Introduction: The Visible Hand

The title of this book indicates its theme but not its focus or purpose. Its purpose is to examine the changing processes of production and distribution in the United States and the ways in which they have been managed. To achieve this end it focuses on the business enterprise that carried out these processes. Because the large enterprise administered by salaried managers replaced the small traditional family firm as the primary instrument for managing production and distribution, the book concentrates specifically on the rise of modern business enterprise and its managers. It is a history of a business institution and a business class.

The theme propounded here is that modern business enterprise took the place of market mechanisms in coordinating the activities of the economy and allocating its resources. In many sectors of the economy the visible hand of management replaced what Adam Smith referred to as the invisible hand of market forces. The market remained the generator of demand for goods and services, but modern business enterprise took over the functions of coordinating flows of goods through existing processes of production and distribution, and of allocating funds and personnel for future production and distribution. As modern business enterprise acquired functions hitherto carried out by the market, it became the most powerful institution in the American economy and its managers the most influential group of economic decision makers. The rise of modern business enterprise in the United States, therefore, brought with it managerial capitalism.

Modern business enterprise defined

Modern business enterprise is easily defined. As figure 1 indicates, it has two specific characteristics: it contains many distinct operating units and it is managed by a hierarchy of salaried executives.

Each unit within the modern multiunit enterprise has its own admin-

substance of managerial tasks differed from one sector to another and from one industry to another. So too did the specific relationships between managers and owners. And once a managerial hierarchy was fully established, the sequence of its development varied from industry to industry and from sector to sector.

Nevertheless, these differences can be viewed as variations on a single theme. The visible hand of management replaced the invisible hand of market forces where and when new technology and expanded markets permitted a historically unprecedented high volume and speed of materials through the processes of production and distribution. Modern business enterprise was thus the institutional response to the rapid pace of technological innovation and increasing consumer demand in the United States during the second half of the nineteenth century.

istrative office. Each is administered by a full-time salaried manager. Each has its own set of books and accounts which can be audited separately from those of the large enterprise. Each could theoretically operate as an independent business enterprise.

In contrast, the traditional American business firm was a single-unit business enterprise. In such an enterprise an individual or a small number of owners operated a shop, factory, bank, or transportation line out of a single office. Normally this type of firm handled only a single economic function, dealt in a single product line, and operated in one geographic area. Before the rise of the modern firm, the activities of one of these small, personally owned and managed enterprises were coordinated and monitored by market and price mechanisms.

Modern enterprise, by bringing many units under its control, began to operate in different locations, often carrying on different types of economic activities and handling different lines of goods and services. The activities of these units and the transactions between them thus became internalized. They became monitored and coordinated by salaried employees rather than market mechanisms.

Modern business enterprise, therefore, employs a hierarchy of middle and top salaried managers to monitor and coordinate the work of the units under its control. Such middle and top managers form an entirely new class of businessmen. Some traditional single-unit enterprises employed managers whose activities were similar to those of the lowest level managers in a modern business enterprise. Owners of plantations, mills, shops, and banks hired salaried employees to administer or assist them in administering the unit. As the work within single operating units increased, these managers employed subordinates—foremen, drivers, and mates—to supervise the work force. But as late as 1840 there were no middle managers in the United States—that is, there were no managers who supervised the work of other managers and in turn reported to senior executives who themselves were salaried managers. At that time nearly all top managers were owners; they were either partners or major stockholders in the enterprise they managed.

The multiunit enterprise administered by a set of salaried middle and top managers can then properly be termed modern. Such enterprises did not exist in the United States in 1840. By World War I this type of firm had become the dominant business institution in many sectors of the American economy. By the middle of the twentieth century, these enterprises employed hundreds and even thousands of middle and top managers who supervised the work of dozens and often hundreds of operating units employing tens and often hundreds of thousands of workers. These enterprises were owned by tens or hundreds of thousands of shareholders and

carried out billions of dollars of business annually. Even a relatively small business enterprise operating in local or regional markets had its top and middle managers. Rarely in the history of the world has an institution grown to be so important and so pervasive in so short a period of time.

Describing and analyzing the rise of an institution and a class of such immense historical and current significance provides a fascinating challenge to a historian of the American economy. Because this institution is so easy to define and because it came into being so recently, the scholar has little difficulty in answering the historian's special questions of when, where, and how. He can record with precision at what dates, in what areas, and in what ways the new institution first appeared and then continued to grow. In so doing, he can document the rise of the new subspecies of economic man—the salaried manager—and record the development of practices and procedures that have become standard in the management of American production and distribution. Once he has answered the historical questions of when, where, and how, he can begin to suggest the reasons why this institution first appeared and then became so powerful.

The challenge is particularly attractive because it has not yet been taken up. For all its significance, the history of this institution has not been told. Scholars have paid surprisingly little attention to its historical development. Before the 1930s economists only grudgingly acknowledged its existence, and since then they have looked on large-scale business enterprise with deep suspicion. Much basic economic theory is still grounded on the assumption that the processes of production and distribution are managed, or at least should be managed, by small traditional enterprises regulated by the invisible hand of the market. According to such theory, perfect competition can only exist between such single-unit enterprises, and such competition remains the most efficient way to coordinate economic activities and allocate economic resources. The modern, multi-unit enterprise, by its very act of administrative coordination, brings imperfect competition and misallocation of resources. Since many economists have for so long considered the modern business enterprise as an aberration, and an evil one at that, few have taken the trouble to examine its origins. For them the desire for monopoly power has provided an adequate causal explanation.

Until recently historians as well have concentrated little systematic attention on the rise of modern business enterprise and the managerial class that came to administer it. They have preferred to study individuals, not institutions. In fact, few businessmen have appeared in general American histories except those who founded modern business enterprises. Historians have been attracted by entrepreneurs, but they have rarely

customers. He also acted as correspondent or agent for merchants in other ports, taking their goods on consignment and selling for a fixed commission.

The resident general merchant acted as the community's financier and was responsible for the transportation as well as the distribution of goods. He provided short-term loans to finance staple crops and manufactured goods when they were in transit, and he made long-term loans to planters, farmers, and artisans to enable them to clear land or to improve their facilities. Usually in cooperation with other merchants, he arranged for the handling of ships needed to carry these goods and often, with other partners, was a shareholder in these ships. With other merchants, he also insured ships and cargoes. Again with others, he built wharves for the ships. In the same port town, he helped to finance the construction, both by himself and with others, of rum distilleries, candle works, ropewalks, and shipyards—that is, those manufacturing industries not carried on by craftsmen in small family shops.

In all these activities, the colonial merchant knew personally most of the individuals involved. He tried, where possible, to have members of his own family act as his agents in London, the West Indies, and other North American colonies. If he could not consign his goods and arrange for purchase and sale of merchandise through a family member or through a thoroughly reliable associate, the merchant depended on a ship captain or supercargo (his authorized business agent aboard ship) to carry out the distant transactions. Even then, the latter was often a son or a nephew. The merchant knew the other resident merchants in his town, who collaborated with him in insuring and owning ships, as he did the shipbuilders, ropemakers, and local artisans who supplied his personal as well as his business needs. Finally, he was acquainted with the planters, the farmers, and country storekeepers, as well as the fishermen, lumbermen, and others from whom he purchased goods and to whom he provided supplies.

Between Baltimore and Charleston, where there were few ports with resident merchants, a somewhat different pattern of commerce developed.[8] In Maryland and Virginia, and to some extent farther south, planters bought directly from the British merchants. Factors in London arranged for the sale of their tobacco and rice and at the same time purchased any supplies they needed. The planters, in turn, often provided their smaller neighbors with the same type of services they received from the British factors. As tobacco planting moved inland in the mid-eighteenth century, Scottish merchants began to send factors and agents to set up permanent stores, where tobacco could be collected and finished goods sold to the upland farmers and planters. Farther south, the resident merchants in the towns of Charleston and Savannah began to handle the

trade of their region in much the same way as did northern merchants.

With the coming of political independence, this personal family business world began to change. The break with Britain disrupted old trading patterns and led to the opening of new areas to American merchants, including the Baltic, the Levant, China, India, and the East Indies. The continuing growth of population and the rapid expansion west into Kentucky and Tennessee, north into Maine, and southwest into Georgia enlarged domestic markets, as did the growing seaport towns themselves. After the outbreak of the wars of the French Revolution, trade with Europe and the West Indies, which had been cut off since the Revolution, again boomed. Far more important, however, for the American economy than the after-effects of the political revolution in France was the advancing industrial revolution in Great Britain. For the new United States became almost overnight the major source of supply of the raw material and the major market for the products of the new machine-made textiles. The coming of these new trades was the most important single factor in bringing specialization to business enterprise and impersonalization into business activities.

Specialization in commerce

Even without the boom in cotton and textiles, specialization in commercial business enterprises certainly would have come to the United States in the fifty years after 1790. Before the Revolution specialization was already appearing in the distribution of goods in New York, Philadelphia, and other large towns. The distinction between merchants and shopkeepers was becoming clear. The former continued to sell at retail as well as at wholesale, but the shopkeepers sold only at retail, buying from the merchants rather than directly from abroad.[9] By 1790, the merchants were also beginning to specialize in certain lines of trade. Specialization was coming, too, in manufacturing in New England, and possibly parts of the middle states, with the beginning of a domestic or "putting-out" system, and the first use of simple machines.[10] Well before the 1790s, shoes, boots, and even furniture were being manufactured for the West Indian and other distant markets by entrepreneurs who "put-out" work into the homes of farmers and town dwellers. Nevertheless, the rapid reorientation and expansion of American commerce and the rapid development of specialized business institutions resulted directly from the new and unprecedented high volume of cotton exports and new machine-made imports.

The impact of cotton on American commerce did not become fully

the other. On the American side, as Harold Woodman, the historian of the factor, has written: "Anyone with cotton on hand could easily get an advance from the merchant to whom he chose to consign it, be that merchant in the interior, in the port cities, or in the North, or in Europe." On the British side, a commission merchant in 1833 stated that it was virtually impossible to get goods on consignment without giving advances.[17] These advances were usually from two-thirds to three-fourths the value of the current crop. The providing of advances did, therefore, carry a certain risk, for if the price fell during transit, as it often did while the annual harvest was being completed, the house providing the advance might have to sell at a loss.

The credit system, a complex one, relied on traditional instruments: the promissory note and the bill of exchange. Planters, factors, or river or coastal port merchants were rarely paid in cash but in promissory notes or bills of exchange payable in 60, 90, or even 120 days at 7 or 8 percent interest. If the advance was given before the delivery of the crop, it was made in the form of a promissory note, which was often renewed if it became due before the actual sale was transacted. If the payment was made at the time of delivery, it was made in the form of a bill of exchange, drawn on the house providing the credit. Such transactions were further complicated by the need to convert pounds sterling into dollars. A simple sale, involving two middlemen, could give rise to as many as four different transactions and four different bills of exchange. Woodman provides a revealing example from the correspondence of William Johnson, a Mississippi planter, and his factor, Washington Jackson & Company of New Orleans:

> In the 1844–1845 season, Johnson had the New Orleans firm sell part of his cotton in Liverpool through Todd, Jackson and Company, the Liverpool branch of the firm. After shipping his cotton to New Orleans, Johnson drew on Washington Jackson and Company, thereby creating a domestic bill for discount. The New Orleans firm reimbursed itself for this advance by drawing on the Liverpool house after shipping the cotton there, thus creating a second bill for discount. When a sale was made in Liverpool, Todd, Jackson and Company sent a sterling bill for the proceeds over and above the advance drawn upon them. The New Orleans firm sold the sterling bill to a bank for local currency and then authorized Johnson to draw another bill to cover his returns over the advance he had drawn originally.[18]

It was in providing advances and in discounting bills of exchange that the older resident merchants came to play their most important role in the new cotton trade. Some, indeed, soon became specialists in finance. Those with the largest resources became, through the financing of the cotton trade, the most influential businessmen of the day. They were, for

the most part, British business houses in Liverpool and London. They stood at the end of the long chain of credit stretching from the banks of the Mississippi to Lombard Street.

In the major ports, the volume of trade was large enough to permit the rise of another type of specialized enterprise—the brokerage house. Not attached to any specific set of clients, it brought together buyers and sellers of cotton for a commission.[19] The basic distinction between the broker and the factor was that the former did not, as did the latter, buy or sell on his principal's account or, more precisely, did not make contracts in his own name that were binding on his principal. The broker's function was to help factors or other merchants or manufacturing agents obtain the cotton necessary to fill out a shipment or order and dispose of odd lots after the completion of a major transaction.

As the farming frontier moved west across the mountains into the Mississippi Valley, a somewhat different network evolved to move provisions (corn, pork, and whiskey), some cotton, and then wheat and other grains from the west to the south and east. Where the soil was tilled by many small farmers rather than a few large planters, the country storekeeper took the place of the plantation factor as the first businessman on the chain of middlemen from the interior to the seaport.[20] These storekeepers, the economic descendants of the pre-Revolutionary Scottish factors in Virginia and of the storekeepers scattered in the interior of colonial Pennsylvania and New England, marketed and purchased for the farmer much as the factors did for the planters. They differed from the factors, however, in that they bought and sold primarily on their own account.

In the early years of western settlement the outgoing crops and the incoming goods moved along different routes. Tobacco, hemp, lead, and produce went down the river to and through New Orleans to the east and the finished goods came westward across the mountains to Pittsburgh and then down the Ohio. Storekeepers, and at first even farmers, accompanied their crops south. In a short time, however, they made arrangements with commission merchants in New Orleans and other river ports —Cincinnati, Louisville, St. Louis, Memphis, and Nashville—to receive their crops and sell them, or to forward them to other merchants, to provide advances, and to send payments.[21] The storekeepers, like the plantation cotton factors, went east normally twice a year to purchase their stocks of finished goods, coffee, tea, sugar, and other staples. There they had to work out complex arrangements for the transportation of their goods west and for their warehousing, drayage, and loading at the different transshipment points along the way. The western storekeepers were

soon relying on credit more from the eastern wholesalers from whom they purchased their supplies than from the commission houses through which they sold their produce.

With the opening of the Erie Canal in the mid-1820s and the completion of the Ohio and Pennsylvania canal systems in the next decade, a new trade sprang up, creating still another string of middlemen to handle the transactions and transshipments involved in moving the crops. Prior to 1830, little wheat had been raised in the Mississippi Valley. Tobacco, hemp, provisions, horses, and mules, rather than wheat and flour, were the region's major exports. Then, since the canal provided a shorter route through a cooler part of the country (wheat and flour sent via New Orleans often rotted or soured), production expanded. In 1839 Cleveland received 2.8 million bushels of wheat and flour, or 87 percent more than New Orleans.[22] In the same year, New York received three times as much wheat as New Orleans.

The pattern of specialization in the grain trade followed that of the provisions and cotton trades, yet because of its smaller volume before 1840, it was less systematized and specialized than that of cotton. Cleveland, Buffalo, and other lake ports, including the new village of Chicago, became transshipping centers similar to New Orleans and the other cotton ports. As in the cotton trade, advances and the discounting of notes on goods in transit came to play critical roles in financing the movement of crops. Western millers, storekeepers, local merchants who built warehouses, and occasionally the farmers themselves consigned their grain or flour to commission houses and more specialized freight forwarders in the lake ports, particularly Buffalo. In return they received advances which they usually discounted for cash. The Buffalo merchants, in turn, sent grain to the millers of Rochester, or grain or flour to New York merchants—such as Eli Hart & Company; Suydam, Sage & Company; or Chouteau, Merle & Standford—who had previously provided advances. Whenever the final purchase was not designated, the shipment was sent on to a commission house or appointed agent in the east for final sale.[23] That agent might ship it on consignment to a commission house in Liverpool or Rio de Janeiro for sale on the foreign market. These merchants shipping overseas obtained funds for advances from international merchant banking houses such as the Barings. The grain trade differed from the cotton trade, however, in that it marketed primarily in the United States and therefore was financed by American rather than British capital. Moreover, the trade had hardly been fully established before it was radically transformed in the 1850s by the coming of the railroad and the telegraph. The cotton trade, on the other hand, continued to operate relatively unchanged for several decades.

in control. Ownership became widely scattered. The stockholders did not have the influence, knowledge, experience, or commitment to take part in the high command. Salaried managers determined long-term policy as well as managing short-term operating activities. They dominated top as well as lower and middle management. Such an enterprise controlled by its managers can properly be identified as managerial, and a system dominated by such firms is called managerial capitalism.

As family- and financier-controlled enterprises grew in size and age they became managerial. Unless the owners or representatives of financial houses became full-time career managers within the enterprise itself, they did not have the information, the time, or the experience to play a dominant role in top-level decisions. As members of the boards of directors they did hold veto power. They could say no, and they could replace the senior managers with other career managers; but they were rarely in a position to propose positive alternative solutions. In time, the part-time owners and financiers on the board normally looked on the enterprise in the same way as did ordinary stockholders. It became a source of income and not a business to be managed. Of necessity, they left current operations and future plans to the career administrators. In many industries and sectors of the American economy, managerial capitalism soon replaced family or financial capitalism.

The seventh proposition is that in making administrative decisions, career managers preferred policies that favored the long-term stability and growth of their enterprises to those that maximized current profits.

For salaried managers the continuing existence of their enterprises was essential to their lifetime careers. Their primary goal was to assure continuing use of and therefore continuing flow of material to their facilities. They were far more willing than were the owners (the stockholders) to reduce or even forego current dividends in order to maintain the long-term viability of their organizations. They sought to protect their sources of supplies and their outlets. They took on new products and services in order to make more complete use of existing facilities and personnel. Such expansion, in turn, led to the addition of still more workers and equipment. If profits were high, they preferred to reinvest them in the enterprise rather than pay them out in dividends. In this way the desire of the managers to keep the organization fully employed became a continuing force for its further growth.

The eighth and final proposition is that as the large enterprises grew and dominated major sectors of the economy, they altered the basic structure of these sectors and of the economy as a whole.

The new bureaucratic enterprises did not, it must be emphasized, replace the market as the primary force in generating goods and services. The current decisions as to flows and the long-term ones as to allocating resources were based on estimates of current and long-term market demand. What the new enterprises did do was take over from the market the coordination and integration of the flow of goods and services from the production of the raw materials through the several processes of production to the sale to the ultimate consumer. Where they did so, production and distribution came to be concentrated in the hands of a few large enterprises. At first this occurred in only a few sectors or industries where technological innovation and market growth created high-speed and high-volume throughput. As technology became more sophisticated and as markets expanded, administrative coordination replaced market coordination in an increasingly larger portion of the economy. By the middle of the twentieth century the salaried managers of a relatively small number of large mass producing, large mass retailing, and large mass transporting enterprises coordinated current flows of goods through the processes of production and distribution and allocated the resources to be used for future production and distribution in major sectors of the American economy. By then, the managerial revolution in American business had been carried out.[5]

These basic propositions fall into two parts. The first three help to explain the initial appearance of modern business enterprise: why it began when it did, where it did, and in the way it did. The remaining five concern its continuing growth: where, how, and why an enterprise once started continued to grow and to maintain its position of dominance. This institution appeared when managerial hierarchies were able to monitor and coordinate the activities of a number of business units more efficiently than did market mechanisms. It continued to grow so that these hierarchies of increasingly professional managers might remain fully employed. It emerged and spread, however, only in those industries and sectors whose technology and markets permitted administrative coordination to be more profitable than market coordination. Because these areas were at the center of the American economy and because professional managers replaced families, financiers, or their representatives as decision makers in these areas, modern American capitalism became managerial capitalism.

