

高等院校工业工程专业系列规划教材

Professional English  
for Logistics  
and Supply Chain Management

# 物流与供应链管理 专业英语

● 王爱虎 编

 北京理工大学出版社  
BEIJING INSTITUTE OF TECHNOLOGY PRESS

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# 物流与供应链管理 专业英语

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## 内 容 提 要

本书是一本为物流工程和管理专业的学生（包括本科生、硕士生乃至博士生）、老师和从业人员提供系统介绍该领域的发展历史、现状和趋势以及专业词汇的学习材料，并可通过专业词汇的集中学习提高专业英语阅读能力和专业沟通能力。

本书特点如下：

- 大部分内容编选自高水平国际刊物，有较强的前瞻性，对高年级本科生、研究生乃至博士生的论文写作有一定的指导意义。
- 突出了对物流专业内容的介绍，与普通英语的教学有很好的互补和衔接。
- 参考物流术语的国家标准，对物流专业词汇进行了大范围收集和汇编，可作为物流从业人员在从事对外合作和交流中的一本工具书。
- 介绍了部分欧美物流认证的机构及其认证过程。
- 为增加趣味性，书中穿插了一些简短的小文章，讲述了该领域的相关事件。
- 每篇文章后均配备了不同数目旨在启发思考且联系我国物流管理实践的思考题。
- 给出了大量的网址，为对该领域感兴趣的读者提供了一个网上冲浪的起点。

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### 作者简介

王爱虎，天津大学和美国纽约州立大学布法罗大学双博士。

曾在美国企业从事物流与供应链管理、流程优化和改善、生产规划、质量管理和客户服务等工作。现在华南理工大学工商管理学院从事产品开发管理、物流与供应链管理和工业工程等方向的教学和科研工作。

先后参加或主持了美国自然科学基金项目“Design and Implementation of a Knowledge-Based Agile Manufacturing Information System”、国务院港澳发展研究中心委托项目“物流技术开发与香港物流发展战略研究”等10余项科研项目的研究工作。

先后在IIE Transactions on Design and Manufacturing等刊物上发表论文30余篇，多篇论文被SCI、EI和ISTP收录。编写出版了《工业工程专业英语》教材。

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## 前言

“物流”是一个听起来很古老但同时又是一个其内涵和外延都在发生日新月异变化的词汇。其发展经历了从早期的注重“运输(Transportation)”到后来的“物流(Logistics)”和最近的“供应链管理”三个典型阶段。与此相对应的是其内涵也经历了从早期的物流装备、物流工具、物流技术、物流工程乃至产品分销到中期的物流调配和管理以及目前的一体化物流和供应链管理、无线射频识别(RFID)、物流安全、逆向和绿色物流等。

“物流管理”和“供应链管理”将是 21 世纪的流行词汇。交通运输环境和国际贸易环境的不断改善以及信息和通讯技术的不断发展等对全球的物流网络的重组、区域经济的发展乃至物流和供应链管理领域的发展本身产生深远影响。如欧盟的一体化促使整个欧洲物流体系的重组,出现了类似荷兰鹿特丹(Rotterdam)这样的欧洲物流枢纽和分销中心;广东省物流基础设施的不断完善和发展,尤其是深圳盐田港的发展,从根本上改变了粤港两地的物流发展态势;发生在纽约的“9·11”恐怖事件则促进了物流安全的发展,对国际物流的实操模式和成本结构等均产生了深远影响;RFID 等新技术的出现则对物流和供应链物流的信息透明度乃至合作伙伴间的合作和信息共享提供了技术上的支持。众多已经发生和将来将会发生的事件均将对物流和供应链管理的理念和实操模式发生这样或那样的影响,这就注定了“物流管理”和“供应链管理”将会成为 21 世纪的流行词汇。

供应链间的竞争将成为企业竞争的新模式。随着业务外包和全球化进程,企业的战略重点从充分利用全球资源(第一利润源泉)到提高生产率(第二利润源泉)逐步转到完善物流网络(第三利润源泉)。企业间尤其是跨国公司间的竞争也逐步从企业与企业间的竞争转变为供应链与供应链之间的竞争。

