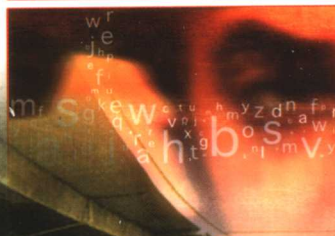
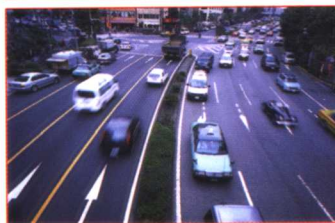




高等学校教材

交通运输与物流 专业英语

王文智 李 津 主编



人民交通出版社
China Communications Press

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English for Transportation and Logistics

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内 容 提 要

全书分为运输系统、运输方式、运输规划、运输规划研究、运输对环境的影响、运输评价、物流概述、运输管理、库存、仓储、物流信息管理及供应链管理 12 个教学单元,每个单元包括精读课文、单词、短语、难点注释、练习题和阅读材料。

本书适用于普通高等学校交通运输与物流专业学生,也可作为普通高等学校、高等职业技术学院相关专业的教材和参考用书,还可作为从事交通运输及物流工程、物流管理专业人员进一步提高专业英语阅读能力的参考读物。

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前 言

为了满足高等院校交通运输与物流专业英语教学的需求,由人民交通出版社主持,根据高等院校学生培养目标和要求,参阅大量国内外交通运输及物流专业文献,我们组织编写了《交通运输与物流专业英语》。目的是培养学生专业英语阅读能力及专业英语文献翻译的初步能力。

本书适用于普通高等学校已学完基础英语的交通运输与物流专业学生,也可作为普通高等学校、高等职业技术学院相关专业的教学参考书,还可作为从事交通运输及物流工程、物流管理专业人员进一步提高专业英语阅读能力的参考读物。

全书共分 12 个教学单元,每个单元包括精读课文、单词、短语、难点注释、练习题和阅读材料。

本书在编写过程中,得到编者所在的吉林大学交通学院的专家学者的帮助,在此谨表谢意。

由于编者水平有限,加之时间仓促,书中错误在所难免,敬请读者批评指正。

编 者

2004 年 1 月

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Unit One Transportation System

Text A The role of transportation

Transportation is fundamental to the development and operation of a modern society. It permits the specialization of work effort necessary to achieve efficiency and productivity. Geographically distant resources become accessible with transportation. The economic growth of any society is directly related to the availability of transportation.

There are many different definitions of transportation in various books and dictionaries. However, the common element among these definitions is *movement*—the change of the physical location of goods or passengers. Therefore, transportation can be defined as the movement of freight and passengers from one location to another in this context. Products must be moved from the location where they were produced to the location where they are consumed. People must move from the location where they live to the location where they want to take part in a certain activity. We need transportation in order to survive and improve our standard of living. Transportation affects our economic, social, and political development.

Survival

To survive, a person must consume products. Products need to be obtained from the nature or need to be processed. Given the person must perform some of these activities to survive, he/she needs transportation to accomplish his/her activities. In reality, nature imposes two conditions that force the use of some kind of transportation. First, a person needs more than one product to survive. Second, nature does not supply all of the needs at the same location. Thus, to perform all of the activities required for consumption, transportation becomes necessary.

The earliest form of transportation was the movement of people. People move to search food and a favorable climate. The American Indians migrated from Asia into North America through the Bering Straits and Alaska is an example. Gradually, the emphasis shifted from the movement of people to the movement of goods. Today, most of the population in the world expects that the goods will be transported to them through some transportation modes.

It is necessary to point out that as transportation efficiency increases, it has a direct and positive effect on the individual's ability of survival, even under very primitive conditions. It is also worthwhile to point out that people in our modern society seek much more than mere survival. They strive for a better standard of living and life-style with less time and efforts. Specialization is one means to achieve the goal.



Specialization

Specialization is defined as allowing human or physical resources to perform the tasks for which they are best suited. For example, if a person is particularly adept at farming, then the society should allow him to farm. If a certain geographic region is suitable for growing wheat, then the society should grow it in that area. Specialization can bring many benefits. The overall efficiency of society is improved because fewer resources are employed to produce the desired output. The result is that less effort is expended to produce a particular product. Thus, specialization is a desired goal for society because it increases efficiency and directly improves our standard of living.