Historical realities are, of course, far more complicated than these general propositions suggest. Modern business enterprise and the new business class that managed it appeared, grew, and flourished in different ways even in the different sectors and in the different industries they came to dominate. Varying needs and opportunities meant that the specific

substance of managerial tasks differed from one sector to another and from one industry to another. So too did the specific relationships between managers and owners. And once a managerial hierarchy was fully established, the sequence of its development varied from industry to industry and from sector to sector.

Nevertheless, these differences can be viewed as variations on a single theme. The visible hand of management replaced the invisible hand of market forces where and when new technology and expanded markets permitted a historically unprecedented high volume and speed of materials through the processes of production and distribution. Modern business enterprise was thus the institutional response to the rapid pace of technological innovation and increasing consumer demand in the United States during the second half of the nineteenth century.

PART one

The Traditional Processes of Production and Distribution

Most histories have to begin before the beginning. This is particularly true for one that focuses on institutional innovation. A history of the modern business enterprise has to start by examining the ways in which the processes of production and distribution were carried out before it came into existence, before administrative coordination became more productive and more profitable than market coordination. It has to identify the specific conditions that led to the rise of the institution and its continuing growth. An analysis of innovation requires a close inspection of the context in which it occurred.

Let us therefore first look at the changing processes of production and distribution from the 1790s to the 1840s, from the time when the ratification of the Constitution provided the legal and political underpinnings of a national economy until the decade when a new source of energy, coal, began to be used extensively in production and the railroad and telegraph began to provide fast, regular, all-weather transportation and communication. Let us begin by examining changes in distribution broadly conceived as commerce and then focus on the management of production.

Although the American economy grew rapidly between 1790 and 1840, the size and nature of business enterprises were little changed. As the population rose from 3.9 million to 17.1 million and as Americans began to move west across the continent, the total volume of goods produced and distributed and the total number of transactions involved in such production and distribution increased enormously. Nevertheless the business enterprises carrying out these processes and transactions continued to be traditional single-unit enterprises. Their numbers multiplied at an impressive rate, and their activities became, as Adam Smith would have predicted, increasingly specialized. Yet they were still managed by their owners. They operated in traditional ways using traditional business practices. Little institutional innovation occurred in American business before the 1840s.

Why was this so? As long as the processes of production and distribution depended on the traditional sources of energy—on man, animal, and wind power—there was little pressure to innovate. Such sources of energy simply could not generate a volume of output in production and number of transactions in distribution large enough to require the creation of a large managerial enterprise or to call for the development of new business forms and practices. The low speed of production and the slow movement of goods through the economy meant that the maximum daily activity at each point of production and distribution could be easily handled by small personally owned and managed enterprises.

CHAPTER 1

The Traditional Enterprise in Commerce

Institutional specialization and market coordination

In the half century after the ratification of the Constitution American business enterprise became increasingly specialized in commerce and production. The trend was particularly evident in commerce. As commerce expanded and as commercial activities became more specialized, the dependence on market mechanisms to coordinate these activities increased proportionally. In the 1790s the general merchant, the businessman who had dominated the economy of the colonial period, was still the grand distributor. He bought and sold all types of products and carried out all the basic commercial functions. He was an exporter, wholesaler, importer, retailer, shipowner, banker, and insurer. By the 1840s, however, such tasks were being carried out by different types of specialized enterprises. Banks, insurance companies, and common carriers had appeared. Merchants had begun to specialize in one or two lines of goods: cotton, provisions, wheat, dry goods, hardware, or drugs. They concentrated more and more on a single function: retailing, wholesaling, importing, or exporting.

Economic expansion and business specialization greatly increased the number of business enterprises operating in the economy. In the 1790s a relatively few merchants living in the eastern ports carried on the major share of the trade beyond local markets. By the 1840s the much larger flows of a greater variety of goods were guided from the producers of the raw materials through the processes of production and distribution to the ultimate consumer by hundreds and thousands of businessmen who had little personal acquaintance with others. The motives of the businessmen were to make a profit on each of the many transactions and such motivation seemed to be enough to assure the successful operation of the economy. Although, as Adam Smith wrote, each businessman "intends

The first canal lines were organized by merchants who needed the facilities to transport their goods. But they quickly came to be owned and operated by specialists. The freight forwarders were (writes Harry Scheiber of those on the Ohio canals) "men engaged in the transportation business only, including small-scale operators of one or two boats as well as owners of large fleets, maintaining regular through-freight arrangements with the Erie Canal, Pennsylvania Mainline and river boat lines."[49]

These specialized ancillary enterprises—the merchant bankers and the incorporated bank; insurance, turnpike, and canal companies; the ship's husbands; the scheduled shipping lines; and the freight forwarders—all facilitated the flow of goods through the economy. They made it easier for the merchants to specialize in handling one set of products and functions and to carry out their specialized tasks more efficiently. They helped to create at that time one of the world's most effective "transaction sectors," to use a term of Douglass North. The number of transactions, the volume of goods moved, and the speed and distances carried were as great as any in history.[50] The efficiency of this sector must have played an important role in maintaining the per capita income of Americans at a time when the population was growing fast.[51] It must have been critical in sustaining the continued economic development of the country in the decades before 1840.

Nevertheless, by modern standards the movement and distribution of goods were hardly efficient. Many transactions and transshipments were required to move a single shipment from the producer to the ultimate consumer. The flow of goods was slow and its pace irregular. The movement of goods still depended on the vagaries of wind and weather. A sailing ship could leave on schedule but one could never predict the precise time of arrival. A transatlantic voyage might take from three weeks to three months. Droughts and freshets delayed shipments along rivers and canals in the summer, spring, and fall. Winter freezes stopped movement of goods completely for several months in all but the southern parts of the country. Snows isolated even the largest cities for days, and heavy rains kept smaller interior towns and villages mud-bound for weeks.

Of even more significance, the movement of goods still relied, as it had for centuries, on wind and animal power. The traditional transportation technologies offered little opportunity for improvement. By 1840 the speed of a stagecoach, canal boat, or sailing ship, or the volume carried by these facilities, could not be substantially increased by improving their design. By 1840 steam power was just beginning to be used in overland transportation. (The nation's first railroads only began to go into operation in the 1830s.) And steamboats were still used only on quiet rivers, bays, and lakes. They were not yet technologically advanced enough to

be employed in the coastal or transatlantic trades. In 1840, well over 90 percent of the Post Office's mail routes were still dependent on the horse.[52] New technology had not yet lifted the age-old constraints on the speed a given amount of goods might be moved over a given distance. Such constraints, in turn, put a ceiling on the volume of activity a commercial enterprise was called upon to handle.

Managing the specialized enterprise in commerce

Because of these technological constraints on the speed and volume of moving goods through the economy, not even the rapid expansion of that economy and its resulting specialization in business activities brought specialization within the business enterprise itself. Nor did the expanding economy lead to the integration of several operating units into a single large firm. No managerial hierarchies appeared. The size of business enterprise did not grow beyond traditional limits. Its internal administration continued to be carried out along traditional lines. Therefore, although the increased volume of American commerce brought modifications and improvements of existing business methods, instruments, and institutions, it did not stimulate the invention of new ones.

Until well after 1840 the partnership remained the standard legal form of the commercial enterprise and double-entry bookkeeping its basic accounting system. The partnership, normally a family affair, consisted of two or three close associates. It was a contractual arrangement that was changed when a partner retired, died, or decided to go into another business or join another associate. A partnership was often set up for a single voyage or venture. And one man could be involved in several partnerships. The partnership was used by all types of business, from the small country storekeepers to the great merchant bankers who dominated the Anglo-American trade.

The most powerful business enterprises of the day were international interlocking partnerships. Thus, the Brown family was represented by Brown, Shipley & Company in Liverpool; Brown Brothers & Company in New York; Browns and Bowen in Philadelphia; and Alexander Brown & Sons in Baltimore. The Ogden New York connection was Ogden, Ferguson & Company; the Liverpool representative, Bolton, Ogden & Company.[53] The name and makeup of all these interlocking partnerships changed constantly over time. Even John Jacob Astor's American Fur Company, one of the few incorporated commercial enterprises, remained a partnership. Astor held the large majority of the shares in this company. His partners received payments from profits in accordance with the

number of shares held. The contractual arrangements between partners in incorporated companies were for a specific period of time, usually five years. In the case of the American Fur Company, the partners and shares held changed at each renewal. Except in forming enterprises that provided supplementary services requiring the pooling of capital (namely banks, insurance, turnpike, and canal companies), American merchants did not yet feel the need for a legal form that could give an enterprise limited liability, the possibility of eternal life, or the ability to issue securities. Even when an enterprise was incorporated it remained a small single-unit firm run in a highly personal manner. In the commercial capitalism of the 1840s, owners managed and managers owned their enterprises.

Not even in New York City, which by 1840 was one of the most active commercial centers in the world, was the press of business enough to cause a merchant to delegate any of his tasks. J. A. Scoville, a New York merchant and chronicler of his class, indicates the pace and nature of a merchant's activities by sketching a particularly busy day:

> To rise early in the morning, to get breakfast, to go down town to the counting house of the firm, to open and read letters—to go out and do some business, either at the Custom house, bank or elsewhere, until twelve, then to take a lunch and a glass of wine at Delmonico's; or a few raw oysters at Downing's; to sign checks and attend to the finances until half past one; to go on change; to return to the counting house, and remain until time to go to dinner, and in the old time, when such things as "packet nights" existed, to stay down town until ten or eleven at night, and then go home and go to bed.[54]

Inside the counting house—the term first used by the Italians for a merchant's office—a business was carried on in much the same manner as it had been in fourteenth-century Venice or Florence. The staff included only a handful of male clerks.[55] There were two or three copiers, a bookkeeper, a cash keeper, and a confidential clerk who handled the business when the partners were not in the office. Often partners became responsible for handling one major function. At N. L. & G. Griswold, one of the most active of the older New York mercantile partnerships, one brother was responsible for the buying and shipping of goods, and the other took care of financial affairs. The organization and coordination of work in such an office could easily be arranged in a personal daily conversation.[56]

The partners' task was, of course, to initiate and carry out the commercial transactions involved in the buying, selling, and shipping of goods. Transactions with local businessmen were negotiated in the counting house or on the merchants' exchange, a building designated as a place to carry out such business dealings. For those carried out in distant commercial centers, partners had to rely on their correspondents, merchants with whom they contracted to do their work on a commission. If the partner-

ship still owned or chartered ships, its ship captains or supercargoes, who usually owned shares and were partners in the voyage or venture, handled the transactions. Although merchants wrote long and detailed letters of instruction to correspondents, captains, or supercargoes, they had little control over the actions and decisions of their agents in distant ports or on distant seas. Letters took weeks and sometimes months to reach their destinations. Only the man on the spot knew how to adjust to changing local market conditions. For these reasons the choice of agent had been for centuries one of the most important decisions a merchant had to make. Since loyalty and honesty were still more important than business acumen, even the more specialized merchants continued to prefer to have sons or sons-in-law, or men of long acquaintance, as partners or agents handling their business in a distant city.

The specialization of business in the early nineteenth century actually eased the merchant's tasks. He handled more transactions and dealt with more suppliers and customers than did the older general merchants, but the transactions were more of the same kind and with men in much the same business. Transactions became increasingly routinized and systematized. Information on a single trade in a few ports was easier to come by than that for many trades in many ports. Specialization in this way reduced transactions and information costs.

The function of a merchant's system of accounts was to record the transactions he carried out. The most advanced accounting methods in 1840 were still those of Italian double-entry bookkeeping—techniques which had changed little over five hundred years. The major difference between the accounting practices of colonial merchants and those of the more specialized mercantile firms of the nineteenth century was that the larger number of transactions handled by the latter caused them to keep their books in more meticulous manner.

There were still three standard accounting books used.[57] Actual transactions were recorded in the day, work, or waste book at the time that they were made. At the end of each month these figures were transferred to the journal where accounts for sums paid out or goods sold were credited and the goods and monies received were debited. This chronological record of transactions was, in turn, transferred to appropriate accounts in the ledger including those for "adventures" or voyages, for "vessels," for "commodities," as well as those for each individual or firm having transactions with the enterprise. Often, too, there were "merchandise" accounts for miscellaneous items carried in smaller quantities as well as pages for "notes receivable," "notes payable," and "commission sales." Under the normal accounting practices of the day, the partners' household effects and property were also included in the list of assets.[58] The ledger was generally "balanced" by "being closed to profit and loss" at the end of

each year. Such closings were often made at the end of a voyage or planting season, or when a partnership was being dissolved. The resulting profit was then listed for each partner in proportion to his share in the business.

Accounts of the traditional enterprise provided a historical record of financial transactions, together with information essential for orderly housekeeping routine. As stated in one of the most widely used late-eighteenth-century texts on accounting: "A merchant . . . ought to know, by inspecting books, to whom he owes, and who owes him, what goods he purchased; what he has disposed of, with the gain or loss upon the sale, and what ready money he has by him; what his stock was at first; what alterations and changes it has suffered since, and what it now amounts to."[59] If he were acting as a factor or an agent, his accounts for his principal should show: "What commissions he has received, how he has disposed of them, what returns he has made, what of his employer's goods are yet in his hands, or in the hands of debtors."

By checking his accounts a merchant knew his operating income and outgo and the working capital he had on hand, but he would have found it difficult to calculate his net gain or loss. From the special "venture," commodities, and ship accounts, he could determine the outcome of single ventures, ships, or commodities, but only by utilizing information from a number of interrelated accounts. The Olivers of Baltimore, for example, followed standard practice when they listed the value of cargo, insurance, and loading expense in the venture accounts, and the cost of a ship and its outfitting and insurance under a separate account.[60] Their commodity accounts listed price received and paid, but often included certain expenses as well. All three accounts—venture, vessel, and commodity—were closed separately to profit and loss. These merchants made no attempt to determine the precise cost, say, of shipping coffee from a given Latin American port to Baltimore. Not surprisingly, then, early and even mid-nineteenth-century texts on accounting said practically nothing about cost accounting or capital accounting, but concentrated almost wholly on the proper way to record financial transactions.[61]

One reason merchants made so little effort to analyze their costs was because such information could have little effect on their business decisions. Since commodity prices fluctuated, a look at the past year's records could tell little about next year's gains. Prices were set by current supply and demand. Markets could be quickly glutted, and sources of supplies and commodities just as quickly depleted. The business information the merchants wanted came from external sources not internal records. To quote Stuart Bruchey: "Experience was of far lesser importance than fresh news."[62]

In the early nineteenth century, therefore, businessmen were more inno-

New York they were at the start agents of British textile firms who came to sell cloth and to make arrangements for obtaining raw cotton. They were soon joined by young men, many of them New Englanders, who began their business life in this trade. New Englanders also went to the south. There they and local merchants in the cotton ports and in the new towns in the interior—Columbia, Augusta, Macon, Montgomery, Jackson, and Natchez—became factors for planters who had recently cleared the land in the rich black belt of Alabama and Georgia and the bottom lands along the Mississippi River.

Although the distinction between commission and commercial houses is often not a clear one, the census figures suggest the importance of the commission business to the foreign trade.[15] In the census of 1840, 381 commission houses and only 24 commercial houses were listed as engaged in foreign trade in Louisiana where commodities completely dominated. For New York (where the commodity trades were major) the division was 1,044 commission houses and 469 commercial houses; in Boston (where such trades were of much less significance), there were 241 commercial houses and only 123 commission houses. By 1840, too, the older, less specialized houses had come to concentrate on cotton or some other commodity and to trade on commission.

The first man in the chain of the new middlemen from the planter to the manufacturer was the cotton factor.[16] He not only marketed the planter's crop, but also purchased his supplies and provided him with credit. Relations between the two were close and personal. In purchasing supplies, equipment, and household goods for the plantation, the factor purchased locally and normally traveled twice a year to buy in New York and other commercial centers of the northeast. In marketing the planter's crop in the impersonal international market, the factor sold directly to the agents of manufacturers or shipped on consignment to other middlemen in nearby river or coastal ports, or to others in New York and other coastal cities, and still others in Liverpool and continental ports. These middlemen, in turn, sold directly or on consignment to manufacturers in the United States as well as in Britain or often to yet another set of middlemen. In addition, the factor made arrangements for the transportation of the crop, the payment of insurance, storage, drayage, and, where necessary, the payment of duties, wharf fees, and the like. On all of these different transactions, he received a commission. And in the process both of buying and of selling, the factor usually made the credit arrangements.

The distribution system was also a credit network, with the credit based on the crop in transit. The cotton trade was financed largely by advances. Cotton moved in one direction and the advances against its shipment in

the other. On the American side, as Harold Woodman, the historian of the factor, has written: "Anyone with cotton on hand could easily get an advance from the merchant to whom he chose to consign it, be that merchant in the interior, in the port cities, or in the North, or in Europe." On the British side, a commission merchant in 1833 stated that it was virtually impossible to get goods on consignment without giving advances.[17] These advances were usually from two-thirds to three-fourths the value of the current crop. The providing of advances did, therefore, carry a certain risk, for if the price fell during transit, as it often did while the annual harvest was being completed, the house providing the advance might have to sell at a loss.

The credit system, a complex one, relied on traditional instruments: the promissory note and the bill of exchange. Planters, factors, or river or coastal port merchants were rarely paid in cash but in promissory notes or bills of exchange payable in 60, 90, or even 120 days at 7 or 8 percent interest. If the advance was given before the delivery of the crop, it was made in the form of a promissory note, which was often renewed if it became due before the actual sale was transacted. If the payment was made at the time of delivery, it was made in the form of a bill of exchange, drawn on the house providing the credit. Such transactions were further complicated by the need to convert pounds sterling into dollars. A simple sale, involving two middlemen, could give rise to as many as four different transactions and four different bills of exchange. Woodman provides a revealing example from the correspondence of William Johnson, a Mississippi planter, and his factor, Washington Jackson & Company of New Orleans:

> In the 1844–1845 season, Johnson had the New Orleans firm sell part of his cotton in Liverpool through Todd, Jackson and Company, the Liverpool branch of the firm. After shipping his cotton to New Orleans, Johnson drew on Washington Jackson and Company, thereby creating a domestic bill for discount. The New Orleans firm reimbursed itself for this advance by drawing on the Liverpool house after shipping the cotton there, thus creating a second bill for discount. When a sale was made in Liverpool, Todd, Jackson and Company sent a sterling bill for the proceeds over and above the advance drawn upon them. The New Orleans firm sold the sterling bill to a bank for local currency and then authorized Johnson to draw another bill to cover his returns over the advance he had drawn originally.[18]

It was in providing advances and in discounting bills of exchange that the older resident merchants came to play their most important role in the new cotton trade. Some, indeed, soon became specialists in finance. Those with the largest resources became, through the financing of the cotton trade, the most influential businessmen of the day. They were, for

the most part, British business houses in Liverpool and London. They stood at the end of the long chain of credit stretching from the banks of the Mississippi to Lombard Street.