中国迅速发展的制造业的内需强劲的国内市场注定了中国将成为 21 世纪全球物流和供应链网络中最耀眼的一个结点。已有研究表明我国物流人才尤其是高水平物流管理人才的缺口很大。这种现状刺激了国内物流工程、物流管理和供应链管理等方面的学科建设乃至培训的发展。以工程硕士的发展为例,2003 年全国工程硕士专业学位教育指导委员会将“物流工程”正式增列为工程硕士教育的一个新领域并有 45 所高等院校获得了该领域的招生资格且在 2004 年的首次招生中就有 1 369 人报考并最终录取了 735 人。有理由相信物流相关领域的教学和培训将随着我国经济的持续发展以及对外贸易合作与交流的深入而得到迅速发展。

身为物流与供应链管理领域的一名教育工作者,本人深刻地感受到了我国该领域教学体系、培养方案、教材等方面建设的滞后。因此,结合自己的学术专长,对“物流工程与管理专业英语”进行了编写。目的是为物流工程和管理专业的学生(包括本科生、硕士生乃至博士生)、老师和从业人员提供一本系统介绍该领域的发展历史、现状和趋势以及专业词汇的学习材料,以使其能够通过专业词汇的集中学习提高专业英语阅读能力和专业沟通能力。

本书有如下特点:

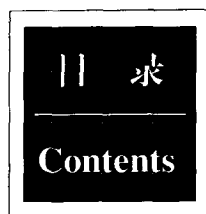
- 大部分内容编选自高水平国际刊物,有较强的前瞻性,对高年级本科生、研究生乃至博士生的论文写作有一定的指导意义。
- 突出了对物流专业内容的介绍,与普通英语的教学有很好的互补和衔接。
- 参考物流术语的国家标准,对物流专业词汇进行了大范围收集和汇编,可作为物流从业人员在从事对外合作和交流中的一本工具书。
- 介绍了部分欧美物流认证的机构及其认证过程。
- 为增加趣味性,书中穿插了一些简短的小文章,讲述了该领域的相关事件。
- 每篇文章后均配备了不同数目旨在启发思考且联系我国物流管理实践的思考题。
- 给出了大量的网址,为对该领域感兴趣的读者提供了一个网上冲浪的起点。

在本书的编写过程中得到了美国纽约州立大学布法罗大学工业工程系 Dr. Rakesh Nagi, Dr. Li Lin; 香港中文大学决策科学与管理经济学系赵先德教授和杨海仁教授; 北京交通大学机械与电子控制工程学院查建中教授和鄂明成副教授; 河北科技大学李军教授; 华南理工大学工商管理学院沙振权教授和徐学军教授; 美国 Flexsim 软件产品公司 Mr. Bill Nordgren 和美的制冷家电集团供应链管理方焕生副总监等的支持,在此表示谢意!

由于作者水平有限,书中难免有不妥和谬误之处,恳请读者批评和指正。

编者

2005年10月于广州



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## 1. Evolution of academic concerns with transportation and logistics / 1

### 运输与物流的学术思维的演变

关于运输与物流的学术研究可以追溯到 18 世纪 50 年代的经济学家亨利·亚当斯,时任耶鲁大学校长的他讲授了一门关于运输经济学的课程。在 18 世纪,运输问题是经济学家研究的热点问题之一且研究内容大多集中在运输成本和运输费率等问题上。而关于运输和物流的现代化思维则来自于第二次世界大战,其理念一方面衍生于交通运输管理和运输经济学,一方面衍生于营销学。

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## 2. Perspectives on the evolution of logistics thought / 14

### 关于物流思维演变的一些观点

本文试图回答“哪些主观看法有助于物流思维的变化”这个问题。为此,走访了一些著名的物流研究人员并对其观点进行了归纳和整理,其结果体现为文中关于物流发展的 6 个时代。

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## 3. Supply chain network design / 29

