Management and Its Ability to Change, 1910–1920

The ability of railroad passenger managers to react to the hostile new order turned on the management structures and cultures of which they were a part. These had developed over the preceding half century through trial and error. Before the railroads appeared in the 1830s, large business organizations did not exist. The business historians Thomas C. Cochran and Alfred D. Chandler, Jr., credit railroad entrepreneurs for innovating the hierarchical, multidivisional management organization roughly between 1840 and 1890. Staffed by salaried professional managers rather than proprietors, the organizations grew in response to unprecedented requirements for coordination brought about by the railroad systems’ complicated technology, vast size, and geographic scope.¹

The structures of such large bureaucracies and the attitudes of their managers colored the way in which managers interpreted their changing business environment. As railroad managers learned how to organize and improve railroad technology, they formed attitudes about the environment in which they worked. In the late nineteenth century, technological improvement meant bigger and more massive machines. After the introduction of steel rails, which could support much heavier trains, managers learned that they could decrease unit costs by building larger cars, filling them more fully, coupling them onto longer trains, and pulling them with ever larger locomotives. Managers took pride in the progress they made through these means. Perpetuating such progress over the geographic scope of the railroad through standardized organizational procedures became one of the central objectives of the organization. The business historian Glenn Porter calls the cohesiveness surrounding this attitude an engineering culture and shows how it developed among the managers of the Pennsylvania Railroad before the 1890s.²
As this culture developed, a gulf opened between railroad managers and those who used their services. Managers feared that meddling in railroad decisions by groups outside of the railroad organizations would lead to dire financial consequences. They thus steadfastly resisted efforts by passengers, shippers, and developers to influence transportation decisions that affected the lives of users. In the eyes of railroad managers these groups were ignorant, shortsighted, and self-interested. Railroad managers were knowledgeable, farsighted, and altruistic, and only they were in a position to make decisions that would result in the greatest good for the greatest number while ensuring the continued growth and health of the railroad industry.

Managers saw railroads as crucial to society and felt an obligation to transfer wealth from society's more successful parts to its less successful ones. Known as cross subsidization, this practice was not imposed on the railroads by regulatory authorities, as believed by present-day policy analysts, but came from within the railroad organizations as a consequence of their paternalistic culture.

Not surprisingly, such an attitude aroused extreme resentment. As American society became more interdependent and specialized, various parts of it increasingly attacked the railroad position. Railroad managers responded by adding a new dimension to their culture—what business historian Maury Klein describes as a siege or "us versus them" mentality.3

Railroad management paternalism and its siege mentality affected the way management interpreted the changing environment and formed new passenger policies between 1910 and 1920. So did management's view that passenger service promoted the main business of railroading, which was freight movement. The structure itself also led to decisions that proved financially disastrous by the 1930s.

Management structures for the Southern Pacific and the Santa Fe typified those of most large railroad corporations and changed little from the 1890s through the 1930s. Both were huge bureaucracies. In 1921, for example, the Southern Pacific boasted that its headquarters building in San Francisco daily handled about 60,000 pieces of mail, as much as did Sacramento, the state capital. Telegrams and telephone calls to the headquarters averaged 20,000 per day.4

As is typical of large railroads, the Southern Pacific and the Santa Fe organized their bureaucracies into three major line functions of operations, accounting, and traffic. Vice presidents headed these departments and reported to a president, who in turn reported to a board of directors. The board represented not only stockholders but also banking interests who financed the heavy debt typical of railroads. It also represented management, with
the president and one or more vice presidents sitting on it. Committees of the board usually established important policy; for the Southern Pacific the executive committee and the finance committee were important.\footnote{5}

To develop and analyze positions, Southern Pacific's president relied not only upon his principal line officers but also upon several staff assistants and organizations. Because of fights with users, regulatory bodies, and politicians, the legal department dominated staff functions and by the early 1920s occupied fully half the executive floor.\footnote{6}

Other staff functions provided technical and planning information. The chief engineer evaluated the costs of constructing and operating new alignments and also chaired the technical research committee, which alone or with suppliers developed such passenger products as the all-steel passenger car, air-conditioning systems, and streamlined trains. In this committee, the chief engineer drew upon the resources of the electrical engineer, the vice president and general manager of the Southern Pacific Land Company, the general superintendent of motive power, the mechanical engineer, and the engineer of tests.\footnote{7}