The benefits of specialization can be gained through either economies of scale or geographic specialization. Economies of scale are realized when a large volume of the same type of commodity is produced in one location at one time. Geographic specialization involves using particular region to produce specific products.

If products are produced in suitable locations and people are to specialize in a specific task, then the movement of products among different locations must take place. The role of transportation in economies of scale and geographic specialization is complex, and the level of transportation efficiency directly affects the degree to which we can gain the benefits of specialization.

Economies of scale

Economies of scale are gained when many units are produced at a single location. The result is a lower cost per unit. There are many reasons for the economies of scale are possible. Fixed costs can be spread over more units, specialized equipment can be used, and tasks can be made routine. Therefore, as more units are produced, the cost per unit goes down. But at some level the cost per unit stops going down and begins to increase as production is expanded beyond the most economical level.

There is a desire to produce more units of certain type of product at one location because of the economies of scale. However, the demand for the product at the producing location typically does not equal maximum economies of scale. There are two ways to solve the problem; one is to reduce the production of the product, and the economies of scale are lost; the other is to ship the excess product units to other places where there is a demand for the product if the economies of scale are desired. Thus, transportation must be available.

Geographic specialization

Geographic specialization is similar in principle to economies of scale. Geographic specialization capitalized on the fact that one region has an advantage over other areas for some reasons. One area may have more favorable climatic condition, different natural resources, and more efficient human resources and so on. Therefore, the area that is best situated should be the source of production. Again, the availability of efficient transportation is necessary to capitalize on these advantages. If an efficient transportation system is available, then each location can produce those products for which it is geographically suit-

able in large quantity, and the total production cost would be much lower.

Standard of living and transportation

Generally, the standard of living and life-style reflect the manner in which individuals and societies are able to meet their needs and wants. One measure of standard of living is the amount and variety of goods people are able to acquire. A second measure is the amount of efforts that must be put forth to satisfy needs and wants. A third measure is the level of comfort and ease with which basic needs and wants are fulfilled. Many things have contributed to these improvements in our lives, such as advanced technology, improvement in managements and labor qualities.

The role of transportation has been significant. Without transportation, we would not have been able to capitalize on economies of scale, geographic specialization to increase overall economic efficiency. Furthermore, as the transportation efficiency system increases, the ability to gain these advantages increases. The standard of living and life-style of a society are tied directly to the availability of an efficient transportation system.

New words

- | | | | |
|-----------------------------------|------------|--|----------|
| 1. fundamental | <i>adj</i> | essential or necessary | 必要的 |
| 2. geography | <i>n</i> | scientific study of the earth's surface, physical features, divisions, climate, products, population, etc. | 地理学 |
| 3. accessible | <i>adj</i> | that can be reached, used, etc. | 可用的 |
| 4. survive | <i>v</i> | continue to live | 继续生存 |
| 5. consume | <i>v</i> | use (sth) up | 消耗, 消费 |
| 6. perform | <i>v</i> | do (a piece of work) | 做 |
| 7. accomplish | <i>v</i> | succeed in doing sth | 完成 |
| 8. impose | <i>v</i> | place (sth unwelcome) on sb/sth | 强加于 |
| 9. primitive | <i>adj</i> | simple as if from an earlier period of history | 简单的, 原始的 |
| 10. suit | <i>v</i> | make sth appropriate for sth/sb; adapt | 使适合 |
| 11. strive | <i>v</i> | try very hard (to obtain sth) | 努力 |
| 12. adept | <i>adj</i> | skillful in doing sth | 熟练的 |
| 13. expend | <i>v</i> | spend, use (money, etc.) in doing sth | 花费 |
| 14. expand | <i>v</i> | (cause sth to) become greater in size, number, or importance | 扩展 |
| 15. gain | <i>v</i> | increase in amount of sth | 获得 |
| 16. capitalize
(on sth) | <i>v</i> | use sth to one's own advantage | 利用 |
| 17. contribute | <i>v</i> | give one's share | 做出贡献 |

Phrases and expressions

1. **economies of scale** the advantages to be got from large scale production, esp. that of lower unit costs which make it possible to compete better in the market, to conquer a large share of the market, and thus perhaps to get some monopolistic control over prices.