### 供应链网络设计

供应链网络是供应链运作的基础,因而网络设计是影响一个公司竞争力和投资决策的重要因素。随着供应链管理所倡导的跨边界合作的不断扩展,所要解决的问题是判断“现有的网络设计和分析方法是否仍然适用?”答案基本上是肯定的,因为网络设计所要考虑的供应链阶数通常局限在很小的数目。然而,关于支持网络设计的网络分析和网络建模方面仍然存在一些有待解决的问题。本文讨论了如何建立更好的模型、如何处理这些模型所需要的数据以及如何对不同的模型进行比较等网络设计问题。

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## 4. Relationships among TPL providers and members of supply chains / 43

### 第三方物流提供商与其他供应链成员间的关系

随着最近几年物流服务外包的迅猛发展,第三方物流和供应链管理也受到了学术界更多的关注。然而,从战略角度对第三方物流提供商与其他供应链成员间关系的研究则不多见。

所以,本文提出了一个战略框架并对不同的供应链管理战略与相应的第三方物流服务选择间的关系进行了深入研究。

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## **5. Security-aware logistics / 57**

### **有安全意识的物流**

为减少恐怖分子的威胁而实施的、新的安全措施的一个结果是美国每年将支付 1510 亿美元的额外成本和 650 亿美元用于供应链中物流环节调整的费用。所以,物流领域的一个新兴问题是如何在最小化上述成本的基础上获得有效的、安全的物流和供应链运作环境。为此,在回顾了恐怖袭击造成的供应链瓦解、应急计划、安全措施可能引发的成本以及目前正在考虑的物流安全法规基础上,本文提出了在新的供应链环境下进行物流操作的五项原则。

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## **6. Reverse logistics / 74**

### **逆向物流**

物流领域的一个新概念是逆向物流。逆向物流被越来越多的公司作为盈利和获得可持续发展的企业战略。本文对逆向物流进行了全方位的描述并从现有文献和企业的成功案例中提炼出实施逆向物流的 11 条建议。

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## **7. Green logistics / 82**

### **环保物流**

环保问题对众多的物流决策有深远影响,所以,本文首先识别企业用来管理和响应环保问题的最常用和最少用的战略,然后建立公司的特点与所选择的特定环保物流战略之间的关系。

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## **8. Global logistics / 92**

### **全球物流**

物流已经从过去管理费用的避难所逐步发展为企业节约成本甚至盈利的利刃。因而,制造业的企业均在有意识地向现代物流转变。同时,最近其他运输领域法规的解禁也对物流实践产生了深远影响。本文回答了如何选择全球物流服务提供商以最大限度地发挥《海运改革法案 1999》所带来的利益以及如何充分利用先进技术等问题。

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## **9. The relationship between logistics and supply chain management / 100**

### **物流与供应链管理的关系**

最近,学者和业内人士对物流和供应链管理的概念产生了一些混淆和分歧。关于两个概念



各有许多定义且每个概念在不同行业的涵义也不同。本文对两个概念的历史发展进行了研究并提出了一个用来阐述二者关系的层次观点。

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## **10. Supply chain management / 110**

### **供应链管理**

自 19 世纪 80 年代人们对供应链管理的兴趣就与日俱增,因为企业已经认识到企业内部乃至跨企业的合作可以为其带来收益。本文对供应链管理予以定义并对其演变过程予以讨论。

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## **11. Information systems development within supply chain management / 122**

### **供应链管理信息系统的发展**

为了提高供应链管理的有效性以期在当前的动态全球市场中赢得竞争优势,仅仅在企业内部对业务流程进行有效整合是远远不够的,需要对供应链上所有合作伙伴的操作予以同步化。在过去,通常是由一个企业对其所拥有或所控制的所有业务进行同步化,然而,现在的同步化则更多地借助跨企业的信息系统来实现。为此,本文对供应链环境下跨企业信息系统的的发展及其作用进行了分析。

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## **12. Simulation in the supply chain context / 133**