In addition to these staff offices, individuals assisted the president by preparing analyses of the consequences of courses of action that the president was considering. For example, during the 1930s presidential assistant Marion J. Wise estimated the cost and revenue consequences of proposed new passenger trains.\footnote{8}

The president relied most heavily on the vice president of operations, who directed the largest and most prestigious part of the organization. Operations included not only the movement of trains and the operation of tracks and terminals, but also their maintenance and betterment. The operations vice president managed these activities through superintendents, each of whom directed the affairs of the railroad within a specified territory, called a division. Each superintendent in turn directed an operating, traffic, and accounting staff. Traffic and accounting personnel within each division reported both to their division superintendents and to traffic and accounting officers in headquarters.\footnote{9}

Officers in headquarters coordinated the affairs of these far-flung empires with the aid of several types of information that flowed from the division level. One was cost accounting. In \textit{The Visible Hand} Alfred D. Chandler documents the evolution of cost accounting, which he holds as essential for the success of the business bureaucracy. Through cost accounting, top executives measured and controlled efficiency in the multidivisional and professionally managed firm. Railroad managers developed the technique in the period between 1850 and 1880, after which it spread to other industries.\footnote{10} Harold Livesay asserts that cost accounting, and hence cost
rather than price control, determined the success of big businesses such as Carnegie Steel: "By adhering constantly to his principle of knowing costs and reducing them at every turn, Carnegie drove his firm to the top, beat back his competitors as swiftly as they emerged, and set a pattern of bureaucratic management that American industry copied widely." ¹¹

From early in its history the railroad industry posted labor and material expenses into various accounts for each of its operating divisions. Separate accounts existed for such categories as maintaining locomotives, operating signals, and replacing rails on mainline tracks. From 1907 railroads kept accounts in accordance to the ICC-promulgated uniform system of accounts.¹²

Chandler shows how Albert Fink used accounts to develop operating statistics for assessing the performance of subordinates. Fink, a civil engineer and general manager of the Louisville & Nashville during the 1870s, studied his railroad's cost behavior and came to rely on statistics such as the cost per train mile for different divisions to assess the relative efficiency of division superintendents. Fink also developed statistics such as the cost per locomotive mile and fuel consumed per locomotive mile, observing that longer trains cost more to operate per mile, but that the cost per ton mile of goods carried in longer trains was less.¹³

Southern Pacific cost accounting and operational control practices followed this general pattern during the first part of the twentieth century. A 1908 report by two operating officers of the Pennsylvania Railroad describes the statistics in use on the combined Southern Pacific–Union Pacific system. The report notes that the use of statistics led Julius Krutschnitt, director of maintenance and operation of the system, to operate longer, heavier trains. According to division managers, the most useful statistics were the gross and net tons per mile, average tons per train, and freight locomotive mileage. There were also costs per locomotive mile and per gross ton mile, and costs per ton handled in freight stations for agents, clerks, and station labor.¹⁴ A 1914 Southern Pacific management training course inculcated trainees with the message that longer and heavier freight trains saved money and taught them what statistics to look for to achieve such objectives. These were similar to those in the 1908 report.¹⁵

Other crucial information included trends in costs and revenues. Railroads incurred costs and brought in revenue on a daily basis at hundreds of dispersed locations. The accounting department kept running tabs on these, allowing management to continually monitor the critical operating ratio: operating costs divided by revenues. The operating ratio told management whether the company was financially healthy and substituted for return on investment, used for this purpose in most other businesses. As Chandler
describes, railroads could not calculate return on investment because railroad managements did not engage in depreciation accounting and therefore lacked an understanding of their net investment in equipment and facilities. Instead, the trend in the operating ratio informed them of the value of recent investments. If the operating ratio went down after major investments, or if it held steady while traffic surged upward, the investments were earning a healthy return. The operating ratio also told management whether sufficient reserves would be left to service debt, pay leases and dividends, pay for the future betterment of plant, and provide profits. During the first decade of the twentieth century, Southern Pacific’s operating ratio hovered in the mid-50s, which was considered adequate.