规模经济：从大规模生产中获得的优势，尤其是较低的单位成本，可使这种产品在市场上有最佳的竞争能力，有能力赢得较大的市场份额，并因此有可能在价格上取得某种垄断性的控制。

2. **specialization of region** the basic system of obtaining economies in production and increasing the total output of the economy by concentrating the resources of a region on production of some particular kind(s) products for it is best suitable geographically to produce them in large quantity in the region in order to get the advantages of the economies of scale.

区域专业化：把一个地区的各种资源集中于最适合在该地大量生产的某些特定产品，以获得规模经济的优势，从而节约生产成本、增加总产量的基本方法。

Key concepts

1. The common element in various definitions of transportation is *movement*—the change of the physical location of goods or passengers. Products must be moved from the location where they were produced to the location where they are consumed. People must move from the location where they live to the location where they want to take part in a certain activity. Transportation affects our economic, social, and political development.

交通运输的各种定义中的一个共同要素是移动，即货物或乘客的物理位置的改变。产品必须从生产它们的地点移动到消费它们的地点。人们必须从他们居住的地点移动到他们要参与的某种活动所在的地点。交通运输影响我们的经济、社会和政治的发展。

2. It is necessary to point out that as transportation efficiency increases, it has a direct and positive effect on the individual's ability of survival, even under very primitive conditions. It is also worthwhile to point out that people in our modern society seek much more than mere survival. They strive for a better standard of living and life-style with less time and efforts.

必须指出，随着其效率的增加，交通运输对于人的生存能力，甚至在非常原始条件下的生存能力，有着直接的、积极的影响。此外还值得指出，在我们现代社会的人们寻求的远不仅仅是生存。他们努力用较少的时间和精力得到更好的生活水平和生活方式。

3. The role of transportation in economies of scale and geographic specialization is complex, and the level of transportation efficiency directly affects the degree to which we can gain the benefits of specialization.

交通运输在(实现)规模经济和区域专业化中的作用是复杂的，而且交通运输效率的高低直接影响我们从专业化中获益的程度。

4. The demand for the product at the producing location typically does not equal maximum economies of scale. There are two ways to solve the problem: one is to reduce the production of the product, and the economies of scale are lost; the other is to ship the excess product units to other places where there is a demand for the product if the economies of scale are desired. Thus, transportation must be available.

在产地对该产品的需求一般不等于最大规模经济(的产量)。有两种方法可以解决这个问题:一种方法是减少该产品的产量,但丧失了规模经济;另一种方法是,如果想获得规模经济的话,把多余产品运送到对该产品有需求的其他地方。因此,必须利用交通运输。

5. One area may have more favorable climatic condition, different natural resources, and more efficient human resources and so on. Therefore, the area that is best situated should be the source of production. Again, the availability of efficient transportation is necessary to capitalize on these advantages.

一个地区可能具有更有利的气候条件,各种不同自然资源,更能干的人力资源等等。因此,这一最适宜的地区应该作为生产源。此外,为利用这些优势,必须要有高效率的交通运输。

Exercises

Fill in the blanks according to the text

1. Transportation is fundamental to the _____ and _____ of a modern society and the economic growth of any society is directly related to the _____ of transportation.
2. The common element in any definition of transportation is _____: the change of the physical location of goods or passengers. We need transportation in order to _____ and _____ our standard of living.
3. Specialization is defined as allowing _____ or _____ resources to perform the tasks for which they are best _____.
4. Specialization is a desired _____ for society because it increases _____ and directly improves our _____ of living.
5. Economies of scale are gained when _____ units are produced at a single location. The result is a _____ cost per unit because fixed costs can be spread over more units, specialized equipment can be used, and tasks can be made routine. But at some level the cost per unit stops going _____ and begins to increase as production is expended _____ the most economical level.
6. Geographic specialization is _____ in principle to economies of scale. Geographic specialization capitalized on the fact that one region has an _____ over other areas for some reasons.
7. One measure of standard of living is the amount and variety of _____ people are able to acquire. A second measure is the amount of _____ that must be put forth to satisfy needs and wants. A third measure is the level of _____ and _____ with which basic needs and wants are fulfilled.