In the major ports, the volume of trade was large enough to permit the rise of another type of specialized enterprise—the brokerage house. Not attached to any specific set of clients, it brought together buyers and sellers of cotton for a commission.[19] The basic distinction between the broker and the factor was that the former did not, as did the latter, buy or sell on his principal's account or, more precisely, did not make contracts in his own name that were binding on his principal. The broker's function was to help factors or other merchants or manufacturing agents obtain the cotton necessary to fill out a shipment or order and dispose of odd lots after the completion of a major transaction.

As the farming frontier moved west across the mountains into the Mississippi Valley, a somewhat different network evolved to move provisions (corn, pork, and whiskey), some cotton, and then wheat and other grains from the west to the south and east. Where the soil was tilled by many small farmers rather than a few large planters, the country storekeeper took the place of the plantation factor as the first businessman on the chain of middlemen from the interior to the seaport.[20] These storekeepers, the economic descendants of the pre-Revolutionary Scottish factors in Virginia and of the storekeepers scattered in the interior of colonial Pennsylvania and New England, marketed and purchased for the farmer much as the factors did for the planters. They differed from the factors, however, in that they bought and sold primarily on their own account.

In the early years of western settlement the outgoing crops and the incoming goods moved along different routes. Tobacco, hemp, lead, and produce went down the river to and through New Orleans to the east and the finished goods came westward across the mountains to Pittsburgh and then down the Ohio. Storekeepers, and at first even farmers, accompanied their crops south. In a short time, however, they made arrangements with commission merchants in New Orleans and other river ports —Cincinnati, Louisville, St. Louis, Memphis, and Nashville—to receive their crops and sell them, or to forward them to other merchants, to provide advances, and to send payments.[21] The storekeepers, like the plantation cotton factors, went east normally twice a year to purchase their stocks of finished goods, coffee, tea, sugar, and other staples. There they had to work out complex arrangements for the transportation of their goods west and for their warehousing, drayage, and loading at the different transshipment points along the way. The western storekeepers were

soon relying on credit more from the eastern wholesalers from whom they purchased their supplies than from the commission houses through which they sold their produce.

With the opening of the Erie Canal in the mid-1820s and the completion of the Ohio and Pennsylvania canal systems in the next decade, a new trade sprang up, creating still another string of middlemen to handle the transactions and transshipments involved in moving the crops. Prior to 1830, little wheat had been raised in the Mississippi Valley. Tobacco, hemp, provisions, horses, and mules, rather than wheat and flour, were the region's major exports. Then, since the canal provided a shorter route through a cooler part of the country (wheat and flour sent via New Orleans often rotted or soured), production expanded. In 1839 Cleveland received 2.8 million bushels of wheat and flour, or 87 percent more than New Orleans.[22] In the same year, New York received three times as much wheat as New Orleans.

The pattern of specialization in the grain trade followed that of the provisions and cotton trades, yet because of its smaller volume before 1840, it was less systematized and specialized than that of cotton. Cleveland, Buffalo, and other lake ports, including the new village of Chicago, became transshipping centers similar to New Orleans and the other cotton ports. As in the cotton trade, advances and the discounting of notes on goods in transit came to play critical roles in financing the movement of crops. Western millers, storekeepers, local merchants who built warehouses, and occasionally the farmers themselves consigned their grain or flour to commission houses and more specialized freight forwarders in the lake ports, particularly Buffalo. In return they received advances which they usually discounted for cash. The Buffalo merchants, in turn, sent grain to the millers of Rochester, or grain or flour to New York merchants—such as Eli Hart & Company; Suydam, Sage & Company; or Chouteau, Merle & Standford—who had previously provided advances. Whenever the final purchase was not designated, the shipment was sent on to a commission house or appointed agent in the east for final sale.[23] That agent might ship it on consignment to a commission house in Liverpool or Rio de Janeiro for sale on the foreign market. These merchants shipping overseas obtained funds for advances from international merchant banking houses such as the Barings. The grain trade differed from the cotton trade, however, in that it marketed primarily in the United States and therefore was financed by American rather than British capital. Moreover, the trade had hardly been fully established before it was radically transformed in the 1850s by the coming of the railroad and the telegraph. The cotton trade, on the other hand, continued to operate relatively unchanged for several decades.

The rise of specialized commercial enterprise to handle the flow of agricultural products out of the interior to the east and Europe was paralleled by a comparable specialization of enterprise to bring finished goods and staples into the coastal ports and thence to the interior. After 1815, imports of manufactured products—dry goods, metals, hardware, and drugs—grew to an impressive volume. The expanding economy also increased the demand for coffee, tea, sugar, and molasses, products that grew in tropical or semitropical countries, and wines and spirits that were produced in Europe.[24] Before 1815 many of the commission houses which exported cotton also imported a wide variety of goods from Europe and the West Indies. But as the new patterns of trade evolved, they tended to concentrate on cotton exports and a smaller variety of more specialized imports.[25] In importing standardized goods, they increasingly gave way to the specialized importer who purchased directly in Europe and sold to local manufacturers, retailers, and wholesalers. Importers differed from exporters, since they often took title to goods, rather than selling them on consignment or commission.

The experience of Nathan Trotter of Philadelphia provides a good example of the new specialized importer.[26] When Trotter joined a family partnership in 1802, the firm was still importing and exporting a wide variety of goods. During the Napoleonic Wars the partnership concentrated on importing from Europe dry goods, felt, leather, and metals, much of which was reshipped and sold to the West Indies and Latin America. The firm also shipped sugar, molasses, rum, and coffee to the United States and to Europe. Then, in 1816, when Nathan Trotter took over the firm, he began to concentrate on importing a single line of goods —iron, copper, and other metals. These he purchased directly in Britain and northern Europe. As domestic tariffs appeared, raising the price of metals, he began to buy in the United States. He sold some of the more finished goods to local retailers and jobbers. But the largest share of his trade went to traditional artisans (blacksmiths, tinsmiths, and coppersmiths), to artisans who were beginning to specialize in making a single line of goods (stoves, grates, furnaces, lamps, gas fixtures, and steam engines), and to new types of craftsmen (roofers and plumbers). Elsewhere in the metals trade, Trotter's story was paralleled by that of Anson G. Phelps, James Boorman, and Joseph Johnson in New York, and David Reeves and Alfred Hunt in Philadelphia.[27]

In the years after 1815 a new type of specialized middleman appeared in the eastern seaports. This was the jobber who, unlike the importer, purchased at home and who, more than the importer, sold his goods to plantation factors and storekeepers from the south and west. Jobbers were, in the words of an 1829 report of the New York state legislature,

"an intermediate grade of merchants, between the wholesale and importing merchants and the retail shopkeepers."[28] They "purchased largely at auctions, at package sales, or wholesale importers, and in other such ways that they can obtain merchandise in reasonable ways." They then broke down large lots into smaller more varied ones, to meet the needs of local retailers and of country storekeepers and plantation factors who made semiannual purchases in their shops.

As the quotation suggests, the rise of the jobber was closely related to the use of auctions in the marketing of imported goods.[29] Auctioning began on a large scale when the British dumped their textiles in New York and, to a lesser extent, other ports upon the reopening of transatlantic trade at the end of the War of 1812. In Philadelphia and Boston established merchants were able to restrict the use of auctions by means of local and state ordinances. In New York similar attempts failed. The extensive use of auctions during the 1820s helped to make New York a mecca for the country trade and brought a concentration of jobbers to that city. Although used primarily in the marketing of textiles, auctions became employed in the other basic trades as well. During the decade 1821–1830 auction sales in New York City amounted to $160 million or 40 percent of the value of that port's total imports and one-fifth of the value of the entire nation's imports. In 1820, for example, out of a total of $10.4 million worth of goods sold at auction in New York, $7.0 million were textiles ($0.7 million of which were American made); $1.9 million groceries, hardware, and drugs; $1.0 million teas, silks, and chinaware from distant seas; and $0.4 million wines and spirits largely from Europe.[30] In the 1830s and 1840s jobbers began to rely less on auctions and began to purchase more directly from agents of manufacturers, at first buying from domestic and then foreign producers.

A check of city directories emphasizes how predominant specialized business enterprise had become by the 1840s in the marketing and distributing of goods in the eastern ports. It also shows in which trades the jobber had become most influential. For example, *Dogget's Directory for New York City in 1846* indicates that the number of specialized business enterprises was highest in dry goods and groceries, with 318 establishments in the first and 221 in the second. China, glass, and earthenware came next with 146, hardware with 91, drugs with 83, wines and spirits with 82, silks and fancy goods with 74, and watches with 40.[31] There were more jobbers than importers in dry goods, groceries, china, glass, and earthenware, and about the same number in drugs and wines and spirits. On the other hand, importers continued to dominate the hardware, fancy dry goods, and clothing trades. All 40 watch dealers were importers. A quick and relatively superficial check of directories in other cities indi-

cates that, until the 1850s, jobbers and importers—that is, wholesalers who took title to their goods instead of selling on commission—were concentrated in the eastern ports of New York, Philadelphia, and Baltimore.

In these many ways the specialized impersonalized world of the jobber, importer, factor, broker, and the commission agent of the river and port towns replaced the personal world of the colonial merchant. Cotton had paced the transformation. The massive exports of the new crop provided payments for greatly expanded imports of manufactured goods and of foods and beverages that could not be grown or produced in this country. The flows in and out of the nation and across the ocean came to be handled by a network of specialized middlemen. Nearly every plantation, farm, and village in the interior came to have direct commercial access to the growing cities of the east as well as to the manufacturing centers of Europe. The output of millions of acres moved every fall over thousands of miles of water. Dry goods from Manchester, hardware from Birmingham, iron from Sweden, the teas of China, and the coffees of Brazil were regularly shipped to towns and villages in a vast region which only a few years before was still wilderness.

This quickly created continental commercial network was coordinated almost entirely by market mechanisms. Goods produced for other than local consumption moved through the national and international economy by a series of market transactions and physical transshipments. The cotton, as it traveled from the plantation to the river ports (Memphis, Natchez, Huntsville, Montgomery, and Augusta), to the coastal ports (New Orleans, Mobile, Savannah, Charleston), to the northeastern ports (New York and Boston), to the continental ports (Liverpool, Le Havre, Hamburg), and finally to the cotton textile manufacturers in New England, old England, and the continent, required at the very least four transactions (between planter, factor, manufacturer's agent, and manufacturer), and often several more. And it passed through at least four transshipments and often several more. Provisions from the west moved south and east through a similar network. Grain from the northwest also went through a comparable number of transactions and transshipments as it traveled from the farmer to the country store, to the interior town, river, or lake port, to the eastern seaport, and then sometimes overseas. The flow of finished goods involved similar sets of buyers, sellers, and shippers in European cities, American seaports, and river towns. The granting of credit and the making of payments required a still different and even more complex set of transactions and flows.

In the agrarian economy of the first decades of the nineteenth century, the flow of goods was closely tied to the planting and harvesting of the crops. The merchants who carried out the commercial transactions and

made the arrangements to move the crops out and finished goods in did so in order to make a profit on each transaction or sale. The American economy of the 1840s provides a believable illustration of the working of the untrammeled market economy so eloquently described by Adam Smith.

Specialization in finance and transportation

The expansion of trade in the first decades of the nineteenth century caused business enterprises to specialize in the financing and transportation of goods as well as in their marketing and distribution. Specialization in finance and transportation, unlike that in distribution, led to an important institutional development: the growth of incorporated joint-stock companies. Merchants continued to use the partnership as the legal form for shipping and financing ventures, as they did for their trading firms. Only when they found it advantageous to pool large amounts of capital to improve financial and transportation services by setting up banks, turnpikes, and canals did they turn to the corporation. At first they looked on the corporation as the proper legal form for what they considered to be "private enterprise in the public interest."[32] They used it to provide essential specialized ancillary services to support their profit-making commercial activities. When the pooling of local capital in a corporation was not enough to provide these services, the merchants did not hesitate to seek funds from public sources.

Specialization in finance was a natural concomitant of specialization in other commercial activities. As trade expanded, the older resident general merchants often turned to finance. The alternative was to specialize in trade with more distant regions, particularly China, India, and the East Indies, where the low volume of trade and high value of goods made it possible to continue the old patterns of commerce. For some years after the War of 1812 the Perkinses, Forbeses, and Lees of Boston, and the Griswolds, Howlands, and Grinnells of New York continued to reap profits from these more exotic trades. For most general merchants the old ways were no longer rewarding. They suffered from the same experience as the Browns of Rhode Island. As James B. Hedges has recorded: "The story of the shipping interests of Brown and Ives from 1815 to 1838 is anti-climactic, a doleful story of gradual decline and decay."[33]

For many, the more profitable alternative was to concentrate on finance. John Jacob Astor, Nathaniel Prime, Stephen Girard, Samuel Ward, the Browns of Providence, and the Browns of Baltimore were resident general merchants whose business increasingly became that of granting credit to and discounting exchanges for other merchants.[34] Later,

even successful specialized merchants like Trotter carried on such banking activities. And by the 1820s younger men were entering business as specialized private bankers and brokers. Fitch & Company of New York, Thomas Biddle & Company of Philadelphia, and Oelrich & Lurman of Baltimore were from their beginnings specialized banking enterprises rather than general mercantile firms.

The most powerful financiers in the American economy after 1815 were, however, those same men who had once held the most influential partnerships in trade: moving cotton out of and, to a lesser extent, finished goods into the United States. These were the enterprises that provided the credit advances so essential to the financing of the cotton trade. As Britain was the center of finance and had greater capital resources, these firms were British rather than American. At first they were Liverpool enterprises, including such firms as Cropper, Benson & Company; Crowder, Clough & Company; Bolton Ogden & Company; and Rathbone & Company.[35] After 1820, leading London firms like Baring Brothers and the three W's (Thomas Wilson & Company, George Wildes & Company, and Thomas Wiggins & Company) entered the trade. The only American-based firm to become one of the leading Anglo-American merchant bankers was the Browns of Baltimore, and this firm's central partnership was housed in Liverpool.

With the merchants and merchant bankers financing interregional and international movements of trade, the incorporated bank served local needs. By pooling of local capital in state chartered banks, businessmen increased sources for long-term loans, based on mortgages, securities, and even personal promissory notes (if the latter had the additional signature of a co-maker). In the United States early commercial banks became, therefore, more providers of long and medium capital needs than sources of short-term commercial loans. As one British commentator noted in 1837 about American banks: "Their rule is our exception, our rule their exception. They prefer accommodation paper, resting on personal security and fixed wealth, to real bills of exchange, resting on wealth in transition from merchants and manufacturers to consumers."[36] In addition state chartered banks issued bank notes which became the standard circulating medium in the United States. This was because the United States government issued almost no paper money until 1862 and only a limited amount of coin and because bills of exchange were not as abundant as they were in Europe where they served as the basic medium of exchange. Banks provided other services. They were relatively safe places to deposit funds. Their stock could be purchased as an investment at a time when investment opportunities in other than land and nonliquid assets were limited. Finally, by incorporating a bank, local merchants were able to turn over

the day-to-day work in providing specialized financial services to a full-time salaried employee, who usually had the title of cashier.

The need for such services was strong enough to bring the incorporated bank quickly to all parts of the nation. The first was the Bank of North America in Philadelphia chartered in 1781. In 1790, six more banks were operating in the major American ports: New York, Philadelphia, Boston, Baltimore, and Charleston. In 1791, Congress approved Alexander Hamilton's proposal for a federally chartered bank with headquarters in Philadelphia and branches in the larger towns. The chartering of banks boomed in the 1790s and again after the charter of the First Bank of the United States expired in 1811. Between 1811 and 1815 the number increased from 88 to 206.[37] With the expansion of the economy after 1815, the number jumped again. In 1816 alone, 40 banks were chartered, and by 1820 there were 307. In the late 1820s and the early 1830s, a period during which the Second Bank of the United States was providing excellent services, the number leveled off. In those two decades, however, local banking business had expanded enough to encourage the opening of even more specialized financial institutions in the United States, including savings banks and trust companies.[38]

By 1830, the Second Bank of the United States was not only providing high quality local banking services but also operating on a national and indeed international scale. For a brief period it competed most successfully with the merchant bankers in the financing of the flow of domestic and international trade. It did so because it was the only commercial institution to have a number of branches—twenty-two located in all parts of the country by 1830. No other financial institution operated on this scale. Merchant bankers often had interlocking partnerships but these partnerships rarely operated in more than three commercial centers. Merchant bankers continued to handle their business in distant ports almost wholly through correspondents, other merchants who were paid by commission.

Nicholas Biddle, who became the Second Bank's president in 1823, fully appreciated the value of using its branches to finance American trade. He realized that the branches provided an administrative network that permitted the transfer of funds and credit throughout the country by means of a series of accounting transactions between branches controlled and supervised by the Philadelphia headquarters. He indicated how this was accomplished when he described the activities of the New Orleans branch to a congressional committee in 1832.

> The course of the western business is to send the produce to New Orleans, to draw bills on the proceeds, which bills are purchased at the various branches, and remitted to the branch at New Orleans. When the notes issued by the several

branches find their way in the course of trade to the Atlantic branches, the western branches pay the Atlantic branches by drafts on their funds accumulated at the branch at New Orleans, which pay the Atlantic branches by bills growing out of the purchases made in New Orleans on account of the northern merchants or manufacturers, thus completing the circle of operations. This explains the large amount of business done at that branch.[39]

Foreign exchanges were handled in much the same way. Payments made by the British and Europeans for American cotton and other commodities were deposited, normally with London merchant bankers, and became the source of funds and credit for American merchants purchasing goods abroad. The Second Bank is an early and highly successful example of the administrative coordination of monetary flows. Such coordination permitted Biddle to increase the bank's domestic exchange business from $1.8 million a month in 1823, to $5.02 million in 1828, and $22.6 million in 1832. At the same time, the bank came to dominate the nation's foreign exchange business.[40]

The Second Bank was, however, short-lived. Its concentrated economic power and its role as the federal government's banker made its activities and even its very existence a major political issue. In 1832, Andrew Jackson vetoed a bill to recharter the bank in 1836. The veto, which probably helped to re-elect Jackson to the presidency, assured the end of the Second Bank of the United States. After its demise in 1836, merchants, particularly the more specialized merchant bankers, continued to finance the long-distance trades. The state incorporated banks continued to serve local communities and domestic trade, increasing in number from 506 in 1834 to 901 in 1840. The Barings, the Browns, and a small number of lesser survivors handled the financing of a major portion of American imports and exports after the financial panics of 1837 and 1839 destroyed several of the British merchant banking houses, including the three W's.[41]

The history of insurance companies in the United States parallels closely that of the state incorporated banks. By pooling resources in an incorporated insurance company, resident merchants, importers, exporters, and a growing number of specialized shipping enterprises were able to get cheaper insurance rates. At the same time, salaried employees of the new insurance firms (appraisers and inspectors) could concentrate on the more technical and routine aspects of the business. Again, as in the case of banks, the insurance companies provided a source for long-term loans, primarily based on mortgages, and their stocks were held as investments. Their number grew quickly. The first American company to insure ships and their cargoes was incorporated in 1792. By 1800, there were twelve marine insurance companies in the United States and by 1807, forty.[42] As in the case of the banks, the numbers leveled off in the 1820s, with New

York supporting around twenty and other ports a somewhat smaller number. Nearly all these companies handled only the business of local shippers and ship owners. Fire insurance was slower in developing. Until the great New York fire of 1835, fire insurance was written on a small local scale, often by marine insurance companies. As for life insurance, scarcely a handful of firms operated in the United States before the mid-1840s, when the first mutual life insurance company was formed. Only after the country began to industrialize and urbanize rapidly did the issuing of life insurance become a significant business.