### **供应链仿真**

经济全球化的深入、市场竞争的加剧以及顾客需求的疲软使得企业不得不借助供应链管理来进一步优化企业的流程,尤其是与物流伙伴间的合作与结盟。尽管关于流程整合的 IT 产品有很多,但由于物流网络以及局部利益最大化所引起的问题使得现有产品不能对复杂的物流网络进行有效整合。在供应链这个多决策主体环境下,仿真无疑是能够发挥重要整合作用的信息技术之一。本文对供应链环境下的仿真文献进行了综述以期回答人们通常用仿真来达到什么样的目的以及什么样的仿真工具和平台更适用等问题,为供应链领域的学者和从业人员进行物流网络整合提供参考。

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## **13. Supply chain costing: An activity-based perspective / 147**

### **基于作业成本法的供应链成本核算方法**

本文旨在介绍物流成本以及成本核算方法以期达到优化物流总成本的目的。首先对物流管理的历史和演变过程进行了回顾并介绍了作业成本法,然后分析了影响成本的关键物流活动并介绍了如何应用作业成本法对物流成本予以分摊,最后对基于作业成本法的供应链成本核算方法的实施提出了管理上的建议。

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## 14. Supply management and e-procurement / 159

### 供应链管理与电子采购

人们对供应链管理的重视使得对供应链中供应管理的关注与日俱增,而且随着企业对电子采购策略应用的日益增多,这种关注将会越来越强烈。本文首先介绍了采购流程并对电子采购对采购流程的影响、潜在的问题及可能的收益进行了论述,其次应用经济增加值方法对电子采购的效果进行了评估,最后对经济增加值方法的局限性以及管理建议进行了归纳。

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## 15. RFID technologies / 173

### 无线射频识别技术

无线射频识别技术能够添补供应链中尤其是零售和物流网络中的信息断层从而实现供应链中信息的实时化和透明化。本文对无线射频识别技术进行了介绍,提供了几个案例并提出了该技术应用过程中的管理建议。

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## 16. Logistics certification / 191

### 物流认证

分别对英国皇家物流与运输学会、美国物流与运输学会、加拿大专业物流学会和美国物流管理学会物流认证项目的目的、课程设置、认证过程和方法等进行了简要介绍。

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## 附录 I 趣味阅读材料 / 210

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## 附录 II 常用物流词汇表 / 235

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## 参考文献 / 246

# 1. *Evolution of academic concerns with transportation and logistics*

## THE AGE OF THE ECONOMIST

The academic study of transportation and logistics is not new; indeed, in America it goes back to the 1850s when Henry Adams, an economist who was president of Yale University, offered a course in the Economics of Transportation. As L. Leslie Waters, professor of Transportation and Business History at Indiana University, wrote in 1966:

*In 1850, an important book was published in London (and New York); Dionysius Lardner; Railway Economy: A Treatise on the New Art of Transportation. It was a comprehensive treatment of transport both from an economic and a business point of view. During the following seventy-five years, many leading economists devoted their descriptive and analytical powers to transport economics. Taussig, Fetter, and Hadley were typical of those who were impressed with the significance of the area. About the time that transport began to get complex with the emergence of new modes of conveyance, however, the interest of economists waned. Other problems seemed more beguiling. Not until recent years has there been a renewal of interest in transportation on the part of business administrators, economists and government officials.*

It is well to recall that the study of economics is a very old discipline. Some call it the “mother science” of business. Both Plato and Aristotle wrote about economics in the period of 380 to 350 B. C. These scholars were followed by centuries of writings about the economy. It is also well to remember that, as Alexander Gray notes:

*... Political Economy throughout [the ages] has been in large measure an attempt to explain, within the existing framework and assumptions of society, how and on what theory contemporary society is operating.*



Given the importance of transportation in the development and growth of any economy, it is not surprising that economists were interested in transportation. The much quoted Adam Smith wrote in 1776 that economic growth depended on “the division of labor” and man’s “propensity to truck, barter and exchange one thing for another”. But this division of labor is “limited by the extent of the market”, and Smith cites as an example transportation:

*As by means of water-carriage a more extensive market is opened to every sort of industry than what land-carriage alone can afford it . . . a broadwheeled wagon, attended by two men, and drawn by eight horses, in about six weeks time carries and brings back between the ports of London and Edinburgh near four ton weight of goods. In about the same time, a ship navigated by six to eight men and sailing between the ports of London and Leith frequently carries and brings back two hundred ton weight of goods.*

**Table 1 Partial list of early books on transportation — 1850 to 1931**

1850	Dionysius Lardner; <i>Railway Economy; A Treatise on the New Art of Transportation</i>
1869	Henry V. Poor; <i>Influence of the Railroads of the United States in the Creation of its Commerce and Wealth</i>
1877	Arthur M. Wellington; <i>The Economic Theory of the Location of Railways</i>
1878	Charles Francis Adams, Jr.; <i>Railroads; Their Origins and Problems</i>
1885	Arthur T. Hadley; <i>Railroad Transportation; Its History and Its Laws</i>
1886	J. Grierson; <i>Railway Rates; English and Foreign</i>
1887	J. S. Jeans; <i>Railway Problems</i>
1888	J. L. Ringwalt; <i>Development of Transportation Systems in the U. S.</i>
1896	J. W. Million; <i>State Aid to Railways in Missouri</i>
1896	H. T. Newcomb; <i>Railway Economics</i>
1898	Wm. Larrage; <i>The Railroad Question</i>
1899	John B. Sanborn; <i>Congressional Grants of Land in Aid of Railways</i>
1903	B. H. Meyer; <i>Railway Legislation in the United States</i>
1903	Emory R. Johnson; <i>American Railway Transportation</i>
1905	Hugo R. Mayer; <i>Government Regulation of Railway Rates</i>
1905	Edwin A. Pratt; <i>Railways and Their Rates</i>
1905	W. M. Acworth; <i>Elements of Railway Economics</i>
1906	Walter L. Webb; <i>Economics of Railway Construction</i>
1907	Frank Parsons; <i>The Railway Trusts and The People</i>
1908	Lewis H. Haney; <i>A Congressional History of Railways in the U. S.</i>
1908	Stuart Daggett; <i>Railroad Reorganization</i>
1909	S. C. Williams; <i>The Economics of Railway Transportation</i>
1909	L. G. McPherson; <i>Railroad Freight Rates</i>
1909	F. A. Cleveland and F. W. Powell; <i>Railroad Promotion and Capitalization in the U. S.</i>
1909	Emory R. Johnson; <i>Elements of Transportation</i>
1910	John Maurice Clark; <i>Standards of Reasonableness in Local Freight Discrimination</i>
1911	Emory R. Johnson and Grover G. Huebner; <i>Railroad Traffic and Rates</i>
1911	M. B. Hammond; <i>Railway Rate Theory of the Interstate Commerce Commission</i>