Questions for discussion

1. What is the definition of transportation?
2. Explain the effects of transportation on economical, social, and political development of a modern

society.

3. Why is transportation necessary for survival of human being?
4. What benefits can specialization bring to people in a modern society?
5. Give the definitions of economies of scale.
6. Give the definitions of regional specialization.

Text B Definition of transportation system

A transportation system is consisted of the fixed facilities, the flow entities, and the control system, which permits people and goods to move from one place to another efficiently in order to participate in some desired activity timely.

This definition identifies the functional components of a transportation system (the fixed facilities, the flow entities, and the control system) and encapsulates the fact that transportation provides the connectivity that facilitates other societal interactions.

Fixed facilities

Fixed facilities are the physical components of the system that are fixed in space and consisted of the network (e.g., transit terminals, harbors, or airports as the nodes and routes, channels, or lines as links in the network) of the transportation system. Their design, which has traditionally been within the realm of civil engineering, includes soil and foundation engineering, structural design, the design of drainage systems, and geometric design, which is concerned with the physical proportioning of the elements of fixed facilities. Although related, geometric design is different from other aspects of design (e.g., structural design, which is concerned with the strength of structures to withstand efficiently the expected forces or loads), which are covered elsewhere in the typical civil engineering curriculum.

Flow entities and technology

Flow entities are the units that traverse the fixed facilities. They include vehicles, container units, railroad cars, and so on. In the case of the highway system, the fixed facilities are expected to accommodate a wide variety of vehicle types, ranging from bicycles to large tractor-trailer combinations.

In this book, flow entities are considered only in terms of their generic characteristics (such as size, weight, and acceleration and deceleration capabilities) rather than in terms of their specific technological design, which is normally undertaken by mechanical and electrical engineers.

Control system

The control system consists of vehicular control and flow control. Vehicular control refers to the technological way in which individual vehicles are guided on the fixed facilities. Such control can be manual or automated. The proper geometric design of the fixed facilities must incorporate, in addition to the characteristics of the vehicle, the characteristics of the vehicular control system. *In the case of high-*

way facilities, where the vehicles are manually controlled, these include driver characteristics, such as the time a driver takes to perceive and react to various stimuli. In the case of automated systems, similar but more precisely definable response times exist.

The flow control system consists of the means that permit the efficient and smooth operation of streams of vehicles and the reduction of conflicts between vehicles. This system includes various types of signing, marking, and signal systems and the underlying rules of operation.

Transportation demand

Transportation systems are constructed neither as pure expressions of engineering ingenuity nor as monuments of purely aesthetic quality. They are built to serve people in undertaking their economic, social, and cultural activities. Although in some culture, demand for transportation is considered as one of four necessities of human being: clothing, food, shelter, and transportation, in the jargon of the economist, the demand for transportation is derived, or indirect, meaning that people do not normally travel or move their possessions for the sake of movement but to fulfill certain needs, for example, to go to school, to work, to shop, or to visit friends. By the same token, workers do not place themselves in the middle of the morning and evening rush hours because they enjoy traffic congestion but because their work schedules require it. Transportation engineers are concerned with accommodating these societal activities by providing efficient ways to satisfy the population's needs for mobility. As used in the foregoing definition of a transportation system the word efficient stands for the balancing of a variety of often conflicting requirements that society in general considers being important. These requirements include, but are not limited to, cost considerations, convenience, protection of environmental quality, and protection of individual rights, which may have a variable priority, depending on the issue.