In the early years of the republic, merchants regarded transportation companies as they did financial institutions. They were primarily vehicles for providing services vital to the furtherance of their commercial activities. The incorporation of turnpike and canal companies made possible the pooling of capital required to improve overland rights of way. And when the capital pooled by incorporation was not enough to complete the new overland rights-of-way, American businessmen quickly turned to local, state, and national governments for the necessary funds. On the other hand, they rarely suggested that the government operate the common carriers that used the turnpikes and canals. These enterprises continued to be operated by individuals and partnerships but not by corporations.

In the colonial period, the only common carriers (that is, enterprises specializing wholly in transporting goods and passengers, with services available to any user) were a small number of ferries, stagecoaches, and wagon lines. The stagecoaches, carrying passengers and mail, but very little freight, ran on the most informal schedules. The wagon lines were even more unscheduled. Teamsters, usually located in country towns, picked up loads from storekeepers and brought them to the larger ports. There the teamsters waited until the city merchant had a return shipment to their home towns. This method continued to be used until the early 1830s even in Philadelphia, a city whose large hinterland was served by the best turnpike system in the nation.

As the roads were relatively few and travel over them a bone-shaking experience, most passengers and nearly all freight moved by water. The most impressive growth of common carriers came, therefore, in the development of shipping lines on waterways. During the colonial period, there were no common carriers on water routes except for an occasional ferry. Merchants who owned or who had shares in ships often "rented" space to other merchants. The former, however, were under no obligation to carry another merchant's goods and did so only when they themselves had no need of the space. Moreover, in the eighteenth century, ships did not follow any specific schedules or ply between two termini. They

normally moved between regions, such as between New England or the middle colonies and the West Indies or between these colonies and Great Britain or southern Europe. Within these areas the ships went from port to port as trading opportunities appeared.[43]

As the transatlantic trade expanded, ships became "regular traders" running between ports, say New York and Liverpool, or Philadelphia and London.[44] And as ships became regular traders, merchants began to meet their carrying needs by chartering rather than by building or purchasing vessels. They were soon relying on the services of a regular ship's agent or husband who owned and operated several vessels.[45] The ship's husband made arrangements with merchants, received and loaded cargoes, laid down the ship's route, and arranged for payment of customs and port duties. These services were developed so swiftly and so effectively for the cotton trade that by the 1820s the leading mercantile firms handling the flow of cotton to Liverpool owned no ships of their own.[46]

The step from the regular trader to the scheduled packet line came quickly. In January 1818, a small number of close associates in the cotton and textile trade who owned four regular traders decided to operate them between New York and Liverpool on a regular schedule departing on stated days and at stated times. This enterprise, the Black Ball Line, soon had its imitators. By 1822, two other packet lines were running between New York and Liverpool and the year before one had started between Philadelphia and that British port. Within a short time, sailing packet lines appeared on coastal routes south from New York and Philadelphia, to Charleston, Savannah, Mobile, and New Orleans, and north to the New England ports. The merchants who started these lines soon became shipping specialists, or else they sold their interest in the lines to specialists who owned and operated these sailing ships.

Steamships were not used on the high seas until the 1840s. On rivers, lakes, and bays they ran from the beginning on regular routes and, when carrying passengers, on some sort of schedule, although unscheduled tramps became common on the Mississippi.[47] Because the steamboat was a new and patented invention, the early lines were less the promotions of merchants and more those of inventors and their financial backers. The country's first steamboat line was set up by inventor Robert Fulton and his financial supporter Robert Livingston after the successful trial run of the Clermont on the Hudson in 1807. For some years, the two were able to maintain a monopoly in New York, but they had no success in preventing competition on the western waters, where one of their boats made its first run from Pittsburgh to New Orleans in 1813.

After 1815, the number of steamboats on the western rivers grew swiftly, from fourteen (totaling 3,290 tons) in 1817 to sixty-nine (totaling

13,890 tons) just over three years later. Even before 1824, when the Supreme Court in the case of *Gibbons v. Ogden* brought to an end the Fulton-Livingston monopoly, steamboats had appeared on Long Island Sound and other eastern sounds, bays, and rivers and, to a lesser extent, on Lake Erie. After the court's decision, steamboat lines boomed in the east. One of the most aggressive operators was Cornelius Vanderbilt, who had been Gibbons' captain on a New York to New Brunswick line before and during the famous case. As canals came to be built in the 1820s and 1830s, similar canal boat lines, powered, of course, by horses and mules rather than by steam, came into being.

In building these canals, and the turnpikes as well, Americans increasingly relied on state funding.[48] The early turnpikes in New England and the middle states were built and maintained by private corporations. But those constructed somewhat later in the south and west, and also in Pennsylvania, were state funded and often state maintained projects. The few canals built before 1820—the Middlesex Canal connecting Boston and the Merrimack and the Blackstone connecting Providence and Worcester being the most important—were also privately financed and maintained. It was only after the completion in 1825 of New York's great Erie Canal connecting the eastern and western waters that canal construction became popular in the United States. Then the merchants of the other Atlantic ports began to insist on having their own connections with the west. In the west, businessmen wanted to connect the lakes with the Ohio and Mississippi rivers. Far too costly to be financed by local capital, even if pooled through incorporation, the new canal systems of Pennsylvania, Maryland, Virginia, and Ohio were financed almost wholly by the states and the port cities. Their operation then became managed by representatives of these political bodies. Only a government had the credit rating needed to raise the required funds; for their ability to pay interest on their bonds was based on the power to tax, as opposed to private corporations, which depended merely on anticipated profits from providing rights-of-way. The one significant exception to public construction was the system of canals built in eastern Pennsylvania to transport anthracite coal to the tidewater. However, the private corporations carrying out these projects were able to attract investors on the basis of the natural resources they controlled, rather than from expected toll profits.

Again except for the coal canals, the private corporations building and maintaining the canals and turnpikes rarely operated the transportation lines that used them. The states never did. The stage and wagon lines using the new turnpikes differed little from those of colonial days; and the canal boat lines ran in much the same fashion as did other shipping enterprises. Some held to schedules; others moved when they had full loads.

"uppers" and the fitting of the "uppers" to the soles. In carrying out this method of production, the merchant or artisan who owned the materials and was responsible for the sale of the finished goods kept the books. He debited the worker's account with the value of materials received and credited it with the pieces of finished goods returned at the agreed-upon price. The books show that the worker was often charged for the household supplies he needed, and then credited with farm produce, as well as for the completed shoes or cloth that he returned to the entrepreneur.[40]

These accounts were not used to control the worker's activities as they were in the eighteenth and early nineteenth centuries in Great Britain. There, according to Sidney Pollard, they were used as a "check on materials handed over to the outworkers, on rent on their equipment (if any), and on the workmanship of the finished goods handed back."[41] In the United States, the entrepreneur made few attempts to see if the materials he handed out were efficiently used. In fact, the shoemakers usually had enough leftover leather from their production to make and sell shoes for their own profit. Much the same was true of the cloth weavers.[42] An Englishman who visited Rhode Island in 1815 deplored the unsystematic nature of American methods. He urged that the distribution of yarn and the receiving of cloth be done on specific days, and that the use of weavers' tickets, so common in England, be adopted.[43] Instead, Americans often turned to the central shop where the work could be supervised by a single overseer. As the merchant who handled the yarn produced in Slater's mill wrote to a correspondent as early as 1809, "We have several hundred pieces now out weaving, but a hundred looms in families will not weave so much cloth as ten at least constantly employed under the immediate inspection of a workman."[44]

All in all, the domestic system of production, so important in the processing of goods in Europe, had little impact on the evolution of a business enterprise or its management in the United States. It did strengthen the tradition of paying by the piece, and the central shop in shoemaking and cloth weaving had some similarities to the factory. But since the entrepreneur who allotted the materials had little fixed capital to account for and no permanent work force to discipline and control, his business activities were much closer to those of a contemporary merchant than to those of a factory owner.

Before the 1840s the relative scarcity of labor and the continuing use of traditional technologies thus sharply limited the amount an enterprise was able to produce and the size to which it might grow. Before that decade very few enterprises in either production or distribution had acquired an internal organization as complex as a single operating unit of the many that make up a modern business enterprise. Only the southern

plantations and the northern textile and gunmaking factories had managerial needs at all comparable to those of a single unit at the lowest level of modern management (see figure 1 in the Introduction). The plantations, which were able to enlarge their output by employing slaves, represented an ancient form of production. The textile factories, which expanded their output by developing the technology to harness power from large rivers, and the gun factories, whose guaranteed markets permitted them to pay the costs of traditional technology, were the pioneers of a basic new form of production. The plantations and early textile and arms factories in the United States were as large and as complex to manage as all but the biggest agricultural and industrial enterprises in Europe. An analysis of their operation indicates the nature of management in the largest private businesses at home or abroad before the coming of the railroads. This analysis emphasizes the limited managerial experience on which the later builders of modern business enterprise could draw.

The plantation—an ancient form of large-scale production

Until the nineteenth century, in both the United States and Europe there were many more large-scale enterprises in agriculture than in industry. In Europe the large landed estates with their salaried land agents or managers had some influence on the evolution of industrial management.[45] In the United States this was not the case.

One reason may have been that the great majority of southern planters directly managed the property they owned. They were not absentee landlords, as was so often the case in Europe.[46] They hired overseers to assist them and not, as did many Europeans, to replace them in managing their estates. And as Robert Fogel and Stanley Engerman have argued, many owners of large plantations did not employ a resident salaried overseer.[47]

The managerial tasks of the planter were not complex. Close supervision of the work force was necessary only during the planting, initial cultivation, and harvesting. Between December and March, before the planting, and in the summer when the crops were maturing, planters often left the plantation in charge of trusted slaves. In fact the social seasons in southern towns were arranged with this calendar in mind.

Moreover, the plantation work force was small by modern standards. Indeed, it was smaller than in contemporary New England textile mills. As late as 1850 the census reported that only 1,479 plantations had more than 100 slaves. Of these, 187 had more than 200, 56 more than 300, 9 more than 500, and 2 more than 1,000.[48] Normally a third of the slaves on a plantation were either children under ten years of age or too old for

regular field work; a few did only housework. Therefore, less than a dozen plantations in the south in 1850 had a work force of 300 full-time field hands, in other words, a work force comparable in size to that of the first integrated textile mill in New England. And few had capital assets (excluding the value of slaves) of $300,000, the capitalization of the Boston Manufacturing Company when it began production in 1815.

Nevertheless, as the first salaried manager in the country, the plantation overseer was an important person in American economic history. The size of this group (in 1850 overseers numbered 18,859) indicates that many planters did feel they needed full-time assistance to carry out their managerial function.[49] Where they did not have white overseers, many may have relied on black "drivers" to carry out these tasks. Such tasks remained almost wholly the supervision of workers. The overseer rarely handled money or accounts and had little acquaintance with complex machinery. The written rules that the planters issued to the overseers "for the governance of a plantation" dealt almost wholly with the handling of slaves and the working of crops. Even though plantations usually had a mill or gin on them, for use in the first step of processing the crop, the instructions say little about machine maintenance. These rules called for, as William K. Scarborough has written, "firm discipline, tempered with kindness, and a uniform, impartially administered system of justice."[50] The overseer was expected to know the strengths and weaknesses of his foremen, or "drivers," and even of many of the field hands themselves.

The organization of the work force that planters and overseers supervised followed a traditional pattern. On the older tobacco and sugar plantations and the newer cotton ones, the slaves worked in gangs led by a "driver."[51] Each gang was assigned an allotted task to be completed during a day or even a week, and particularly during planting the work of these gangs was carefully coordinated. In rice growing and often in the harvesting of cotton, where teamwork and coordination were less necessary, the planters used the "task system," under which each hand was assigned a daily task and could leave the field when it was completed. Whether done by piece (task) or by day (gang), the sowing, tending, and harvesting of crops followed time-tested procedures. Only at those critical periods of planting and harvesting, or when a storm or flood endangered the crops, did the work of the planter, the overseer, and the drivers become more than routine.

Neither the overseer nor the planter himself kept detailed financial accounts. They maintained a "plantation book" that recorded births, deaths, and as one guide for overseers put it: "the daily picking of each hand; the mark, number, and weight of each bale of cotton, and the time of sending the same to market; and all other such occurrences, relating to

ship still owned or chartered ships, its ship captains or supercargoes, who usually owned shares and were partners in the voyage or venture, handled the transactions. Although merchants wrote long and detailed letters of instruction to correspondents, captains, or supercargoes, they had little control over the actions and decisions of their agents in distant ports or on distant seas. Letters took weeks and sometimes months to reach their destinations. Only the man on the spot knew how to adjust to changing local market conditions. For these reasons the choice of agent had been for centuries one of the most important decisions a merchant had to make. Since loyalty and honesty were still more important than business acumen, even the more specialized merchants continued to prefer to have sons or sons-in-law, or men of long acquaintance, as partners or agents handling their business in a distant city.

The specialization of business in the early nineteenth century actually eased the merchant's tasks. He handled more transactions and dealt with more suppliers and customers than did the older general merchants, but the transactions were more of the same kind and with men in much the same business. Transactions became increasingly routinized and systematized. Information on a single trade in a few ports was easier to come by than that for many trades in many ports. Specialization in this way reduced transactions and information costs.

The function of a merchant's system of accounts was to record the transactions he carried out. The most advanced accounting methods in 1840 were still those of Italian double-entry bookkeeping—techniques which had changed little over five hundred years. The major difference between the accounting practices of colonial merchants and those of the more specialized mercantile firms of the nineteenth century was that the larger number of transactions handled by the latter caused them to keep their books in more meticulous manner.

There were still three standard accounting books used.[57] Actual transactions were recorded in the day, work, or waste book at the time that they were made. At the end of each month these figures were transferred to the journal where accounts for sums paid out or goods sold were credited and the goods and monies received were debited. This chronological record of transactions was, in turn, transferred to appropriate accounts in the ledger including those for "adventures" or voyages, for "vessels," for "commodities," as well as those for each individual or firm having transactions with the enterprise. Often, too, there were "merchandise" accounts for miscellaneous items carried in smaller quantities as well as pages for "notes receivable," "notes payable," and "commission sales." Under the normal accounting practices of the day, the partners' household effects and property were also included in the list of assets.[58] The ledger was generally "balanced" by "being closed to profit and loss" at the end of

each year. Such closings were often made at the end of a voyage or planting season, or when a partnership was being dissolved. The resulting profit was then listed for each partner in proportion to his share in the business.

Accounts of the traditional enterprise provided a historical record of financial transactions, together with information essential for orderly housekeeping routine. As stated in one of the most widely used late-eighteenth-century texts on accounting: "A merchant . . . ought to know, by inspecting books, to whom he owes, and who owes him, what goods he purchased; what he has disposed of, with the gain or loss upon the sale, and what ready money he has by him; what his stock was at first; what alterations and changes it has suffered since, and what it now amounts to."[59] If he were acting as a factor or an agent, his accounts for his principal should show: "What commissions he has received, how he has disposed of them, what returns he has made, what of his employer's goods are yet in his hands, or in the hands of debtors."

By checking his accounts a merchant knew his operating income and outgo and the working capital he had on hand, but he would have found it difficult to calculate his net gain or loss. From the special "venture," commodities, and ship accounts, he could determine the outcome of single ventures, ships, or commodities, but only by utilizing information from a number of interrelated accounts. The Olivers of Baltimore, for example, followed standard practice when they listed the value of cargo, insurance, and loading expense in the venture accounts, and the cost of a ship and its outfitting and insurance under a separate account.[60] Their commodity accounts listed price received and paid, but often included certain expenses as well. All three accounts—venture, vessel, and commodity—were closed separately to profit and loss. These merchants made no attempt to determine the precise cost, say, of shipping coffee from a given Latin American port to Baltimore. Not surprisingly, then, early and even mid-nineteenth-century texts on accounting said practically nothing about cost accounting or capital accounting, but concentrated almost wholly on the proper way to record financial transactions.[61]

One reason merchants made so little effort to analyze their costs was because such information could have little effect on their business decisions. Since commodity prices fluctuated, a look at the past year's records could tell little about next year's gains. Prices were set by current supply and demand. Markets could be quickly glutted, and sources of supplies and commodities just as quickly depleted. The business information the merchants wanted came from external sources not internal records. To quote Stuart Bruchey: "Experience was of far lesser importance than fresh news."[62]

In the early nineteenth century, therefore, businessmen were more inno-

vative in reducing information and transactions costs than in refining traditional accounting practices or developing new ones.[63] The existing exchanges in the older commercial cities set up rules and regulations to further routinize transactions. The merchants in the new centers organized their exchanges along the same lines as earlier American exchanges, which were patterned after those set up in Holland and Britain centuries earlier. The demand for fresh news contributed to the success of the packet lines. It caused merchants to press for faster mail service which was steadily improved after reforms in the postal system in the Jacksonian administration.[64] In the 1830s, too, shipping and mercantile firms built private semaphore systems at various landfalls for relaying messages from incoming ships to counting houses in the port cities.

This mercantile demand for quicker, cheaper information was reflected in the nature of American newspapers.[65] Until 1815 the small number of newspapers had been more political than commercial organs. Then as they grew in number they began to devote an increasing amount of space to commercial news. Besides listing ship arrivals, departures, sales, auctions, and prices, they also included advertisements of merchants, giving types, amounts, and prices of goods for sale. The very names of the papers indicate what had become their primary function: *The Commercial Advertiser*, *The Mercantile Advertiser*, and *The Journal of Commerce* in New York City; the *Daily Advertiser* and *Commercial Gazette* in Boston; the *North American Advertiser* and the *Commercial and Maritime Register* in Philadelphia. By the 1830s, *Prices Current* and *Shipping Lists* were published in those three cities as well as in Baltimore and New Orleans. Similar to those first printed in Amsterdam in the early sixteenth century, the papers gave prices of a wide variety of goods and commodities and listed the shipping movements in local ports.