Southern Pacific’s accounting department also provided management with the gross revenues earned by every train. Usually it divided these by the number of miles that the train operated to provide a statistic of gross revenue per train mile. With this number management could compare trends in gross earnings between different trains. Unfortunately, during the first two decades of the twentieth century management had no idea of how much it cost to operate a train, except for the cost of the train crew and of fuel. These two categories amounted to about 10 percent of the cost of running the railroad. Thus, while management could compare trends in gross earnings for individual trains, it could not compare trends in net earnings, a shortcoming that proved crippling to the evolution of management strategy in the ensuing years.

Railroad management structures divided passenger responsibility among several officers. The only officer who (supposedly) oversaw all aspects of passenger management was the president, who rarely had time for this task. Most responsibility fell to the superintendent of transportation and to the manager of passenger traffic.

Such divisions of responsibility typified both the Southern Pacific and the Santa Fe. On both roads, the general manager of the operating department made major passenger operating decisions. These included what trains to run; where, when, and how fast to run them; and what equipment to use. Assisting the general manager, the superintendent of transportation specialized in matching forecasts and desires from the traffic department with the capabilities of the operating department. Informed by routine reports of train earnings emanating from the accounting office, the superintendent prepared the passenger schedules and sought operational means for reducing costs or enhancing the marketability of services. Equipment designs and planning work came from the executive offices.

The manager of passenger traffic oversaw solicitation and forecasting of passenger traffic, represented the company in passenger matters with
other railroads and with the public, and prepared tariffs consistent with regulatory requirements. Several sources of information allowed him to feel and interpret the pulse of passenger traffic. He could compare passenger earnings for particular trains and for the entire railroad with the growing population of the Southern Pacific territory to determine whether passenger traffic was increasing with the area. From ticket receipts he could determine between what points the greatest volume of passengers rode. Ticket agents and passenger agents who rode trains could convey more personal impressions of traffic trends and make observations about what passengers liked and disliked about Southern Pacific services. The passenger traffic manager also employed agents to ride and make reports on competing services. He participated actively in the association of western traffic officers. Finally, as a member of the most prestigious social clubs of San Francisco and Los Angeles, he obtained firsthand opinions of what elite groups thought about Southern Pacific services and about alternative methods of travel. Gradual trends in preferences manifested themselves through these indicators, as did public reaction to major service changes.19

In general the passenger traffic manager reported to the vice president of traffic, who also oversaw freight traffic. This was true of the Santa Fe through the entire period of this study, and it was true of the Southern Pacific until the late 1920s.20 In 1929 the Southern Pacific promoted Felix S. McGinnis, passenger traffic manager of the Pacific System, to a new position—vice president of passenger traffic for the entire company, including rail operations in Texas and Louisiana and the company’s steamship operations.21

Railroad passenger management also included dealings with the Pullman Company, which contracted with most of the nation’s railroads to build and operate sleeping cars. Contracts varied from road to road but generally incorporated remuneration to the Pullman Company for the break-even cost of building and operating its cars. Included were the capital and operating costs of the Pullman manufacturing and maintenance plants. From around the turn of the century until the early 1920s the Pullman Company used a figure of about $7,500 per car per year as the amount necessary to make itself financially whole. If room fees that sleeping car passengers on each railroad paid the Pullman Company exceeded this amount, Pullman shared the excess with the railroad. If room fees fell short, the company required the railroad to pay it an additional amount, which usually amounted to one to two cents per car mile. If confronted with situations where they would have to pay more than this amount because of light traffic, railroads typically would not operate sleeping car service.22

Under this arrangement railroads with rapidly expanding long distance
traffic built up substantial sleeping car fleets. By the early 1920s the Southern Pacific and the Santa Fe contracted for the third and fourth largest fleets of Pullman cars in the United States, and each year the Pullman Company returned to each of them excess revenues, which in 1923 amounted to about $3,500 per car.23