New words

1. participate	<i>v</i>	take part or become involved (in an activity)	参加
2. desire	<i>v</i>	wish for (sth); want	想要
3. identify	<i>v</i>	show, prove, etc what something is	确认
4. encapsulate	<i>v</i>	summarize something	概括
5. realm	<i>n</i>	(fig) field of activity or interest; sphere	领域, 范围
6. withstand	<i>v</i>	endure (sth) without giving in	承受住
7. accommodate	<i>v</i>	change or adjust sth so that it fits or harmonizes with sth else	适应
8. manual	<i>adj</i>	controlled by hands	手控的
9. automated	<i>adj</i>	operated by automation	自动的
10. conflict	<i>n</i>	clash	冲突
11. sign	<i>n</i>	mark, symbol, etc used to represent sth	标志
12. mark	<i>n</i>	painted symbol, line, etc made as an indication of sth	作记号
13. signal	<i>n</i>	sign, light, sound, etc that convey a message	信号

14. ingenuity	<i>n</i>	cleverness and originality in solving problems	创造性
15. monument	<i>n</i>	notable thing that stands as a lasting reminder of sb's achievements	永久纪念物
16. aesthetic	<i>adj</i>	concerned with beauty and the appreciation of beauty	美学的
17. derive	<i>v</i>	originate from sth	源于
18. priority	<i>n</i>	thing that is regarded as more important than others	优先的事物

Phrases and expressions

1. right-of-way	通行权, 通行道路
2. cable car	缆车
3. rapid transit	快速公共交通
4. guide way transit	导轨快速交通
5. articulated bus	铰接式公共汽车
6. dual-mode system	(道路和轨道)两用(交通)系统
7. demand-responsive system	需求响应式(传呼公交)系统
8. dial-a-ride	电话叫出租车
9. prescheduled system	预先调度系统
10. paratransit	辅助公共交通系统
11. add insult to injury	使……更糟

Key concepts

1. Fixed facilities are the physical components of the system that are fixed in space and consisted of the network (e.g., transit terminals, harbors, or airports as the nodes and routes, channels, or lines as links in the network) of the transportation system.

固定设施是固定在空间的系统的物理构成, 并且由交通运输系统的网络组成。(例如, 以公共交通的终点站、港口或机场作为网络的节点、以线路、航道航线作为网络的连线。)

2. Flow entities are the units that traverse the fixed facilities. They include vehicles, container units, railroad cars, and so on.

流动实体是指那些往返移动于固定设施的单元。它们包括车辆, 集装箱, 铁路客车等。

3. The control system consists of vehicular control and flow control. Vehicular control refers to the technological way in which individual vehicles are guided on the fixed facilities. The flow control system consists of the means that permit the efficient and smooth operation of streams of vehicles and the reduction of conflicts between vehicles.

控制系统由车辆控制和车流控制组成。车辆控制是指在固定设施中操纵单个车辆的技术方法。车流控制系统由使车流高效、流畅运转, 并且减少车辆之间冲突的手段组成。

4. Although in some cultures, demand for transportation is considered as one of four necessities of human being: clothing, food, shelter, and transportation, in the jargon of the economist, the demand for transportation is derived, or indirect, meaning that people do not normally travel or move their possessions for the sake of movement but to fulfill certain needs, for example, to go to school, to work, to shop, or to visit friends.

尽管在某些文化中,交通需求被认为是人类衣食住行的四个基本需要之一,但是用经济学家的行话来说,交通需求是派生的,或间接的。就是说,正常情况下,人们不会出于对运动的兴趣而不是为满足某些需要去出行或者移动他们的财产。

5. Transportation engineers are concerned with accommodating these societal activities by providing efficient ways to satisfy the population's needs for mobility.

运输工程师提供满足人们流动需要的有效方法以适应这些社会活动。

Exercises

Fill in the blanks according to the text

1. A transportation system is consisted of the _____ facilities, the _____ entities, and the _____ system, which permits people and goods to move from one place to another _____ in order to participate in some _____ activity timely.
2. Transportation provides the _____ that _____ other societal interactions.
3. Fixed facility design, which has traditionally been within the realm of civil engineering, includes _____ and _____ engineering, _____ design, the design of _____ systems, and _____ design.
4. Flow entities are considered only in terms of their generic characteristics (such as _____, _____, and _____ and _____ capabilities) rather than in terms of their specific technological design.
5. Flow control system includes various types of _____, _____, and _____ systems and the underlying _____ of operation.
6. As used in the foregoing definition of a transportation system the word efficient stands for the balancing of a variety of often conflicting requirements that society in general considers being important. These requirements include, but are not limited to, _____, _____, protection of _____ quality.