By adopting and perfecting long-established business institutions and procedures, American merchants lowered transactions and information costs and further reduced the cost of distributing goods in the United States. Improved market mechanisms permitted "the invisible hand" of market forces to coordinate and monitor more effectively the flow of goods through the economy. American merchants, however, felt no need to alter the ancient ways of doing business.

Managing the specialized enterprise in finance and transportation

In managing the specialized enterprise in transportation and finance, American businessmen were somewhat more innovative, although their practices did not differ greatly from those of their British and Dutch

predecessors. In the operation of private banking firms and shipping lines, they continued to use the partnership form and the same types of internal record keeping used in mercantile firms. Even more than the British, however, they made use of incorporated joint-stock companies to organize and operate enterprises calling for a pooling of capital. In these firms one or two full-time salaried managers, rather than the owners, came to administer the enterprise.

In incorporated banks, the cashier and sometimes the president was a full-time executive. From the start he was responsible for the routine activities involved—handling withdrawals, paying and receiving interest, and redeeming notes and loans. At first the board of directors, consisting of local merchants and manufacturers, made decisions, in consultation with the cashier, on those matters which required business judgment and discretion. These included making loans on mortgages and other securities or even discounting bills of exchange based on goods in transit.[66] Because board members were busy with their own affairs, these decisions were soon turned over to committees of the board which met weekly or often only once a month. Normally such committees were established to review discounts, exchange, and dividends. It was not long before the full-time cashier or president took over the making of loans, dividends, and the like, with the committees becoming little more than ratifying bodies.

Because bank cashiers and presidents were responsible for other peoples' money, they had to have a more accurate and continuing current view of their enterprise's financial situation than did the merchants themselves. Traditional double-entry bookkeeping, however, proved quite satisfactory in recording their banking transactions.[67] The journal provided a chronological record of all daily transactions. The ledger listed the separate accounts of individuals dealing with the bank and, in addition, had separate accounts for deposits, withdrawals, discounts, loans, bills in circulation, bills of other banks held, amounts deposited in other banks, capital stock paid in, specie and other reserves, cash on hand, profit and loss, and dividends. Instead of annual balances the banks made monthly ones. By the first years of the nineteenth century, monthly balances were already being summarized in tabular form. The systematic tabulation and review of the accounts of banks were further encouraged by state legislation. Massachusetts, for example, as early as 1792, required its banks to make semiannual reports to its governor and Council of the Commonwealth. In 1806, the legislature called for monthly reports.[68] Yet, while the banks kept a close watch on their general accounts, they did not seem to use this information in making policy decisions such as increasing or decreasing specie or other reserves, expanding or contracting notes, or even changing the mix between mortgage and commercial paper. These

decisions appeared to have been made almost entirely on evaluation of current business conditions and the personal knowledge of the borrowers and markets.

Much of what has been said about the management of banks before 1840 applies to insurance companies as well. They too, found double-entry bookkeeping quite adequate for their needs.[69] The day books, journals, and ledgers listed the individuals who paid premiums and received payments. In addition, they listed amounts invested or loaned out to firms, and the "disaster books" enumerated the details of each major casualty. Since a month-to-month knowledge of the company's financial situation was less important, and since states did not require monthly reports, these accounts were not summarized as regularly as those of banks.

As in the case of banks, insurance companies also were administered by salaried managers, usually a president, secretary, and inspector.[70] These men came to make important decisions even earlier than did bank cashiers, for the setting of insurance rates required specialized knowledge. To help provide such information, New York insurance firms in 1820 organized the first Board of Underwriters in the United States, which set rates for ships, cargoes, and even prospective freight earnings between New York and other ports throughout the world. Insurers in other cities soon had their Boards of Underwriters. In determining rates, these boards concentrated on obtaining, in Robert G. Albion's words, "the freshest information possible, since that was highly essential to the business." With such information, insurance executives were able to consider the age and condition of the ship, the reputation of the masters, and other factors in setting rates. Success in insurance depended even more than it did in banking on outside information rather than on accurate and detailed internal accounting.

Of all the financial institutions operating in the first half of the nineteenth century, the Second Bank of the United States was the most complex to administer. It involved the management of not one but many units. Its numerous branches made it the first prototype of modern business enterprise in American commerce. During the brief period when it played a dominant role in the financing of American long-distance trade, it carried on a huge volume of business for its day. In January 1832 the bank had loans outstanding on real estate and other personal securities at $49.7 million.[71] Its domestic exchange accounts amounted that month to $16.7 million. In addition, it held $2.1 million worth of real estate acquired from foreclosed mortgages. In January 1833 its *monthly* profit on loan and domestic exchange reached $1.8 million. It did more business in a month than leading mercantile houses did in a year. For example, the consolidated profits of the five senior partners in the several interlocking

units of the house of Brown, the largest American mercantile house, were for 1831 and 1832, $391,465 and $393,541.

Nevertheless, a very small number of men had little difficulty in managing this high volume of business. The Second Bank's president, Nicholas Biddle, had only two assistants.[72] One reviewed and coordinated the bank's exchange business, the other was responsible for suspended and other unpaid debts, and for the bank's real estate holdings of foreclosed mortgages. Biddle and these two salaried managers supervised the work of the cashiers of the twenty-two branches. These cashiers were salaried managers who were selected by and were subject to dismissal by Biddle. The tiny headquarters staff reviewed the detailed weekly statements sent in by the cashiers, made regular inspection trips, and took action on the evaluation of the information they received. Biddle, after consulting with his assistants, met with his board of directors to set up general policies for the bank as a whole. He did not, however, have comparable contact with local boards of directors who worked with the local cashiers in managing their branches. These autonomous local boards could and often did act on their own. The volume of business carried on by the biggest and most powerful financial institution of the day was not yet large enough to require the creation of a managerial hierarchy.

Nor was this the case in transportation. As has been emphasized, two types of transportation enterprises appeared in the early nineteenth century: common carriers that moved goods and packages, and turnpike and canal companies that built and maintained rights-of-way. The first were operated by partnerships; the second by a corporation or by the state. Until the 1840s, the investment in sailing ships, steamboats, canal boats, stagecoaches, and wagons remained small enough to be easily funded by a small number of partners. On the Mississippi and on other western waters, Louis Hunter has pointed out, "the construction costs of a single mile of a well-built railroad was enough to pay for a new and fully equipped steamboat of average size."[73] By 1840 the normal Mississippi steamboat cost about $30,000 and the largest, most elaborate ones ran as high as $60,000. The initial cost of steamboats on the Hudson River and Long Island Sound was about the same. The largest and best appointed vessels in Commodore Cornelius Vanderbilt's fleet ran about $60,000.[74] Crews on the river and sound steamboats included a captain and a mate (the only two supervisory personnel) and averaged just over twenty hands. Occasionally crews ran as high as fifty. Half of these were involved in serving passengers. The annual operating expenses of a Mississippi steamboat, Hunter estimates, were one and one-quarter to two times initial cost.[75] The initial costs of the fast and rugged packets, the most expensive of the sailing ships on the transatlantic run, were somewhat more than the

river and sound steamboats. Robert Albion estimates that the packet boats were built in the 1820s at about $30,000 apiece. In the 1830s they cost over $40,000 and approached $100,000 by the end of the 1840s.[76] The crews on the Atlantic sailing ships were larger and operating expenses were somewhat higher than those on the steamboats plying river and sound. The expenses of manning and operating freight barges and packet boats on the canals were, of course, much less. The most elaborate canal packet, fully furnished, cost $1,500. It was manned by a crew of seven and pulled by two horses.[77] Stagecoaches and wagons were even less expensive to build and operate.

Normally steamboats on rivers, lakes, bays, and sounds, the ocean-going sailing ships, and even the horse-drawn canal boats were owned by more than one individual. On the Mississippi in 1830 the majority of steamboats were owned by two to four businessmen (56.8 percent, while 18.9 percent were owned by single individuals and 24.3 percent had five or more owners).[78] The pattern was much the same in the coastal and transatlantic trades. The owners on river or ocean were normally merchants in river ports and seaports who benefited by having their carriers available. The ship's captain was usually one of the owners, so too was the line's business manager, and, in the case of tramps, the ship's husband.

Before the 1840s these transportation enterprises operated a relatively small number of ships or vehicles. Most freight-carrying sailing ships, steamboats, and even canal boats were tramps moving only when they had a load, but following fairly regular routes. The scheduled packet lines on all waterways were loosely organized affairs. On the Mississippi, boats participating in a shipping line were owned separately and, except for maintaining a schedule, were operated independently.[79] Even these schedules were subject to repeated changes. In the east, the Hudson River Steamboat Association, which Vanderbilt effectively challenged in the 1830s, was a similar organization. Few of these lines ever operated more than three or four ships on one route. Vanderbilt himself, who became one of the largest and most successful steamship operators in the country, rarely ran more than four ships at one time.[80] The transatlantic packet lines normally operated four ships, but some occasionally had as many as eight.[81]

On the canals, some freight forwarders owned fleets of a dozen or more boats. Rarely, however, were the total expenses of obtaining and operating such fleets as much as those of a single steamship or a mile of railroad.[82] Very few lines remained permanent enterprises, since partners changed and ships serviced different routes and trades. Traditional double-entry bookkeeping was adequate for their operating needs. Throughout the first half of the nineteenth century common carriers were operated by small

personal enterprises whose management was similar to that of other commercial firms.

On the other hand, a great deal more money and many more men were required to build and operate the overland rights-of-way—the turnpikes and the canals. Also, much more capital, professional skill, and specialized management were needed for the canals than for the turnpikes. On a canal a professional engineer had to lay out the route of a canal, estimate its cost, supervise construction, and, once built, repair and maintain the right-of-way. The engineer in charge of construction usually reported to a board of directors or a state canal commission. After he had located the route and estimated the cost, he normally continued to advise the board or the commission on the writing of contracts. He then kept his eye on the construction done by contractors who were hired by the corporation or the state.[83]

Before the 1840s turnpikes and canals, even the largest of them, were built by small contractors, who at first were local farmers, merchants, and even professional men. They built one or two short stretches of a project, using local labor.[84] Only on the Chesapeake and Ohio was imported labor used to any significant degree. By the mid-1830s some small contractors had become specialists, moving from place to place as new projects were undertaken. They ran their businesses much as did the merchants and shippers of the day. "Contractors often formed partnerships," the historian of the Ohio canal system has noted, "and one man might have different partners for each of several bids on various jobs."[85]

The operations of a turnpike or canal required a far smaller work force and far less working capital than did the construction. Toll keepers, lock tenders, and other operating employees were usually supervised directly by the corporate board or state commission; maintenance crews reported to a salaried manager, often a trained engineer, who was in turn responsible to the board or commission.[86]

The management of the nation's largest and one of the earliest canals, the Erie, set the pattern for others. A board of five canal commissioners appointed by and responsible to the New York state legislature administered the canal. Of these five, three were "acting commissioners" each with special responsibility for one of the canal's three geographical divisions. A fourth was the state comptroller, traditionally a leading politician who controlled and allocated state patronage. The fifth had no specific duties. The commissioners set tolls and regulations for boats and cargoes, hired employees, and were responsible for allocating funds for construction and repair. However, they left the financing of new construction and the handling of profits made by the enterprise to still another board, the commissioners of the canal fund, headed by the state comptroller. Until

1840, all employees, except those involved in maintenance and construction, reported to the comptroller. These toll collectors, inspectors of boats, weigh masters, and lock tenders were expected to keep the comptroller, in the words of the canal's most recent historian, Ronald E. Shaw, "informed of breaks in the canal, the progress of repairs, the balances of canal deposits in local banks, conflicts with local authorities, and infractions of the rules and penalties imposed."[87]

Employees must have reported to the comptroller on monies received and spent. The canal commissioners apparently did not develop any systematic reporting or auditing of accounts kept by the toll keepers and other employees. One commissioner angrily complained in 1833 to the comptroller that: "In the history of public expenditures I do not believe there is such an instance of want of system and accountability."[88] Nor were the relations between the operating employees and the repair crews clearly defined. One or two repair crews of from five to ten men working from a "State skow" reported to the acting commissioner responsible for their division. At the same time, the canal engineer and his subordinate resident engineers (there was one for each division) were responsible for major construction and repair.

The only significant administrative change on the Erie Canal came in 1841 when the comptroller—a post held by such eminent politicians as William L. Marcy, Silas Wright, and Azariah C. Flagg—was relieved of his supervisory duties. These were handed over to a Canal Department which consisted of a chief clerk and four assistants.[89] Even the members of this tiny group and the canal engineer and his three division engineers, who together formed the total managerial force of the canal, had little permanency. All jobs on the canal continued to be patronage at the disposal of the party in power. "Every shift in political power in the state," Shaw emphasizes, "brought new engineers, collectors, weigh masters, boat inspectors, superintendents, and lock tenders to the entire line of the canal."[90]

The management of the Pennsylvania and Ohio Canal systems, as well as Maryland's Chesapeake and Ohio, was similar to that of the Erie.[91] The commissioners in Pennsylvania were elected, those in Ohio and Maryland were appointed. On the Pennsylvania and the Ohio systems the operating employees (toll collectors, lock tenders, and so forth) and the maintenance staff were supervised by the acting commissioner in charge of one of the canal's three or four major geographical divisions. On the Chesapeake and Ohio all but the heads of the maintenance crews reported to the "superintendent" in charge of each geographical division. The maintenance crews reported directly to the commissioner. There appears to have been as little systematic reporting and auditing of accounts on

these canals as there were on the Erie. No large canal adopted a formal internal organizational structure, for the commissioners had little difficulty in maintaining personal contact with the very small number of managers involved in operating and maintaining the canal. And since all jobs on these canals were looked on, as they were on the Erie, as political patronage, no major state canal system developed a set of experienced workers, to say nothing of a cadre of career managers.

Yet neither a more efficient work force nor a larger and more effectively organized managerial staff would have increased the speed or enlarged the volume of goods transported through these canal systems. More systematic accounting and controls might have reduced operating and maintenance costs and, therefore, lowered tolls by a small amount. Such controls might have prevented some delays in the movement of goods. But the speed and size of canal boats were limited by the amount a team of draft animals could pull. Sustained speeds of four miles an hour were rare. Such low speeds required little careful scheduling and control. Moreover, the weather, droughts, freshets, and ice shut down parts or all of the canals far more often and for longer periods of time than any management error or dilatory work force. Careful internal organization, so absolutely essential for safety and efficiency in moving railroad traffic, was far less necessary in canal or water transportation.

Except in the financing of long-distance trade there was as little need and as few opportunities in banking as in transportation to depart from traditional methods. In funding those trades, the use of branches did provide for the internalizing of activities of several business units and the transactions between them. Only the Bank of the United States, however, with its unique federal charter and its special relationships with the federal government, had the facilities to coordinate administratively the high-volume flow of funds used to finance the movement of commodities and finished goods through the economy. Because this coordination involved accounting transactions on notes payable within two or four months, it was not affected by the slow and uncertain movement of mail that in the 1830s still required, at the very least, two weeks to go from Washington to New Orleans.[92] Even so such coordination was only possible by a national institution with massive financial resources. The largest of the newly specialized merchant banks did not yet find it necessary or profitable to set up branches manned by salaried employees. They continued to rely, as had mercantile enterprises for centuries, on interlocking partnerships and other merchants acting as their agents to handle their distant financial transactions. In these specialized ancillary transportation and financial enterprises, as well as in the increasingly specialized primary mercantile enterprises which distributed goods in America, there

was still no call to create anything comparable to the modern business enterprise with its many units and its hierarchy of managers.

Technological limits to institutional change in commerce

The specialization of enterprise in commerce, finance, and transportation is, then, the central theme of the institutional history of the American economy during the first half century after the ratification of the Constitution. Such specialization brought an end to the personal business world of the general merchant of the colonial era and replaced it with the increasingly impersonal world of the commission merchant. Although personal relations remained important in arranging specific shipments and sales and above all in the extension of credit, the importer, exporter, jobber, auctioneer, bank cashier, insurer, and broker dealt daily with buyers and sellers with whom he had little personal contact. Rarely did a merchant know both the producer and consumer at either end of the long chain of middlemen, transporters, and financiers who moved the goods through the economy.

The concomitant of such specialization was thus a reliance on impersonal market coordination. Between the 1790s and the 1840s the mechanisms for such coordination were steadily improved. As commercial centers grew in size, their businessmen set up exchanges similar to those in the larger coastal ports. Their newspapers were filled with commercial information. Their merchants were served by a growing number of specialized ancillary enterprises—banks, insurance companies, shipping lines, and freight forwarders. Specialization lowered information and transactions costs as well as the costs of financing and transporting the flow of goods through the American economy.

On the other hand, expansion and specialization in trade and commerce failed to bring institutional innovation.[93] Existing procedures and practices remained fully adequate for handling the activities within the commercial enterprises and the transactions between them. Even the most significant institutional development—the widespread use of the corporation to permit the pooling of capital in banks and insurance companies and in those constructing and operating transportation rights-of-way—did not lead to new ways of doing business between or within enterprises. These corporations came to be administered by one or two salaried managers, who stayed in close personal contact with representatives of the owners, or the state, or the boards of directors, or the commissioners.

Business enterprises remained small and personally managed because the volume of business handled by even the largest was not yet great

for a description and analysis of the institutional innovations generated by their operating requirements. Part II therefore focuses on how these new enterprises were financed, organized, and administered; how they competed with one another; and how and why they then enlarged their domains to become the largest business enterprises the world had ever seen.

Of the new forms of transportation the railroads were the most numerous, their activities the most complex, and their influence the most pervasive. They were the pioneers in the management of modern business enterprise. They therefore receive the most attention. Other new forms of transportation and communication—the steamship, the electric urban street railway, the telegraph, and the telephone—underwent comparable, if less dramatic, developments. By the early twentieth century modern business enterprise, with its large staff of salaried managers and its clear separation of ownership and control, completely dominated the American transportation and communications networks—networks that were so necessary for the coming of mass production and mass distribution and for the rise of modern business enterprise in other sectors of the economy.

CHAPTER 14

The Maturing of Modern Business Enterprise

By World War I, modern business enterprise had come of age. The giant transportation and communication systems were already a generation or more old. In those industries where the requirements of production and distribution encouraged the visible hand of management to replace existing market mechanisms, the new form of business organization was firmly established. In those industries where the technology did not lend itself to mass production and where distribution did not require specialized services, mass marketers, and increasingly mass retailers, coordinated the flows from suppliers to consumers. And although enterprises in mass marketing were still entrepreneurial, and those in transportation and communication still had boards of directors dominated by financiers, those industrials that had integrated production and distribution were becoming more and more managerial. Many had already acquired all the basic attributes of today's giant corporations.

The development of top management methods and procedures in the early managerial firms marked the culmination of an organizational revolution that had its beginnings in the 1850s with the railroads. The processes of production and distribution, the methods by which they were managed, the enterprises that administered them, and the resulting structure of industries and of the economy itself—all were, by World War I, much closer to the ways of the 1970s than they were to those of the 1850s or even of the 1870s. A businessman of today would find himself at home in the business world of 1910, but the business world of 1840 would be a strange, archaic, and arcane place. So, too, the American businessman of 1840 would find the environment of fifteenth-century Italy more familiar than that of his own nation seventy years later.