Such a structure and information system produced a relatively straightforward management method. Traffic officers solicited as much freight and passenger business as possible. They also predicted traffic growth based on population and income growth. Division operating officers organized trains to move the traffic as efficiently as possible. If traffic rose, they operated more and longer trains. If it fell, they cut back the number of trains but tried to refrain from reducing their lengths. Track and shop maintenance forces repaired any damage that train operations caused. The movement of more tonnage caused more damage, necessitating the hiring of additional maintenance forces. If tonnage fell, less maintenance was needed and forces were laid off. Division officers and those in headquarters monitored the flows of trains and prepared plans for additional tracks or larger terminals to alleviate congested bottlenecks. They also devised capital programs to lower operating costs, usually by lowering grades, installing larger rails, and designing larger cars and bigger and more powerful locomotives. Operating longer and heavier trains was the goal. If traffic was falling, they discontinued trains whose gross earnings fell below crew and fuel costs. In short, traffic officers created traffic, and a myriad of operating and maintenance officers almost semiautomatically reacted under the general theme of moving traffic as efficiently as possible.

All of these activities incurred expenses and earned revenues, whose relationship the accounting department closely watched. If the operating ratio (expenses divided by gross revenues) looked healthy, the executive office routinely approved requests from the divisions to expand the physical plant to alleviate congestion or improve efficiency. On the other hand, a ratio creeping upward signaled a need for rate increases, and if these failed, the executive office cut off investments. If the ratio became dangerously high, the executive office ordered cutbacks in all but the most immediately needed operating and maintenance expenses, regardless of the dictates of moving traffic.

In the decade following 1910 such railroad management methods came under increasing criticism because they treated revenues and costs as independent phenomena. Management attempted to get as much gross revenue as possible, and it attempted to move traffic at the lowest possible cost. Although this practice often yielded profitable results, it could lead to unprofitable situations. Traffic bringing in high gross revenues might incur
even greater costs. Profits would be higher if management did not carry such traffic. On the other hand, when management cut back expenses during times of recession, it might unknowingly eliminate the means for bringing in revenues. For example, a recession might prompt management to institute severe reductions in equipment maintenance, leading to service deterioration and the subsequent loss of profitable traffic. Both types of abuses could occur because management ignored the relationship between costs and revenues for different types of traffic.

Such criticisms arose as railroads became increasingly less profitable after 1907, even as traffic continued to rise. Up to this time railroad managements made dramatic improvements in railroad productivity. The economic historian Albert Fishlow demonstrates that between 1839 and 1910 American railroad productivity advanced at the average rate of 3.5 percent per year, considerably faster than the 1.3 percent rate of productivity growth for the economy as a whole. According to Fishlow, such growth resulted from ever longer trains composed of ever larger cars more heavily loaded and pulled by ever larger and more efficient locomotives. The development of cheap steel rails, more than any other technological innovation, spurred this development.24

By 1910 the railroad strategy of operating longer and heavier trains produced diminishing returns, slowing railroad productivity growth to an annual average of about 2.7 percent. At the same time, productivity growth for the nation accelerated to more than 3 percent. Railroad productivity improvements no longer could compensate for increasing prices of materials needed to operate the railroad, and operating ratios of railroads across the country moved ominously upward. Three times between 1910 and 1917 the nation’s railroads sought blanket rate increases, but each time the Interstate Commerce Commission denied them. The huge investments that most of the nation’s railroads made between 1897 and 1910 were not producing the desired results. As Albro Martin documents, railroad managers after 1910 found it increasingly difficult to obtain enough capital to keep ahead of traffic growth.25

While the railroads argued that the Interstate Commerce Commission’s failure to grant rate increases had gotten them into such desperate financial straits, critics replied that railroads got themselves into the situation through cost ignorance that caused them to carry substantial volumes of traffic at below cost. This criticism took note of a growing body of evidence showing that management’s paradigm of railroad economics was false. As described in the previous chapter, management believed that most costs of running a railroad were constant. Managers believed that if they got traffic at rates slightly more than those compensating them for fuel and crew costs, they
increased their profits. By 1910 knowledge centered in the Interstate Commerce Commission showed this notion to be false: if traffic moved at rates close to what managers thought the out-of-pocket costs were, such traffic in fact increased total railroad costs more than it contributed to revenue. If railroads carried a large amount of this type of traffic, they were forced to raise general rates to remain solvent.