Questions for discussion

1. What is a transportation system consisted of?
2. Illustrate what the fixed facilities are.
3. Illustrate what the flow entities are.
4. Illustrate what the flow control system is.
5. Do you agree to that demand for transportation is derived or indirect? Why or why not?

Reading materials

Transportation system and socioeconomic system

The transportation system is tightly interrelated with the socioeconomic system. The transportation system will usually affect the way in which the socioeconomic system grows and changes. And changes in socioeconomic system will in turn call forth changes in the transportation system.

The system of interest can be defined by three basic variables: T, the transportation system; A, the activity system, that is, the pattern of social and economic activities; and F, the pattern of flows in the transportation system, that is, the origins, destinations, routes, and volumes of goods and people moving through the system. Three kinds of relationships can be identified among these variables:

1. The flow pattern in the transportation system is determined by both the transportation system and the activity system.
2. The current flow pattern will also cause changes over time in the transportation system: in response to actual or anticipated flows, entrepreneurs and governments will develop new transportation services or modify existing services.
3. The current flow pattern will cause changes over time in the activity system: through the pattern of transportation services provided and through the resources consumed in providing that service.

The activity system of a metropolitan area or a country consists of many subsystems, overlapping and interrelated social structures, political institutions, and so on. Transportation is only one of these subsystems.

Transportation plays a role in influencing the evolution of the activity system, but, in very special situations, it is not the sole determinant of the evolution. The development of automobiles and of extensive systems of freeways does not alone cause sub-urbanization and dispersal of metropolitan areas, but it does interrelate closely with the dynamics of rising incomes, changing housing and labor markets, and other subsystems. Even the provision of access roads to a hitherto virgin area of an underdeveloped country will not by itself stimulate agricultural development. There must be a market for the produce, and there must be an array of adequate incentives to development.

We must understand transportation as a technology, a system of physical elements managed by human organizations to move people and goods. We must also understand transportation as a subsystem of the complex of social, economic, political, and other forces we so tersely summarize as "the activity system".

There are many individuals, groups, and institutions whose decisions interact to affect the transportation system, the activity system, and thus the pattern of flow. The user of transportation, for example a passenger, makes decisions about when, where, how, and whether to travel. The operator of particular transportation facilities or services makes decisions about vehicle routes and schedules, prices to be charged and services offered, the kinds and quantities of vehicles to be included in the fleet, the physical

facilities to be provided, and so on. Governments make decisions on taxes, subsidies, and other financial matters that influence users and operators, on the provision of new or improved facilities, and on legal and administrative devices to influence, encourage, or constrain the decisions of operators and users.

Options, or decision variables, are those aspects of the transportation and activity systems that can be directly changed by the decisions of one or several individuals or institutions. The options available can be divided into two groups: those dealing with the transportation system itself and those dealing with the activity system.

Transportation options

Many aspects of a transportation system can be varied. Not all of these are open to a single decision maker, nor all are open at the same time. These decision variables may be summarized as following:

Technology

Options involving technology include fundamental decisions about the means of propulsion, the medium through which the vehicle travels, supporting way and suspension systems, vehicle size and shape characteristics, typical route and network structure, and general mode of operations.

Networks

Options involving networks include their general configurations and the approximate geographical locations of the links. Examples are the grid system typical of many of the present cities versus radial links and concentric circles.

Networks consist of links and nodes. Links correspond to facilities, such as highways, rail lines, or urban streets. Nodes simply express the connectivity relations of links in the network. Options include the detailed physical location of links and nodes and those characteristics of the links that affect flow, such as the number of lanes of highway, the grades and curves of the highway, the type of signaling or traffic control, and the internal layout of terminals.

Vehicles

Most transportation modes involve vehicles except pipeline. The major options include the number of vehicle in the system and their characteristics.

System operation policies

This set of options include all the decisions about how the transportation system is to operate, such as vehicle routes and schedules, types of services to be offered, prices, financing, subsidies, and taxing schemes, and regulatory decisions.

Organizational policies

This set of options includes a wide variety of management, organizational, and institutional deci-