The history of the modern multiunit business enterprise after World

War I becomes an extension of the story already told here. It consists of refinements in existing processes and procedures, and the continuation of basic trends that appeared before 1917. This is not to say that these later developments were not complex, innovative, and significant.[1] But World War I marks the proper point for bringing to a close a detailed examination of the beginnings and early growth of modern business enterprise in the United States.

An analysis of three significant but quite different developments completes this history. First, the post-World War I economic recession revealed critical weaknesses that required adjustments in the organizational structures of large, integrated industrial enterprises. The resulting improvements made industrial enterprise more dynamic and spurred its continuing growth by permitting it to carry out more effectively the coordination of current flows and the allocation of resources for the future. Second, the needs of the new large industrial and marketing enterprises brought a professionalization of management in much the way comparable needs had done the same for the railroads during the 1880s and 1890s. Such professionalization encouraged the rapid spread of new administrative techniques, and helped managers to identify themselves as a distinct economic group. Finally, a description in capsule form of the growth of modern business enterprise from World War I to the present emphasizes how profoundly the operation of today's big businesses and today's economy were shaped by the institutional changes described in this history.

Perfecting the structure

The sharp recession following World War I had a shattering impact on many of the new industrial and marketing companies. The majority had been established after the depression of the 1890s. Most industrials that began before 1893, such as the meat packers and American Tobacco, were at the time of that depression still developing their operating procedures. The sudden and continuing drop in demand from the summer of 1920 until the spring of 1922 was, therefore, the first period of hard times that the modern business enterprise had to face. The recession dramatically indicated the need to be able to adjust flows readily to changes in demand. It also made clear, though in a less obvious manner, the failure of top managers to plan effectively. Senior executives, still deeply involved in day-to-day operations, had not foreseen or made plans to handle a slackening of demand.

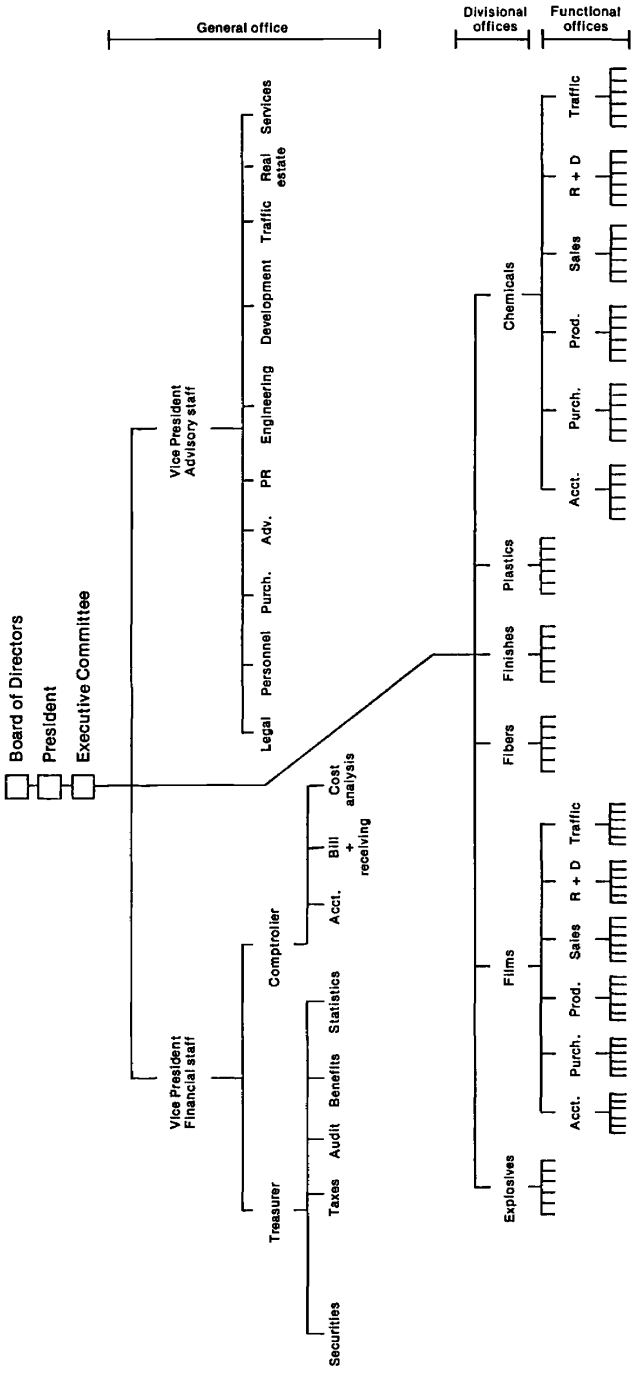
This slow-down in demand caught both mass marketers and large inte-

grated industrials by surprise. Even enterprises like the meat packers, who coordinated supply and demand by constant telegraph and telephone communication, had difficulties. Few adjusted their inventory quickly enough. Armour's losses in 1920 and 1921 forced J. Ogden Armour, the son of founder Philip D., to lose control of the family firm and to see it transformed from an entrepreneurial to a managerial enterprise.[2] The mass retailers, with their dependence on high stock-turn, had comparable problems. Sears Roebuck was saved from defaulting on payments to suppliers only when its president, Julius Rosenwald, drew on his family's personal fortune to cover these accounts.[3] The large integrated manufacturers and processors in chemical and mechanical industries, where a much longer period of time was required to get costly materials through the processes of production and distribution, had the greatest difficulty of all. Few could, as did Henry Ford, pass the burden of carrying unsold inventory on to their dealers. Ford was able to force his dealers to buy and pay for cars they could not sell by threatening to cancel their valuable franchises if they refused to comply.[4] Far more manufacturers had to follow General Motors' example and drastically write down the value of their overstocked inventory. At General Motors these inventory write-downs in 1921 and 1922 amounted to over $83 million.

General Motors and Sears Roebuck, as well as Du Pont, General Electric, United States Rubber, and other large enterprises, responded to the inventory crisis of 1920–1921 by developing techniques that set and adjusted their flows to carefully forecasted future demand. At General Motors and Du Pont the reorganizers went further. They created what has become known as the multidivisional structure (figure 12). In this type of structure, autonomous divisions continued to integrate production and distribution by coordinating flows from suppliers to consumers in different, clearly defined markets. The divisions, headed by middle managers, administered their functional activities through departments organized along the lines of those at General Electric and Du Pont. A general office of top managers, assisted by large financial and administrative staffs, supervised these multifunctional divisions. The general office monitored the divisions to be sure that their flows were tuned to fluctuations in demand and that they had comparable policies in personnel, research, purchasing, and other functional activities. The top managers also evaluated the financial and market performance of the divisions. Most important of all, they concentrated on planning and allocating resources.

Of the organizational innovations developed at General Motors and Du Pont, those at General Motors are the more illustrative. In automobile production the need to calibrate flows to changing demand was even more pressing and complex than it was in chemicals. At General Motors the

Figure 12. The multidivisional structure: manufacturing



Source: First prepared by the author for "The United States: The Evolution of Enterprise," *Cambridge Economic History*, vol. 7 (Cambridge, Eng., 1977).

general office had to be built from scratch. As many of the reorganizers at General Motors came from Du Pont, the General Motors story also indicates how organizational techniques were transferred from one industry to another and adjusted to meet somewhat differing needs. Moreover, because the executives at General Motors described their achievements in the new management journals, theirs became the standard model on which other enterprises later shaped their organizational structures. For these reasons the history of the post-World War I reorganization at General Motors provides an appropriate final case study in this history of the rise of modern business enterprise in the United States.

The recession of 1920–1921 transformed General Motors from an entrepreneurial to a managerial enterprise.[5] William C. Durant, an entrepreneur of imperial ambitions who formed the company in 1908, had little interest in the processes and needs of management. A prominent carriage maker in Flint, Michigan, Durant had taken over the Buick Motor Company in 1904. By 1908 its production of over 8,000 vehicles made it the largest automobile company in the country. In this expansion Durant's greatest contribution was, according to an early historian of General Motors, the building of a nationwide sales organization.[6]

In carrying out a strategy of growth, Durant preferred buying to building. After the formation of General Motors in 1908 he gained control of a number of enterprises producing and distributing cars, trucks, parts, and accessories. As he enlarged his empire, Durant made little effort to bring these many activities under centralized control. The company's general office remained staffed by Durant, two or three personal assistants, and their secretaries. Durant had neither the time nor information to evaluate, coordinate, and plan the activities of his subsidiaries or the company as a whole. In the boom times immediately following the Armistice of November 1918, the operating divisions quickly expanded production and stocked quantities of inventory, in order to have the supplies to meet what they expected to be an ever-increasing demand. This was why, when the automobile market collapsed in September of 1920, the company had such a costly write-down of inventory values and why it came so close to bankruptcy.

At this same moment Durant was himself having personal financial difficulties. By attempting to hold up the price of General Motors stock, the company's president, by November 1920, owed close to $30 million in brokers' loans. These were secured by General Motors stock, whose value was plummeting. The Du Pont Company and J. P. Morgan and Company, the two largest single investors in General Motors, arranged to take over Durant's debts, and much of the stock he controlled. Pierre du Pont then became president. He did so because the Du Pont Company had, on his

recommendation, invested over $25 million of its wartime profits in General Motors in 1917. He now hoped to make the investment once again profitable.

In rehabilitating General Motors, Pierre du Pont worked closely with Alfred P. Sloan, Jr., a talented engineer and administrator who was at that time managing the company's parts and accessory units. At the outset, Sloan and du Pont decided against creating a single centralized functionally departmentalized organization. The company's activities were too large, too numerous, too varied, and too scattered to be so controlled. They agreed to retain the company's integrated car, truck, parts, and accessory enterprises as autonomous operating divisions. They then defined a division's activities according to the market it served. For the five automobile divisions, the market was set by price. Each division sold in a single price class within what Sloan called the price pyramid. Cadillac was the top of the pyramid with the highest prices and lowest volume, and Chevrolet was at the bottom with the lowest prices and highest volume. Once the divisions' markets had been defined, du Pont and Sloan began to replace Durant's tiny personal headquarters with a general office consisting of a number of powerful general executives and large advisory and financial staffs.

At the same time, du Pont and Sloan had executives from the general office devise procedures to coordinate current output with existing demand and to allocate resources in terms of long-term demand. The techniques for improved coordination evolved out of the pressing need in late 1920 to regain control over inventories, especially purchases. The small team of executives given this task first required the divisions to submit for each coming month and the following three months forecasts of material, equipment, and labor needed for each month's production. Only after the general office approved these estimates were the divisions permitted to make their purchases. These forecasts quickly came to include all the inputs required for the anticipated output. By 1924 they were tied to annual forecasts of demand provided by the new financial staff headed by Donaldson Brown from Du Pont. Annual forecasts were prepared for each division by a collaborative effort between divisions and the general staff. These "divisional indices," as they were called, included not only purchases and delivery schedules for materials and capital equipment required and labor to be hired, but also estimated rates of return on investment and prices to be charged for each product. Prices, unit costs, and rates of return were all closely related to the volume permitted by demand. In drawing up these divisional indices, the staff computed the size of the national income, the state of the business cycle, normal seasonal

variations in demand, and the division's anticipated share of the total market for each of its lines.

The forecasts on which output and purchases of materials were based were constantly adjusted to actual sales. The data on sales came from reports submitted every ten days by the dealers and from monthly figures on new car registrations collected by the R. L. Polk Company. The latter also provided excellent information on General Motors' market share and on that of its competitors. Besides permitting immediate adjustments of flows to even small changes in demand, this information had other uses. The comparison of actual to estimated results of sales, market share, and rate of return was used to sharpen forecasting techniques. Of more importance, such comparison provided another source of information for the monitoring of divisional performance and the planning and allocating of resources for the future. Similar, though often less complete, techniques were adopted for controlling inventory and coordinating flows and for the evaluation of managerial performance at General Electric, Westinghouse, and Sears Roebuck. Eventually such methods were adopted by nearly all large modern business enterprises in the United States.

As the new financial and advisory staffs were devising statistical information to control, coordinate, and evaluate day-to-day operations, Sloan, du Pont, and their associates were working out ways to further improve long-term planning and the allocation of capital and managerial resources. Here the most significant move was to relieve top managers in the general office of all day-to-day operating responsibilities. Pierre du Pont remembered all too well the difficulties he and his cousin Coleman had had in keeping the attention of senior operating executives on long-term planning and policy making.[7] Sloan recalled even more painfully how the divisions' managers had negotiated with themselves and with Durant over capital expenditures.

On taking over at General Motors, du Pont concentrated top management decisions in the hands of a four-man executive committee. It included himself, Sloan, and two of his most trusted associates at Du Pont, John J. Raskob and J. Amory Haskell. In one of his first directives after taking office, Pierre emphasized: "It is my belief that 90 percent of all questions arising will be settled without reference to the Executive Committee and that the time of the Executive Committee members may be fully employed to study general routine and lay down general policies for the Corporation, leaving the burden of management and the carrying out of instructions to the Line, Staff and Financial Divisions."[8]

Once the crisis was surmounted and the new policies, procedures, and rules for the more routine operations had been laid down, Pierre du Pont

enlarged the executive committee. By 1924 it had ten members, including Sloan who had become president, du Pont who was then chairman of the board, the head of the financial and the head of the advisory staffs, one of the two group vice presidents—general executives—who had overall supervision of specific groups of divisions, and four executives without any specific positions. The tenth member was the only manager with operating responsibilities. He was the chief executive of Buick, the company's most profitable automotive division.[9] Although such exceptions were made, the committee continued to consist almost completely of executives who had no day-to-day operating responsibilities. Its tasks were explicitly to approve the divisional indices, to evaluate divisional performance, to set pricing and other general corporate policies on the basis of its evaluations, and most important of all, to plan long-term strategy and the allocation of resources to carry it out. For such planning the committee relied on long-term financial and economic forecasts prepared by trained economists on Brown's financial staff.

In performing its work, the committee used the advisory and financial staff to check on information received from the operating divisions. The functional specialists on the advisory staff were, for example, expected to "audit" divisional activities and policies for their specific functions. Thus staff sales executives reviewed marketing policies, controls, and procedures with the sales managers of the many divisions; those on the manufacturing staff did the same with the divisional production managers; and so with automobile design, advertising, and other comparable activities. At the same time, the staff executives were expected to give specialized expert advice to the operating managers as well as to top executives in the general office.

Sloan soon realized that communication between staff, line, and general executives left much to be desired.[10] Friction between line and staff executives often had serious consequences. It proved most critical in product development, where line managers considered the staff men too theoretical, and staff executives complained that the line managers never looked beyond current production schedules. To bring together the three types of executives—staff, line, and general—Sloan formed interdivisional relations committees for major functional activities: product development, works management, power and maintenance, sales, and institutional advertising. These committees, which had their own salaried staffs, were normally chaired by a member of the executive committee. They had as their secretary the advisory staff's senior executive for that functional activity, and they included functional executives from major divisions.

By these several techniques top management was able to free itself of operating biases and responsibilities, and at the same time keep in touch

with the corporation's widespread operations. Policy and planning were no longer made through negotiations between the senior managers of powerful operating departments or divisions. Policy was formulated by general executives who had the time, information, and psychological commitment to the enterprise as a whole, rather than to one of its parts.

This type of structure, with its general office and its autonomous, integrated divisions, began to be adopted, though rather slowly, by other large industrial enterprises in the 1920s and 1930s. It provided a more flexible and effective organizational alternative for mergers than either the holding company or the consolidation of the operations of constituent companies into a single centralized functionally departmentalized structure. Such holding companies as Allied Chemical and Union Carbide adopted the multidivisional structure in the 1920s as did United States Steel in the 1930s. It became even more widely used to manage enterprises which grew, as Armour and United States Rubber were beginning to before World War I, by moving into new product and new regional markets. With the creation of a general office consisting of general executives and a large financial and advisory staff and with the calibration of product flow and day-to-day operating activities to forecasted demand, the basic organizational structure and administrative procedures of the modern industrial enterprise were virtually completed.

These methods would be, of course, constantly polished and adjusted. The most important developments came in the coordination of activities between and within departments.[11] As a company's sales rose from $50 million to $500 million and even $1 billion, product development, coordination of product flow, and marketing became increasingly complex. To assist in such short-term integration of production and distribution and short-term allocation of materials, managers specializing in coordination appeared. "Project program managers," "market program managers," "interface managers," and "scheduling managers" all helped to facilitate flows of materials, funds, and ideas through the enterprise.

Although they developed many variations and although in very recent years they have been occasionally mixed into a matrix form, only two basic organizational structures have been used for the management of large industrial enterprises. One is the centralized, functional departmentalized type perfected by General Electric and Du Pont before World War I. The other is the multidivisional, decentralized structure initially developed at General Motors and also at Du Pont in the 1920s. The first has been used primarily by companies producing a single line of goods for one major product or regional market, the second by those manufacturing several lines for a number of product and regional markets.

The professionalization of management

The techniques of industrial management developed at General Electric, Du Pont, and General Motors spread rapidly. During the 1920s the new accounting, budgeting, and forecasting methods were becoming normal operating procedures. Once the strategy of diversification created or intensified the need for a multidivisional structure, that organizational form was speedily adopted.

One reason for the rapid spread of the new techniques was the growing professionalization of the managers of large industrial enterprises. Such professionalization took much the same form as it had with the railroad managers in the 1870s and 1880s and with mechanical engineers in the 1890s and 1900s. Professional societies were formed, professional journals published, and professional courses established in major American colleges and universities. In the early years of the twentieth century, such societies, journals, and courses appeared first for the functional middle managers, in finance, marketing, and production, and then for general top managers.

Salaried managers in financial offices of the new enterprises were the first to develop such a professional apparatus partly because their activities were the most closely tied to earlier developments in railroad and factory operations. The modern accounting profession in the United States had two roots, the auditors and the cost accountants.[12] Managers in the auditing and accounting departments of railroads had formed their own national association in the 1880s. During the 1880s and 1890s investment bankers had brought certified public accountants to New York from Britain to assist them in railroad reorganization. For example, in 1890 the British firm of Price, Waterhouse & Co. opened a branch in New York, and during that decade other English and Scottish firms followed suit. In 1897 members of these firms helped to form the American Association of Public Accountants, which included railroad comptrollers as well as executives from accounting firms. That association grew quickly after the merger movement created a demand for auditors and certified public accountants in industry as well as in railroads. In 1905 the association that had published the proceedings of its meetings began to support the monthly *Journal of Accountancy*. In 1916 it attempted to broaden its appeal to other types of accountants by changing its name to the American Institute of Accountants in the United States of America, but it continued to be primarily an association for auditors.