Such evidence began accumulating as early as the 1870s, when Albert Fink studied the variation of individual cost accounts on different divisions of the Louisville & Nashville. Watching how the accounts changed as traffic fluctuated, he concluded that more than 60 percent of total costs varied with traffic. Another southern railway manager, T. M. R. Talcott, corroborated these findings in the 1890s. In 1901 he wrote that management must understand the costs of moving different types of traffic if it was to defend itself against cross subsidy complaints:

There is a strong and abiding impression in some quarters that railway companies charge high rates on local freight traffic to make up for losses on competitive traffic; and how are we to say that such is not the case if we do not know the cost of doing either local or competitive business? Railways will never be able to make proper defence against this and other charges until they can show with some degree of accuracy what each and every class of business does cost them.

Unfortunately, Talcott's work, like Fink's before him, showed that the railroads probably did lose money on competitive traffic because the true costs of moving this traffic were far higher than management thought. Later that decade the future head of the ICC economics section came to the same conclusion. Having recently obtained his Ph.D. in economics from the University of Wisconsin, Max O. Lorenz in 1907 published findings in the Quarterly Journal of Economics showing that as traffic grew on railroads, the accounts typically thought of as being fixed grew as fast as or faster than traffic. Sometimes they grew even faster than accounts that were supposed to be variable. Almost a decade later Lorenz presented fresh research showing that for mainline traffic densities, almost 100 percent of costs were variable. This means that if one took the total fixed and operating costs for running a railroad for one year and divided them by the total number of ton miles (with passenger miles converted to a ton mile equivalent) operated that year, the resulting cost per ton mile would accurately reflect how much the railroad's total annual cost would increase if it carried one more ton one more mile.

Such knowledge led the ICC staff to conclude that many types of railroad traffic lost money. As special counsel to the ICC, Louis D. Brandeis reflected this view when he argued against general rate increases in 1914:
A most surprising difference exists in respect to cost accounting between railroading and manufacturing. Leading American manufacturers know accurately to-day the cost of every one of the numerous articles made and sold by them. Railroads which make and sell a most varied transportation service do not know the cost of any of the services which they furnish. Only a few of the railroads undertake to separate even the cost of freight and passenger service in the aggregate; and among these few there is nothing approaching a consensus of opinion as to the proper basis for such separation. . . . In manufacturing accurate cost accounting was found to be a condition precedent to high operating efficiency; and it was found even more essential as a means of insuring the concern against engaging in unremunerative business. What was thus found to be true in manufacturing is equally true in railroading. Cost of service should not, perhaps, determine the reasonableness of a rate; but it is clear that without knowledge of the cost of a particular service it is impossible for railroad officials to protect the company's revenues against unremunerative rates. Carriers' legitimate revenues can not be conserved unless the rate maker has a reasonably accurate knowledge whether a particular service is rendered at a profit or at a loss. In the absence of such knowledge, the traffic manager's success or failure is tested by the tonnage moved instead of profit earned. No adequate explanation can be found for the multitudinous instances of unremunerative rates and practices prevailing on our railroads hereinafter referred to, except lack of knowledge on the part of managers of the disastrous financial result of these rates and practices.\(^{30}\)

Such beliefs led Brandeis to proselytize against cross subsidization—the practice of the railroad using profits from one area to cover losses in another. Since at least 1910 the ICC endorsed the principle that each type of service should be self-supporting in all respects. In several cases rail carriers sought rate increases for noncompensatory services. They would not provide the commission with cost data. However, the cases were such that the railroads obviously were incurring higher costs providing one type of service compared to another having similar rates. In such cases the commission granted rate increases for the apparently higher cost services. Such willingness in the absence of hard cost data suggests that if the railroads had systematic cost data, the commission would have allowed widespread rate increases for unremunerative services.\(^{31}\)

Railroad management typically rejected ICC pressure to end cross subsidies by pointing out that ICC directives ran counter to the railroads' social obligations. The Pennsylvania Railroad's George Stuart Patterson set the tone when he replied to Brandeis on behalf of the eastern railroads. Patterson stated that railroad management methods reflected the value of service theory of making rates and that to upset this theory with another based on cost of service would upset American society. He added that it was the
duty of American railroads to protect less fortunate areas and users with cross subsidies. If the railroads did not do this, many markets would fail, as would railroads with long, indirect routes. He concluded that the effect of railroads ending cross subsidies would be revolutionary, and neither the public nor the railroads would stand for it.32 Today many criticize regulation for having fostered cross subsidies against the will of efficiency-minded railroads. In reality quite the opposite was true during the Progressive era.