Continued

- 1911 H. S. Haines; *Problems of Railway Freight Rates*  
 1912 Wm. Z. Ripley; *Railroads; Rates and Regulation*  
 1912 W. C. Noyes; *American Railroad Rates*  
 1912 S. O. Dunn; *The American Transportation Question*  
 1913 Douglas Knoop; *Outlines of Railway Economics*  
 1913 S. O. Dunn; *Government Ownership of Railroads*  
 1914 E. J. Clapp; *Railway Traffic*  
 1915 I. L. Sharfman; *Railway Regulation*  
 1915 Wm. Z. Ripley; *Railroads; Finance and Organization*  
 1915 F. W. Taussig; *Principles of Economics* (rev. 1921, with major discussion of railway costs)  
 1916 Henry C. Brown; *Transportation Rates and Their Regulation*  
 1916 A. M. Sakolski; *American Railroad Economics*  
 1917 H. B. Vanderblue; *Railroad Valuation*  
 1917 Edmund Hungerford; *The Railroad Problem*  
 1918 Emroy R. Johnson and Grover Huebner; *Railroad Traffic and Rates, Vol. 2*  
 1918 Emroy R. Johnson and Grover Huebner; *Principles of Ocean Transportation*  
 1918 S. O. Dunn; *Regulation of Railroads*  
 1920 W. M. Acworth; *Historical Sketch of State Railway Ownership*  
 1920 J. C. Bonbright; *Railroad Capitalization*  
 1921 I. L. Sharfman; *The American Railway Problem*  
 1921 Emroy R. Johnson and Thurman Van Metre; *Principles of Railroad Transportation*  
 1922 F. M. Dixon; *Railroads and Governments*  
 1922 W. J. Cunningham; *American Railroads; Government Control and Reconstruction Policy*  
 1923 H. B. Vanderblue and K. F. Burgess; *Railroads; Rates, Services and Management*  
 1924 Eliot Jones; *Principles of Railway Transportation*  
 1925 Slason Thompson; *A Short History of American Railroads*  
 1926 Emroy R. Johnson and Grover Huebner; *Railroad Freight Service*  
 1928 Emroy R. Johnson, Grover Huebner, and G. Lloyd Wilson; *Principles of Transportation*  
 1931 Eliot Jones; *Principles of Railway Transportation* (rev. ed.)

What an excellent example of “Transportation Conquers Distance”, the motto of Delta Nu Alpha International Transportation Fraternity! Smith also made a strong case for “public works” as part of the proper role of the “Sovereign or Commonwealth” with a strong recommendation for tolls based on weight.

*When the carriage which passes over the highway or a bridge, and lighters which sail upon a navigable canal, pay tolls in proportion to their weight or tonnage. They pay for the maintenance of the public works exactly in proportion to the wear and tear which they occasion of them. It seems scarce possible to invent a more equitable way of maintaining such works. This tax or toll, though it is advanced by the carrier, is finally paid by the consumer, to whom it must always be charged in the price of the goods.*

One could say with some degree of truth that Adam Smith was one of the first transportation economists!



It is not surprising, then, that American economists were very interested in transportation in the 18th century. At the very first meeting of the American Economic Association (AEA) in 1885, the group was organized and the by-laws of this oldest economic association in America established nine “standing committees” to study and report at annual meetings — transportation was, of course, one of the nine.

The association also established American Economic Association Publications, and Vol. II (1887) contained an essay entitled “The Railway Questions” by Edmond J. James (University of Chicago). Subsequent essays were also on “Road Legislation for the American State” (J. W. Jacks, Cornell, 1889); “Two Papers on the Canal Question” (E. James & L. Haupt, 1890); “State Railroad Commissions and How They May be Made Effective” (F. Clark, Ohio State, 1891) and “Theory of Transportation” (C. Cooley, Michigan, 1894). Another indication of academic interest in transportation appears in the yearly list of titles of doctoral dissertations granted beginning in 1904. Assumedly, their authors, newly-earned Ph. D. degrees in hand, went on to teach transportation economics. (Ph. D. degrees awarded by U. S. institutions was quite rare during this period. Many economists got their graduate degrees in England, France, or Germany in the 19th century and up to World War I.)

In 1911, the American Economic Association began publishing quarterly the American Economic Review. Vol. 1, No. 1, carried M. B. Hammond’s (Ohio State and later president of the AEA) “Freight Rates: Recent Efforts to Advance” as well as a list of “Articles and Abstracts in Other Economic Journals”. In that first list in Vol. 1 (1911 – 12), there were 109 articles on railroads, 40 articles on water transportation, and 23 articles on public utilities. Clearly, academic interest in transportation was very high as measured by writings in academic periodicals in 1911.