The pioneers in cost accounting were, on the other hand, the industrial engineers who developed new techniques as they systematized the factory management and attempted to make it more scientific. During the first

decade of the new century these men continued to describe their work primarily in the *Transactions* of the American Society of Mechanical Engineers and in *Engineering News* and the *American Machinist*. Alexander H. Church, Harrington Emerson, H. L. Arnold, L. P. Alford, and other cost accounting innovators were publishing numerous articles in these journals dealing with overhead standard costing, factory burden, and accounting controls.[13]

During the second decade of the century both financial and cost accounting began to be taught extensively in colleges and universities. In 1900 accounting courses were given in only 12 institutions of higher learning, and these courses were little more than surveys of commercial bookkeeping. By 1910, 52 colleges and universities offered accounting courses, and by 1916 the number had risen to 116.[14] By then, these courses included auditing, public accounting, and cost accounting. Significantly, the first association to include cost accountants was the American Association of University Instructors in Accounting, formed in 1915, which became the American Accounting Association after the First World War. In 1926, when that association began to publish *The Accounting Review*, a separate National Association of Cost Accountants had already been formed.

Marketing lagged somewhat behind finance and accounting in developing comparable professional activities. Trade journals had flourished since the 1850s, first in the basic dry goods, hardware, grocery, drug, and other trades, and then in more specialized ones. These journals, however, concentrated on discussing commodities and markets. Then in 1888 *Printers' Ink* was established as a journal for advertising managers and firms. Neither *Printers' Ink* nor the trade journals devoted space to more general methods and procedures of distribution, marketing, and purchasing. On the other hand, such topics made up the agenda of the meetings of the first national marketing association founded in 1915. Articles about these matters appeared in its *Proceedings* and later in the association's *Journal of Marketing*. These themes were also at the core of courses on marketing that had been established by 1910 in the new schools of business. And as was the case with the cost accountants, these teachers formed the first professional marketing association.[15]

Professional organizations and journals for factory and production managers grew out of those originally formed by mechanical, electrical, and other types of engineers. The leaders of the movement for scientific management were particularly anxious to find a more congenial home than the American Society of Mechanical Engineers. The ASME, they complained, paid too much attention to engineering and too little to management.[16] The small American Association of Industrial Management

was started in 1899. Then in 1911 Frank Gilbreth formed the Society for the Promotion of the Science of Management which later became the Taylor Society. Still later it merged with the Society of Industrial Engineers to become the Society for the Advancement of Management. Until World War I these management associations were concerned largely with factory management and production engineering.

Immediately after the war, however, general managers formed their own organizations. In 1919 the founding of the Administrative Management Association created a forum for papers and discussion on more general management problems. Its meetings, the contents of its *Proceedings*, and its monthly *Administrative Management Magazine* appealed to managers in both government and business administration. Then in 1925 a small association of specialists in personnel matters reorganized their society to form the American Management Association, which quickly became the leading professional organization for top and middle management in American business corporations. Its meetings and its publications focused on the overall administration, operation, and control of the modern business enterprise.

A major periodical devoted to general management had appeared even before the formation of the American Management Association in 1925. Before the war, *Engineering News* began to carry articles that dealt with more than factory management. In 1916 it changed its name to *Industrial Management*. Earlier, *System*, which Arch W. Shaw had made the most successful periodical devoted to general business affairs, occasionally published pieces on enterprise management. By 1921 the demand for such material led to the founding of *Management and Administration*, a journal designed specifically to meet the needs of corporate management. It was in this periodical that Donaldson Brown, Charles S. Mott, and other senior executives at General Motors in 1924 explained in detail the organizational control and accounting procedures they had devised during the reorganization of their giant enterprise.[17] During the 1920s many of the leading experts on corporate management as well as managers of major corporations contributed to this journal.

Central to the professionalization of management in the new multiunit business enterprises were modern business schools. Their appearance marked an educational development that was at that time unique to the United States. In the late nineteenth century, business education consisted of little more than the teaching of bookkeeping and secretarial skills in small specialized private schools of commerce and, increasingly, in public high schools. Only the University of Pennsylvania's undergraduate Wharton School of Commerce and Finance, founded in 1881, offered courses in business, and these included little more than commercial accounting and

law. In the decade after 1899, business education became part of the curriculum of the nation's most prestigious colleges and universities. The University of Chicago and the University of California set up undergraduate schools of commerce in 1899. In 1900 New York University and Dartmouth, with its Amos Tuck School of Administration and Finance, followed suit.[18] By the time Harvard opened its Graduate School of Business Administration in 1908, professional postgraduate business education was already off to a good start.

The initial offerings of the new Harvard Business School indicate a concern from the start with the training of managers for large multiunit enterprises.[19] The three required courses—accounting, commercial law and contracts, and a general course on the commerce of the United States—reflected the older commercial orientation of the American economy. But the electives were on the management of transportation, industrial, and marketing firms. In railroading the electives included Railroad Organization and Finance, Railroad Operation, and Railroad Rate-Making. In finance there was a course in corporate finance as well as one in banking and one in life insurance. By 1914 the required course in American commercial activities had become one in marketing, focusing on management rather than on specific trades or commodities. As the school's historian has explained about this course: "Marketing comprehended the whole process of physical distribution, demand activation, merchandising, pricing, and other activities involved in the exchange of products and services."

From the start Industrial Organization was one of the most popular courses. It always included more than just the study of factory management. The course was set up by Arch W. Shaw, who came to the Harvard Business School after turning over the administration of his Chicago publishing house to subordinates. At first Shaw relied quite heavily on outside lecturers. In 1910 these included Frederick W. Taylor, Harrington Emerson, Carl Barth, Morris Cooke, Charles Day, and C. H. Going, all leading practitioners of the new systematic and scientific management. Also lecturing were two senior managers from General Electric. One, W. C. Fish, spoke on "decentralized management." The other, Russell Robb, had his talks on organization later published.

In the academic year 1911–1912 the school offered a course on Business Policy. Resulting from a series of discussions between Dean Edwin F. Gay and Arch Shaw, "its purpose was to develop an approach to business problems from the top management point of view."[20] At Shaw's urging, this course and others used the case method of instruction in a manner similar to that developed at the Harvard Law School. Business Policy soon became the core course of the curriculum at the Harvard Business School,

and the case method its primary method of teaching. In developing cases and in making assignments, the instructors at Harvard and the other new schools of business were able to draw on the wave of books appearing after 1910 on accounting, finance, marketing, and industrial organization, written by Taylor, Going, Robb, Shaw, Paul T. Cherington, Dexter Kimball, Ralph S. Butler, Hugo Diemer, Lewis D. Haney, Edward D. Jones, and many others.

Another evidence of professionalism was the appearance of the management consultant. Before World War I engineering consultants like Taylor, Emerson, and Cooke were giving professional advice on more than just factory management. By the end of the First World War, firms like Arthur D. Little, Inc., Day & Zimmerman, and Frazer and Torbet had become primarily management rather than engineering consultants.[21] As early as 1911, Arthur D. Little was advising General Motors on the creation of a Technical Laboratory. In 1921 Day & Zimmerman had provided, at the request of the bankers who helped the du Ponts refinance General Motors, advice on its internal reorganization. Frazer & Torbet, formed in 1917, advised on the reorganization of both corporate and governmental structures. An early associate and partner, James O. McKinsey, in 1925 set up his own firm which became and remained one of the leading management consulting firms in the world. By the 1920s comparable consulting firms provided expert advice on functional activities, including the newer ones of personnel and public relations.

The appurtenances of professionalism—societies, journals, university training, and specialized consultants—hardly existed in the United States in 1900. By the 1920s they were all flourishing. Even then they were still uniquely American, and did not appear in any strength in other economies until after World War II. They developed in American industry, much as they had in railroading, to provide channels of communication through which managers could review and discuss similar problems and issues. And by providing communication and personal contact they helped to give the corporate managers a sense of self-identification. By attending and participating in the same meetings, by reading and writing for the same journals, and by having attended the same type of college courses, these managers began to have a common outlook as well as common interests and concerns.

The impact of these professional activities was, of course, gradual. In the 1920s the societies were still small, the journals not too widely read, and the business school graduates still in the lower ranks of management. By the mid-twentieth century, however, professionally oriented, salaried career managers were the men who had taken charge of the large multiunit enterprises dominating the critical sectors of the American economy.

Growth of modern business enterprise between the wars

One reason for the continuing spread of the modern enterprise was that the new professional associations, journals, training courses, and consultants made possible a rapid diffusion of the new managerial and administrative procedures. More important, of course, were the advancing technologies and expanding markets that gave the multiunit firm a competitive advantage in an increasingly larger part of the American economy. Where the firm already dominated, it continued to grow by adding new units and by internalizing their activities and the market transactions involved. In other industries and sectors where the multiunit enterprise had not yet become strong, it appeared, grew, and flourished when processes of production and the needs of distribution made administrative coordination more efficient than market coordination.

In transportation and communication, the operations and organization of the railroad, telephone, and telegraph systems remained much the same well into the twentieth century. The boundaries of the large regional railroad systems changed little even though some mergers occurred and some interior lines continued to try, usually unsuccessfully, to obtain their own outlets to the seaboard. Only after World War II, when railroads began to become technologically obsolete in the carrying of passenger and some freight traffic, did the maps of American railroad systems begin to change significantly. In communication, the telephone steadily replaced the telegraph in long-distance service. American Telephone & Telegraph continued to operate much the same way after World War I as it had at the beginning of the century, with its nationwide "long-lines" organization responsible for long distance and twenty or so regional subsidiaries for local operations. The latter were still managed through centralized functionally departmentalized structures.[22]

In the two decades following World War I, the internal combustion engine began to break the railroads' hold, first on the nation's passenger traffic and then in the carrying of freight. By the outbreak of World War II, the place of the large enterprise in the new forms of transportation was becoming clear. In air transport, where precise operational coordination was as essential for safe and efficient operations as it was on the railroads eighty years before, a few carefully structured enterprises were beginning to dominate, with the consent and even assistance of the Civil Aeronautics Board. Truck, bus, and taxi lines, however, required much less precision in operational scheduling, less complex equipment, and a smaller capital investment. Here small firms competed effectively with large ones, even

on the long hauls. So, as air transport was becoming oligopolistic, ground transportation was becoming more competitive.

In mass marketing and distribution, retailers continued to expand at the expense of wholesalers. Retail enterprises grew by adding new lines and, even more, by adding new outlets or stores. The chain store became the fastest growing channel of distribution. The existing chain stores expanded more rapidly than other types of retailers. And new chains appeared more often than did new department stores or mail-order houses. Chains moved into the drug, grocery, and other trades that had hitherto been the domain of the wholesaler and the small retailer.[23] Department stores began, albeit most hesitantly, to enlarge their business by building branches in the suburbs.

Mail-order houses did so much more precipitately when their basic rural market ceased to grow. Farm income fell from $14.6 billion in 1919 to $8.6 in 1921; it came back to only $10.5 billion in 1926. As a result, mail-order firms, large and small, began to build chains of retail department stores to provide outlets in urban and, particularly, the fast-growing suburban markets. Between 1925 and the onslaught of the great depression at the end of 1929, Sears and Montgomery Ward both created a large nationwide chain. By the end of 1929, Sears had opened 324 retail stores and Montgomery Ward nearly 500.[24]

This expansion, by internalizing more market transactions, permitted the enterprises to make fuller use of their buying, traffic, and operating organizations. Sears, Montgomery Ward, and some chains integrated backward, obtaining factories to assure themselves of a constant supply of goods in certain lines. But, as was true before World War I, manufacturing remained only a small part of their total operations. They always preferred to buy when they could and to manufacture only when it was absolutely necessary in order to obtain stocks of desired specifications. In one area they did develop new facilities—when they began to sell, in volume, appliances, sewing machines, and other "big tickets," as they were called, which required specialized marketing services. The chains soon found that if they were to compete with the producers of such machinery, they too would have to have their own organizations to service and repair the machines as well as to provide credit and to make collections.[25]

Because the mass retailers did not need to invest in large amounts of costly capital equipment, they continued to rely on the high-volume, internally generated cash flow to provide for most of their working and fixed capital. Sears, Roebuck and Montgomery Ward did obtain some outside funds to build new mail-order plants before World War I and to get through the inventory crisis of 1920–1921. On the other hand, the

great expansion of retail stores after 1925 was, despite the costs of buying land and building stores, entirely self-financed.[26] So the Rosenwalds of Sears and the Thornes of Wards remained in control of their enterprises. So, too, did the families of the builders of many department stores and those that created the Atlantic & Pacific, Woolworth's, Penney's, and other chains. They began to relinquish control only when they wished to lessen their business responsibilities or to diversify their holdings.[27] The nature of the chains' financial needs permitted the mass retailers to remain entrepreneurial enterprises much longer than did the integrated industrials.

Although this study has not examined the continuing growth and internal organization of financial enterprises, it is worthwhile to point out that they too expanded by becoming multiunit. The insurance companies were the first financial firms to become modern business enterprises. In their early years, the life insurance firms had specialized marketing needs that were similar to those of the mass producers of machinery.[28] For actuarial reasons they had difficulty in becoming viable business enterprises until they had enough policyholders to spread the risks widely. Then the large volume of their business permitted them to lower the unit cost of writing insurance by internalizing and routinizing the transactions involved. The maintenance of the volume of business, in turn, depended on direct canvassing by salesmen and on maintaining a close continuing relationship with the customer. Like the early machinery companies, most insurance firms began in the 1880s and 1890s to replace large sales agencies with branch offices operated and administered by salaried employees. Nearly all came to be managed through three basic functional departments: sales, operations, and investment.

Well before 1900 the structure of the American insurance industry showed similarities to the agricultural implement and meat-packing trades. The Big Three—Mutual, Equitable, and New York Life—dominated the industry, and the smaller, though still large, enterprises—Metropolitan, John Hancock, Aetna, Connecticut Mutual, Northwestern Mutual, and Pennsylvania Mutual—followed their lead. The Big Three immediately built extensive marketing organizations overseas. By the beginning of the twentieth century they were among the largest insurance companies operating in many European countries. The smaller enterprises tended to stay closer to home. Again, as in the case of the marketing companies and those industrials which were financed by high cash flow, these enterprises were controlled by the founders and their families.

In the twentieth century the structure of the enterprise and the structure of the life insurance business remained relatively unchanged. As state regulation increased and as companies adopted a mutual form of corporate organization by which policyholders became share owners, these firms

became managerial. Even before World War I, the Big Three had begun to contract their overseas business as European states passed regulations against foreign and particularly American insurance companies doing business in their territories. While concentrating on the home market, the insurance firms did come to carry a full line of policies. However, they made no attempt to diversify into other fields. They remained, as did most transportation and communication companies, large bureaucratic enterprises carrying out a single major activity through a centralized functionally departmentalized organizational structure.[29]

Commercial banks, unlike insurance companies, did not build national organizations. This was because banks could normally do business only in the state in which they were chartered. Moreover, the National Banking Act of 1864 and laws in many states forbade the banks within their jurisdictions to have branches. During the nineteenth century, commercial banks, except those of New York and Chicago, looked on themselves as local institutions serving a single community. After 1900, however, as the economy, particularly the cities, grew, the demand for banking services became more acute. In 1913, for example, the Federal Reserve permitted national banks to open branches abroad.[30] When state and national laws were modified, American banks then began to grow by building branches. And where local laws continued to limit branches, banks created multiunit enterprises by merging and forming chains. Like the marketing firms, they found that they could make more intensive use of their central office facilities and reach more customers by setting up geographically dispersed outlets. In 1900 fewer than 100 American banks operated in more than one office. By 1919, 464 banks operated 1,082 branches, and by 1929, 816 had 3,603 branches. The share of bank resources held by the multiunit enterprises rose from 16 percent in 1919 to 46 percent in 1929. By then, many banks had also set up branches overseas. While remaining solely banking enterprises, American banks did, like the insurance companies, soon offer a full line of services and so had departments for checking and savings accounts, foreign exchange, and fiduciary trusts, as well as for commercial banking.

After World War I the most important developments in the history of modern business enterprises in the United States did not come from enterprises involved in carrying out a single basic activity such as transportation, communication, marketing, or finance. Nor did they come from firms that only manufactured. They appeared rather in large industrials that integrated production with distribution. In the years after 1917 these enterprises continued to grow in size and number. As regional and national markets expanded and as technological advances permitted an increase in the speed and volume of throughput and stock-turn, the inte-

grated enterprises moved into industries where they had played a smaller role before World War I. These industries, however, were nearly all in those larger industrial groups where the integrated enterprises had clustered from the start. As the firms became integrated, the industries in which they operated became more concentrated.[31]

In the years after the First World War, large integrated firms began to expand by moving into new products for new markets. This strategy of diversification evolved from the concept of the "full line," which many early integrated enterprises had adopted well before 1917. Many American companies, following the example of pioneering big businesses in tobacco, grain, soap, meat packing, cotton oil, rubber, and lead processing, added lines that permitted them to make more effective use of their marketing and purchasing organizations and to exploit the by-products of their manufacturing or processing operations. As in the case of the meat packers and others, the intensified use of their marketing organization led to the addition of new production facilities, and expansion in the output of by-products led to the addition of new marketing facilities and personnel.

It was not until the 1920s, however, that diversification became an explicit strategy of growth. Before the war, acquisitions of new products had been ad hoc responses of middle managers to fairly obvious opportunities. After the war, top managers began to search consciously for new products and new markets to make use of existing facilities and managerial talent. The Du Pont Company, one of the very first to diversify in this manner, did so in order to employ the managerial staff and facilities which had been so greatly enlarged by the demands of World War I. Others soon followed. Their goal was, like that of the Du Pont executive committee and the managers at the meat-packing firms, to use more intensively all or part of the existing organization. The leveling off of the national income in the mid-1920s and its drastic decline in the 1930s intensified the search for new products.

The new strategy was aimed at assuring the long-term health of an enterprise by using more profitably its managers and facilities. In nearly all cases, the plans were formulated and carried out by salaried and professional managers. And in nearly all cases they were financed from retained earnings. Without such expansion, current dividends would certainly have been higher.

The strategy of diversification of the industrial managers, therefore, raised the possibility of internal controversy much as system-building did in railroading. The conflicting goals of maintaining current profits and assuring long-term organizational stability may have led to arguments within boards of directors of industrials, as they did earlier on railroads.

Much more research is needed before reliable information exists on this point. Nevertheless, it seems unlikely that such conflicts became as overt as they did on the railroads. The large industrials, unlike the railroads, were able to maintain dividends while carrying out their strategy of growth. Their oligopolistic position helped them to make profits and to absorb losses even during the great depression of the 1930s. Moreover, such expansion required smaller amounts of capital expended over longer periods of time than did railroad system-building. As long as the managers of these enterprises continued to pay modest dividends regularly, the bankers or representatives of the founder's family or of the large stockholders who sat on the finance committee of their boards could view such growth with equanimity and even enthusiasm. Expansion financed by retained earnings, and not by large issues of stocks and bonds, promised to increase substantially the value of their holdings.

In undertaking the new strategy of diversification, managers occasionally purchased or merged with a company that provided a new or complementary line. Much more often such expansion resulted from internal growth. The managers looked to their research organizations, originally set up to improve product and process, to develop the new products that might be particularly suitable to their production processes or marketing skills.

