyard and became the norm of American residential development. This was in contrast to the European town house, with its party wall and tiny fenced backyard.

New Words

redevelopment *n*. 恢复(促进)经济发展，再开发，重点恢复
utility *n*. 公共设施，效用
function *n*. 职能，作用，效力
evidence *n*. 证据，迹象
ruins *n*. (用于复数)废墟，遗迹
fuse into 溶合成……
rectangular *adj*. 矩形的，成直角的
radial *adj*. 光线的，光线状的，放射状的，半径的
fortification *n*. 防御工事，要塞，筑城术
quarter *n*. 方位，街区
drainage *n*. 排水(法)，排水装置
substantial *adj*. ① 很多的，大量的；② 坚固的，结实的
remedial *adj*. 挽回的，补救的；治疗(用)的
conflicting *adj*. 抵触的，冲突的，不相容的
feudal *adj*. 封建的；封建制度的
layout *n*. ① 外形，轮廓；② 设计图，规划图；③ 布局，规划
sanitation *n*. 卫生，卫生设施
uncongested *adj*. 不拥挤的
graze *vt*. 放牧
constriction *n*. 压缩，收缩
fairs *n*. 定期集市，展销会，商品交易会
livestock *n*. 家畜
allocate *vt*. 分配，部署
intensify *vt*. (使)强烈，加强
circular *adj*. 圆(环)形的，循环的
medium *n*. 媒介物，传导体
paving *n*. 铺筑过的路面
range *vt*. ① 排列；② 分门别类；③ (在一定范围内)变化
intensify *vt*. 加剧
footpath *n*. 人行道，小路

enclosure *n*. 围住，围栏，四周有篱笆或围墙的场地
dwelling *n*. 寓所，住处
align *vt*. 排成直线，排成行
courts *n*. 院子，营区，基地
shutter *n*. 百叶窗，窗板
aperture *n*. 孔，穴，缝隙，(照相机，望远镜等的)光圈，孔径
hearth *n*. (高炉的)炉膛，炉缸
fireplace *n*. 壁炉
differentiate *v*. 区别，区分
at a premium (喻)短缺，需要很大
privacy *n*. 隐退；秘密，私事
logistically *adv*. 推理地，逻辑地
circulation *n*. 流通，循环
encircle *vt*. 环绕，围绕
overbuild *vt*. 建造过多
boulevard *n*. 林荫大道
aesthetic *adj*. 美学的，审美的，有审美感的
glorification *n*. 赞颂
splendor *n*. 壮观，壮丽；显赫，豪华
transplant *vt*. 移植，迁移，移居
ably *adv*. 有能力地
monumentality *n*. 纪念碑，纪念物
grandeur *n*. 庄严，伟大
prophetic *adj*. 预言的
rigid *adj*. 坚挺的，刚硬的
commons *n*. 公用草地，村公园
gridiron *n*. 格状物
pasture *n*. 牧场，草原
tavern *n*. 酒馆，客栈
smithy *n*. 锻冶匠的工作场所
Allegheny *n*. 阿利根尼山脉
freestanding *adj*. 独立式的，不需依靠支撑物的
ornamental *adj*. 装饰性的，装饰的，装饰用的
party wall 界墙
norm *n*. 标准，规范，准则

Exercises

Ⅰ. Answer the following questions according to the text

1. Why is urban planning not only a social movement but also a government function and a technical profession?

2. Where can we get some evidence of city planning in early times?
3. What are the signs of early city developments?
4. What conflicting opinions are there on the quality of the towns during the Middle Ages? And what were the city features at that time?
5. What were the physical form of Medieval and Renaissance towns and cities?
6. When was paving introduced in Europe?
7. How about the size of towns in medieval time?
8. What are the plan features during the Renaissance?
9. Which city does Pierre l'Enfant' plan?
10. What are the influence of European Renaissance on the New World?

Ⅲ. Cloze

Urban planning is the programs pursued in most industrialized countries in an attempt __1__ achieve certain social and economic objectives, __2__ particular to shape and improve the urban environment in __3__ increasing proportions of the world's population spend their lives. Evidence of urban planning- __4__ orderly street systems; division of a city __5__ specialized, functional districts, or quarters; fortifications; and conduits for the water supply and sewage disposal-can be found __6__ the ancient ruins of cities in China, India, Egypt, Asia Minor, the Mediterranean region, and South and Central America. During the Renaissance, European city areas were consciously planned __7__ achieve practical circulation and also to provide fortification __8__ invasion. The radial boulevards of Paris were designed with military __9__ aesthetic objec-