Another measure of academic interest in transportation can be found by noting books published prior to 1931 (see Table 1). Textbook authors are particularly apt at bringing together material from academic periodicals, government cases, and reports. If one examines the content of these books, several things are noteworthy. First, almost all concern railroads, with little discussion of alternative modes of transportation except for inland and maritime water transportation. This is completely understandable because railroads were almost the only means of intercity inland transport until 1920. Second, the vast majority of the material is on regulation and its effects or shortcomings. Again, that is not a surprise since federal regulation began with the Act to Regulate Commerce in 1887 (which created the Interstate Commerce Commission) followed by the Compulsory Testimony Act of 1893, the Expediting Act of 1903, the Elkins Act of 1903, the Hepburn Act of 1906 (which included the regulation of oil pipelines), and the Mann-Elkins Act of 1910. Liability provisions were strengthened by the Carmack Act of 1906 and the First and Second Cummins Amendments of 1915. All of these legislative initiatives were aimed at strengthening regulation. Indeed, prior to World War I “transportation regulation of monopoly

seemed to be almost complete”.

Third, most of these earlier textbooks devoted considerable attention to transportation costs and rates. Once more, this is understandable since economists were always interested in the various theories of costs and prices. “Fourth, there was very little discussion of the operation and organization of the shipper side of transportation. Except for discussions of liability and claims, bills of lading, and procedures to change rates or classifications, there was practically no discussion of the role of the traffic manager in these books. Indeed, many shippers hired former railroad personnel with rail connections as ‘traffic managers’” and it wasn’t until years later that the “shipper side” of transportation education began to appear.

After the difficult year prior to World War I, and federal seizure and operation of the nation’s railroads between December 28, 1917, and March 1, 1920, Congress amended the regulatory environment via the Transportation Act of 1920. The Act installed the Rule of Ratemaking, which directed the Interstate Commerce Commission (ICC) to temper minimization of the general levels of freight rates and passenger fares with consideration of carriers’ revenue requirements for attracting capital sufficient to render adequate service. The Act also established the Railway Labor Board and gave the ICC power over extensions and abandonments of railway lines, intrastate rates that discriminated against interstate rates, division of rates on interline movements, and control over railroad security issuances. Most of the Act’s provisions were aimed at helping the railroads to better serve the public. Also in the post World War I era, with enactment of a series of Federal Highway Acts and the emergence of state gasoline (user) taxes, motor transportation began to grow and provide a means of transportation competitive with the railroads. This broadened academic interest to include more than railroad and water transportation. In the 1930s, the regulatory structure was modified further by federal regulation of highway transportation (1935), air transportation (1938), and inland water transportation (part of the Transportation Act of 1940), based primarily on the older railroad model of transportation regulation. Hence, scholars’ interest in transportation began to be concerned with the competitive structure between the modes (with all regulated).

All during this time, there were regular articles in the periodical literature about transportation and regulation as well as textbooks often titled Economics of Transportation. The American Economic Association continued to have papers on transportation at its regular annual meetings and much research and writing dealt with the competition among the various modes. In 1938, a group of economists petitioned to establish an informal, separate organization of transportation and public utility economists inside the American Economic Association. This group, meeting annually at the AEA’s national meeting, later evolved into what today is called The Transportation and Public Utilities Group (TPUG) of the AEA.

This organization (TPUG) became the first of the allied economic associations, elected its own



officers, and arranged its own concurrent meetings with the American Economic Association (usually with one or two “joint sessions” with the general economics group). Today, TPUG is one of over 20 separate allied associations meeting currently with the American Economic Association where annual meetings are now called the “Allied Social Science Associations Meetings”. In 1964, TPUG started giving an annual award honoring persons “in Recognition of Outstanding Contributions to Scholarship in the Field of Transportation and Public Utilities”. Some 39 individuals have been awarded up to 1996, including William Vickrey, co-winner of the Nobel Prize in Economics in 1996. The “Age of the Economist” in transportation education never really came to an end and continues not only in TPUG but also with the “Transportation Research Forum”, made up of academic and industry economists, government transportation economists, consultants, and carrier economists “who conduct transportation research and those who use and benefit from transportation research”.