Not surprisingly, therefore, this new use for industrial research was first developed in the same industrial groups where the large enterprise had come to cluster by World War I. In 1929 over two-thirds of the personnel employed in industrial research were concentrated in five groups: electrical with 31.6 percent; chemical with 18.1 percent; nonelectrical machinery with 6.6 percent; metals, also with 6.6 percent; and rubber with 5.9 percent.[32] Although food and oil companies employed somewhat fewer researchers, they still had many more than did firms in labor-intensive, small-unit, competitive industries. As Michael Gort has pointed out in a detailed study of product diversification, chemical companies were the major diversifiers during the 1930s—that is, they added more new product lines than did enterprises in any other industrial group. They were followed by those in electrical machinery, transportation equipment, primary metals, and rubber.[33] Moreover, the industries into which these diversifying enterprises moved were, in order, chemicals, machinery, fabricated metals, electric machinery, food, and stone/glass/clay. This pattern of interweaving diversification continued well beyond World War II.

The histories of individual firms emphasize Gort's more general points.[34] In the 1920s, chemical firms like Du Pont, Union Carbide, Allied Chemical, Hercules, and Monsanto all entered new industries. Each did so

from its own specific technological base (for example, the Du Pont base was nitrocellulose chemistry, and Union Carbide's was carbon chemistry). In the same decade, the great electrical manufacturers—General Electric and Westinghouse—which up to that time had concentrated on manufacturing light and power equipment, diversified into the production of a wide variety of household appliances, as well as radio and x-ray equipment. During the depression decade of the thirties, General Motors (and to a lesser extent, other automobile companies) began to make and sell diesel locomotives, appliances, tractors, and airplanes. By using organizational and operating techniques developed in the automobile industry for the production and distribution of diesels, General Motors helped to make the steam locomotive a historical relic within a single decade. Metal makers, particularly copper and brass companies, followed the example of the Aluminum Company of America by producing kitchenware and household fittings. Some rubber companies started to develop the potentialities of rubber chemistry. Others used their distribution networks to sell a wide variety of products often made by other manufacturers. In the 1930s, too, food companies began to use their marketing facilities to handle new lines of goods which they then processed themselves.

These firms found that the new multidivisional structure met the administrative needs of the new strategy. In fact, the managers at Du Pont had first fashioned such a structure during the recession of 1920–1921 as an answer to the new administrative challenges created by their diversification program.[35] Their move into paints, dyes, film, fibers, and chemicals overloaded the company's existing centralized, functionally departmentalized organization. That structure broke down under the strain of attempting to coordinate the flow of goods of several lines of products sold in a variety of markets and to allocate resources among these dissimilar kinds of businesses. As a result, Du Pont's performance in the new ventures had been so poor that in 1921 only the long-established explosives business showed a profit. The creation of separate integrated autonomous divisions to handle the production and distribution of explosives, dyestuffs, celluloid products, fabrics and film, paints and chemicals, and rayon made these major lines profitable. Since Du Pont had long had large and efficient top management, its organizational effort was not concentrated, as was General Motors', on building the general office, but rather on setting up and defining the functions and structure of the new product divisions.

The multidivisional structure adopted by General Motors, Du Pont, and later by United States Rubber, General Electric, Standard Oil, and other enterprises in technologically advanced industries institutionalized the strategy of diversification. In so doing, it helped to systematize the

processes of technological innovation in the American economy. The research department in such enterprises tested the commercial viability of new products generated either by the central research staff or by the operating divisions or even developed outside the company. The executives in the general office, freed from day-to-day operational decisions, determined whether the company's managers could profitably process and distribute these new products. If they decided that the managers could not, then they normally licensed the new product to some other firm. If they agreed that they could, and that the potential market was similar to one in which the firm currently sold, then its production and sale were given to an existing division. If the market was quite different, a new division was formed. By the outbreak of World War II, the diversified industrial enterprises using the divisional organization structure were still few, but they had become the most dynamic form of American business enterprise.

Modern business enterprise since 1941

In many sectors of the American economy, but above all in the central sectors of production and distribution, World War II put the capstone on the institutional developments of the interwar years and set the stage for the impressive growth of the modern business enterprise and of the economy itself in the postwar years.[36]

In the first place, wartime demands for new, technologically complex products such as synthetic rubber, high octane gasoline, radar, electronic antisubmarine devices, and a wide variety of weapons brought a pooling of scientific and technological knowledge and led to a major expansion in the systematic application of science in American industry. As a result, petroleum, rubber, metals, and a number of food companies developed new capacities for producing a variety of chemicals and synthetic materials. Electrical and radio companies, small as well as large, old as well as new, acquired the facilities for producing a wide range of electronic products.

Second, the requirements of mobilizing the economy led to the pooling and expansion of managerial procedures and controls whose use was still largely concentrated in the large, departmentalized and divisionalized integrated enterprises. During the war, small firms (usually as subcontractors for the larger concerns) learned about the modern methods of forecasting, accounting, and inventory control.

In addition, the war brought full employment for the first time since 1929. The continuance of a vast national mass market was further assured

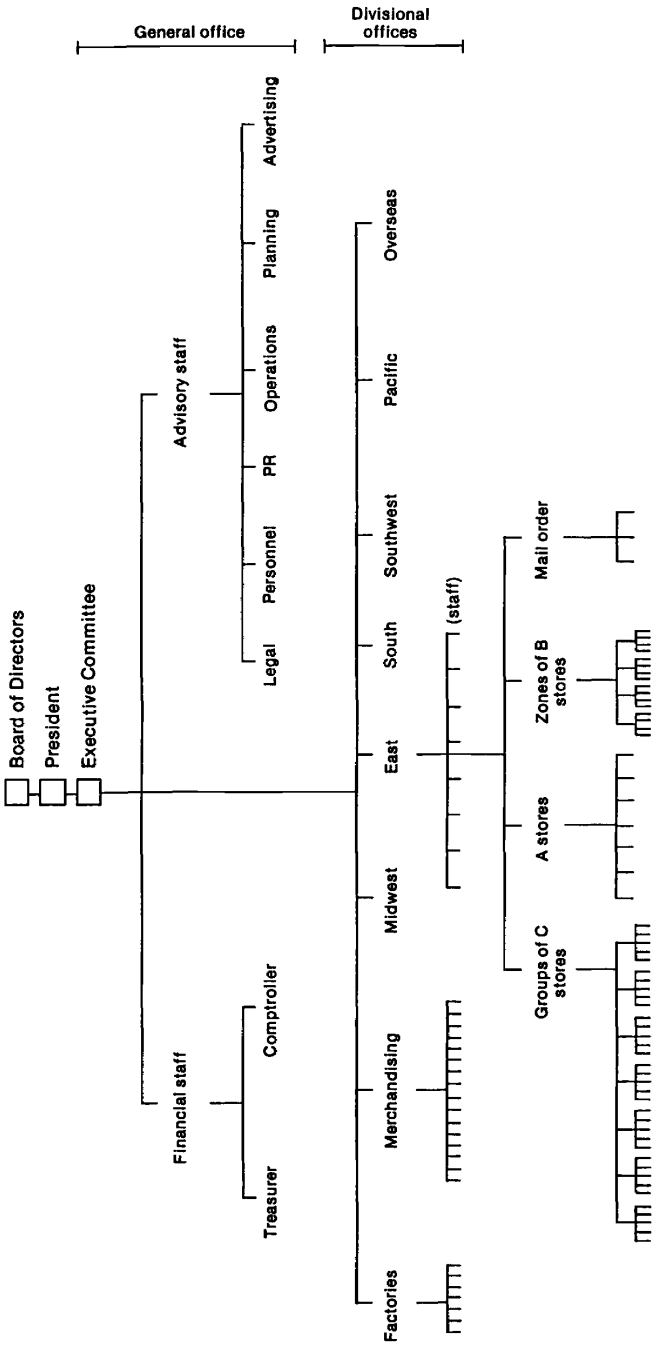
when, early in 1946, Congress passed the Employment Act, which committed the federal government to maintain maximum employment and with it a high-level aggregate demand. This commitment to support the mass market, together with the spread of industrial technology and the increased knowledge of administrative techniques, all promised a postwar economic expansion which the large integrated and diversified industrial enterprise was in the best position to exploit.

Indeed, the years after World War II mark the triumph of modern business enterprise. Aided by the new federal commitment, aggregate demand grew steadily at a healthy rate for twenty years after the war, with the gross national product (in constant dollars) rising from $309.9 billion in 1947 to $727.1 billion in 1969.[37] This growth provided a mass market far greater than any previously known in history; regional markets became as massive as the national market had been in the late nineteenth century. In technology, the electronics revolution (including automation), the high-speed computer, the development of new plastics, artificial fibers, and metal alloys, and the continuing systematic application of science to industry all increased the speed and volume of production and distribution and so expanded the needs and opportunities for applying the visible hand of management.

In finance and distribution, as well as in many consumer services, the great postwar market was probably more important than technological change in stimulating the spread of modern business enterprise. New electronic machinery did allow greatly increased speed and volume of work performed. As important was the increasing internalization of market transactions by the building or buying of branches. In banking, the enterprise grew by adding branches and by consolidating many small units within major urban, suburban, and state areas into large administrative networks. In food retailing, chain stores had a continuing boom, with new grocery stores and supermarkets enjoying immense popularity. Hotels, restaurants, even rent-a-car services spread their networks across the land. The older mass retailers—merchandise chains, mail-order houses, and department stores—became large enough to adopt the multidivisional structure. This was done largely by defining the divisions along regional rather than product lines (see figure 13). As a result of this massive growth of chains, the number of small, single-unit jobbers and retailers, and also of hotels and restaurants, has declined more rapidly since the Second World War than before it.

In manufacturing and communications, technology had the greatest impact. Automation, the computer, and the new materials (such as plastics) increased output of existing large-batch and continuous-process plants and factories and permitted the introduction of these mass produc-

Figure 13. The multidivisional structure: retailing



Source: First prepared by the author for "The United States: The Evolution of Enterprise," *Cambridge Economic History*, vol. 7 (Cambridge, Eng., 1977).

tion techniques in many of the older industries where they had not yet been adopted. Thus, the technological advances in production encouraged the continuing spread of the integrated enterprise, and with it, oligopoly in man-made fibers, paper, glass, and some metal-fabricating industries. Technology also changed the mass communications and entertainment industry as television replaced both motion pictures and radio as the most popular mass medium. Because of the huge capital requirements and the complex scheduling needed, a few large television broadcasting chains (usually an outgrowth of radio chains) quickly dominated the industry. In transportation, the pre-World War II trends initiated by earlier technological innovations accelerated. Airline companies grew in size and complexity but not in number. More large firms appeared in the movement of goods by trucks, but large and small companies continued to compete side by side.

Technology was all-important in the rapid postwar growth and spread of the diversified multi-industry firms. The obvious rewards of research and development turned more and more integrated enterprises to a strategy of expansion through diversification. It also encouraged firms which had already diversified to move into still other product lines. By the 1960s, nearly all of the leading companies in chemicals, rubber, glass, paper, electrical machinery, transportation vehicles, and many food companies were making products in ten or more different SIC four-digit industries.[38] Most of the large metal, oil, and machinery firms operated in from three to ten such industries. In order to obtain the maximum return from their new investments, nearly all of these enterprises had by the 1960s adopted the multidivisional structure with its autonomous operating divisions and its evaluating and planning general office.

During the 1950s, the divisionalized firms further refined their strategy of diversification by exploiting what became known as the product cycle.[39] Strategies became designed to obtain the maximum return from a new product as it moved through the cycle from its initial commercialization to full maturity. An effectively diversified enterprise attempted to have a number of product lines, each at a different stage of the product cycle.

The multidivisional structure which helped to institutionalize product innovation also made it easier for the large integrated enterprise to meet the demands of the federal government for military and advance scientific hardware and to reach the rapidly growing overseas markets. During the years of the cold war, the government required a wide variety of weapons —ranging from aircraft carriers, missiles, and submarines, to conventional guns and tanks, as well as nuclear reactors for the Atomic Energy Commission and spaceships, with all their accoutrements, for the National

Aeronautics and Space Administration. To handle these markets companies merely added a separate division or group of divisions for atomic energy, weapons, or government business in general.

More significant in the recent evolution of modern enterprise than the postwar governmental demand were foreign markets. The large integrated food and machinery companies that built their overseas domains before 1914 continued to maintain and often to expand them after the First World War. During the 1920s, a relatively small number of oil, chemical, rubber, and automobile companies followed the pioneering firms overseas. The depression of the 1930s slowed, and the Second World War almost stopped, expansion abroad. Then in the 1950s and early 1960s, particularly after the opening of the European Common Market, came a massive drive for foreign markets. Direct American investment in Europe alone rose from $1.7 billion in 1950 to $24.5 billion in 1970.[40] This second "American challenge" in Europe was spearheaded by the two hundred firms that accounted for more than half of the direct investment made by United States companies abroad. These two hundred were clustered in the capital-intensive, technologically advanced industries that had integrated, diversified, and then adopted the multidivisional form of organization.[41]

Overseas investment, in turn, had an impact on the structure of the diversified enterprise.[42] When a company first began to move abroad, it usually created an international division to supervise and coordinate overseas activities and to recommend investment decisions to the corporation's senior executives. However, as the operations and investment decisions grew larger and more complex, the international division began to disappear. Where the product divisions were strong, they took over the international business of the lines they were already handling domestically. For those companies which still concentrated on one dominant line of business, such as oil, copper, some food, and drink (for example, Coca-Cola), the operating divisions became geographical, each covering a major area of the globe. A few multinationals developed a matrix form of structure in which overseas managers reported to regional divisions on some matters and to product divisions on others. In all cases, the multidivisional form was extended from a national to a worldwide basis, with long-term allocation decisions continuing to be made at the general office, and day-to-day coordination of throughput continuing to be handled by the divisions.

During the 1960s a major variation of the diversified, multidivisional enterprise appeared on the American business scene. This was the conglomerate. The conglomerate differed from the older, multi-industrial, multinational enterprise in its strategy (and, therefore, in the nature of its

capital investments) and in its organizational structure. The large, diversified enterprise had grown primarily by internal expansion—that is, by direct investment of plant and personnel in industries related to its original line of products. It moved into markets where the managerial, technological, and marketing skills and resources of its organization gave it a competitive advantage. The conglomerate, on the other hand, expanded entirely by the acquisition of existing enterprises, and not by direct investment into its own plant and personnel, and it often did so in totally unrelated fields. With the exception of a few large relatively undiversified oil companies looking for profitable investments, the acquiring firms were not usually in the capital-intensive, mass production, mass distribution industries. They were, rather, in industries such as textiles and ocean shipping, where small enterprises remained competitive, or they were in those industries producing specialized products for individual orders, such as the machine tool and defense and space industries.[43] The creators of the first conglomerates embarked on strategies of unrelated acquisition when they realized that their own industries had little potential for continued growth, and when they became aware of the value of a diversified product line and a strategy based on the product cycle. Tax considerations played a part in the making of specific acquisitions but were rarely the basic reason for embarking on the new strategy. The acquiring firm tended to purchase relatively small enterprises in industries that were not yet oligopolies. Because many of these small enterprises had not become wholly managerial, the acquiring firms were in some cases able to provide them with new administrative and operational techniques.

The structure of the new conglomerates reflected their strategies of growth.[44] Their general offices were small and the acquired operating units were permitted more autonomy than the divisions of the large diversified firm. The difference in the general office of a conglomerate was not in the size of its financial or legal staff or in the number of general executives. Indeed, many conglomerates had even more general executives than did the older, diversified majors. The difference came in the size and functions of its advisory staff. The conglomerate had no staff offices for purchasing, traffic, research and development, sales, advertising, or production. The only staff not devoted to purely legal and financial matters was for corporate planning (that is, for the formulation of the strategy to be used in investment decisions). As a result, the conglomerates could concentrate more single-mindedly on making investments in new industries and new markets and withdraw more easily from existing ones than could the older, large, diversified companies. On the other hand, the conglomerates were far less effective in monitoring and evaluating their divisions and in taking action to improve divisional operating performance.

They had neither the manpower nor the skills to nurse sick divisions back to health. Moreover, because conglomerates did not possess centralized research and development facilities or staff expertise concerning complex technology, they were unable to introduce new processes and products regularly and systematically into the economy. The managers of conglomerates became almost pure specialists in the long-term allocation of resources. They differed, however, from the managers of banks and mutual funds in that they made direct investments, for whose management they were fully responsible, rather than indirect portfolio investments, which rarely carried responsibility for operating performance.

As the history of the conglomerate suggests, changes in the operation and organization of the large business enterprise since World War I have had more of an effect on the formulation of long-term strategy and resource allocation than on short-term, day-to-day operations. The techniques for managing the functional departments within an integrated business organization (either a division or firm) continued to be improved, but not basically changed. Methods to coordinate product flow and information have become increasingly sophisticated. But neither interdepartmental nor intradepartmental activities have been fundamentally changed. On the other hand, as the diversified enterprises that adopted the multidivisional form expanded their activities, they enlarged these top management offices by appointing group executives who became responsible for a number of operating divisions. The new conglomerates set up comparable general offices, though assisted by smaller staffs. Even those few industrials that did not diversify and the large, single-function, mass marketing and service enterprises enlarged their top management. In the second half of the twentieth century top management had become collective. It concentrated increasingly on long-term resource allocation.

The dominance of modern business enterprise

In the years after World War II the large managerial enterprise became ever more powerful. It acquired control of an increasing share of the nation's economic activities, as well as a growing part of the industrial production of Europe and the rest of the world. In 1947, the two hundred largest industrials in the United States (many of which were not yet fully diversified or divisionalized) accounted for 30 percent of the value added in manufacturing and 47.2 percent of total corporate manufacturing assets. By 1963, after most of these enterprises had adopted the new strategy and the new structure, they were responsible for 41 percent of the value added and 56.3 percent of assets. By 1968, that last figure had risen

to 60.9 percent.[45] These giant enterprises generated by far the largest share of nongovernment funds and provided most of the nongovernment personnel involved in industrial research and development. These same firms were the prime contractors used by the government in World War II and in the two decades of the cold war. They were the companies that provided the hardware for its atomic energy and space programs. They, too, were the same enterprises that continued to present the "American challenge" to European and other businessmen overseas.

This brief review of the spread of modern business enterprise after World War I can only hint at the diversity and complexity of the process. It cannot indicate the responses—some successful and others much less so—of individual enterprises or even of the institution as a whole, to the coming of the great depression, World War II, the cold war, or the continuing fluctuations of the business cycle. Nor does it attempt to delineate the costs as well as the benefits of efficient, high-volume exploitation of resources.

The purpose of this review has been only to emphasize the fact that modern business enterprise had reached its maturity in the United States by the 1920s. It continued to flourish and to spread in those sectors of the economy where administrative coordination proved more profitable than market coordination—in those sectors where the visible hand of management had demonstrated its value. The fundamental changes in the organization of American business enterprise and of the economy came before World War I; and they came as a response to profound market and technological changes that began in the middle of the nineteenth century.