### BROADER CONCERNS

Much of the modern concerns of transportation and logistics flows from World War II. During this period, the movement of military personnel and supplies on two distinct but separate theatres of operation (Europe/North Africa and the Western Pacific), plus the domestic transportation of massive materials into and from the war plants, shipyards, and other industries involved in wartime production, brought about two important factors. One was the concern with the efficiency of transportation (costs of movement were less important than how quickly and efficiently goods could be moved and handled). The other was the management of the flow of goods (transportation decisions by shippers/receivers needed to be made by persons knowledgeable in service choices). On the matter of efficiency, the wartime effort led to many innovations such as palletization, use of fork-lifts, and increased mechanization substituting for manual labor, which were later to become widespread in the domestic post-war economy. On the matter of management, the wartime effort highlighted the role of the previous routinized and clerical job of the shipping clerk into the more analytical job of the traffic manager.

**Table 2 Transportation books having traffic management, physical distribution or logistics sections**

1950	Marvin L. Fair and Ernest W. Williams, Jr. ; <i>Economics of Transportation</i> (add “Logistics.” 1959)
1951	Charles F. Landon; <i>Transportation; Principles, Practices and Problems</i>
1952	Russell Westmeyer; <i>Economics of Transportation</i>
1952	Truman C. Bighman and Merrill J. Roberts; <i>Transportation</i>
1955	Stuart Daggett; <i>Principles of Transportation, 5th ed.</i>
1957	Frank H. Mossman and Newton Morton; <i>Principles of Transportation</i>
1963	Hugh Norton; <i>Modern Transportation Economics</i>
1963	Dudley F. Pegrum; <i>Transportation: Economics and Public Policy</i> , 1968
1966	Roy Sampson and Martin T. Farris; <i>Domestic Transportation. Practices, Theory and Policy</i> , 1971, 1975, 1979; (with David Shrock) 1985, 1990
1966	John B. Lansing; <i>Transportation and Public Policy</i>
1967	Martin T. Farris and Paul T. McElhiney; <i>Modern Transportation; Selected Readings</i> , 1973



Continued

1978	Donald V. Harper: <i>Transportation in America</i> , 1982
1978	Robert C. Lieb. <i>Transportation. The Domestic System</i> , 1981, 1987, 1994
1982	John J. Coyle, Edward J. Bardi, and Joseph L. Cavinato: <i>Transportation</i> , 1986, 1990 (Novack replaces Cavinato 1994, 1996)
1987	Frederick J. Stephenson: <i>Transportation U. S. A.</i>

Academically, courses and textbooks began to appear entitled “Traffic Management” or “Industrial Traffic Management”, which were almost exclusively aimed at what could be called “the shipper side of transportation” in the 1950s and beyond. Another result was that sections on “Traffic Management” (later titled “Physical Distribution” and “Logistics”) began to appear in general texts on transportation. Table 2 notes many of these.

From the association side, Delta Nu Alpha Transportation Fraternity was organized in 1940 by Dr. G. Lloyd Wilson and a group of students at the University of Pennsylvania and was dedicated to furthering transportation education. This organization (now having “International” in its title) has many chapters in every state and abroad and provides a meeting place for those interested in transportation as well as publishing the *Journal of Transportation Management* since 1989.

Another association, the National Defense Transportation Association (NDTA), was formed in 1944. Obviously, during World War II the largest shipper was the U. S. government. This situation (the largest single customer of the carriers: the government) continued after the war, first, at a somewhat decreased rate but later at an increasing pace with the Marshall Plan for European reconstruction, loans to foreign governments, and later with the defense build-up during the Korean War and the Cold War. In any case, there was a continuing and growing interest in transportation related to defense. In 1945, the NDTA began publishing the *Defense Transportation Journal*.

Further, in 1946 the American Society of Traffic and Transportation was organized with the goal of furthering education and the transportation/traffic profession via its well-known certification program of five national examinations given at examining centers every six months. Later, this organization changed its name to the American Society of Transportation and Logistics and since 1961 has published the *Transportation Journal*.

Many academics and transportation professionals are active in Delta Nu Alpha, The National Defense Transportation Association, and/or the American Society of Transportation and Logistics.

Clearly, the post World War II era led to a broadening of concern with transportation and traffic management.