Management revealed another reason for not wanting to identify the costs of particular classes of service. It thought that such knowledge in the hands of politicians or shippers would further weaken its control over transportation policy. The Interstate Commerce Commission commented on this fear in 1915 when it forced the railroads to estimate the costs of running passenger service: “The possible misuse of information collected was also urged as a reason for not developing the subject of railway cost accounting. It was argued [by the carriers] that to give cost accounting information to the public would be the same as giving dangerous instruments to children.”33 This comment also reflects the paternalistic attitude of railroad managers toward the groups who used their services.

Southern Pacific’s management methods followed the generalizations drawn from national experience. The company generally did not try to find the costs of moving different types of traffic and instead relied on the operating ratio as an indicator of the success or failure of investments and operating practices. Such methods adequately served management when it monopolized transportation and engaged in geographic rate discrimination. Falling corporate profits could be corrected merely by a general rate increase. However, after about 1910 such methods proved increasingly inadequate. Tightening rate regulation and increasing competition circumscribed management’s ability to raise general rates. In the new environment management needed to know the profitability of each type of traffic that it carried and to either lower costs or raise rates for categories of traffic that were unprofitable. In the new environment, management’s blindness to the profitability of its various types of traffic proved to be an ever greater liability that contributed to an unsatisfactory bottom line.

The company’s operating ratio told management the grim story, although it provided little guidance about what was causing the problem. As documented in table 5, during the first years of the century the Southern Pacific’s operating ratio generally was in the low to mid-50s, which was considered adequate. Investments that the Harriman regime made between 1901 and 1910 enabled the company to accommodate an astonishing growth in traffic with no loss in profit margins, as indicated by generally
stable operating ratios during those years. Because overall company operating profits were the product of unit profits multiplied by volume, surging volume between 1900 and 1910 brought surging profits.

After 1910 the results looked much less favorable. Management continued to make large investments, but freight and passenger traffic remained relatively flat, while the operating ratio rose from 53 in 1910 to 60 in 1915. Management saw declining profit margins on each unit of traffic, represented by the increasing operating ratio, multiplied by stagnant sales, represented by traffic volume. Apparently the massive investments made after 1910 were going to waste.

The situation failed to improve in 1916 and 1917. Because the war in Europe began to stimulate U.S. industry, traffic rose rapidly in both of those years, but the operating ratio also climbed to 63 in 1916 and dropped just slightly to 62 in 1917. These trends indicated to managers and investors alike that the Southern Pacific was not an attractive investment.

By 1914 suspicion began to focus on passenger traffic as one culprit in the worsening financial picture of the nation’s railways. Brandeis and the ICC staff suspected that railroad passenger service constituted the most blatant example of cross subsidies. While railroad executives admitted that passenger service lost money, Brandeis believed that it lost much more than they thought. To shed light on this issue, as well as to take the first step in finding the cost of other services that railroads provided, the ICC in 1915 ordered the railroads to separate costs between freight and passenger service. According to the order, railroad accountants were to divide expenses in each railroad account into solely related freight expenses, solely related passenger expenses, apportioned freight expenses, apportioned passenger expenses, and unapportioned expenses. In the account for operating signals, for example, the cost of operating signals in passenger terminals was entered into the solely related passenger category, while the cost of operating signals on the mainline was divided between the apportioned passenger and apportioned freight categories, generally in accordance to the relative passenger and freight ton miles passing the signals. The total cost of a railroad’s passenger operation was the sum of the solely related and apportioned parts of each expense account.

Railroad managers resisted commission directives to separate costs because they could see no benefit from the effort. They devised different methods for apportioning costs and argued that because there was no theoretical justification for choosing one method over another, cost separation studies produced arbitrary results. Commission statisticians countered by demonstrating that for practical purposes all of the railroad methods yielded
the same results. The statisticians also argued that expense accounts jointly shared by freight and passenger service were not fixed expenses, as most railroad managers believed. The statisticians knew very well that if either passenger or freight service increased, so did the expenses in the particular joint expense account. For these reasons the ICC kept and refined the formula for separating freight and passenger expenses, and some railroad managers gradually came to accept it as providing a rough indicator of how much total passenger service drew upon company resources.36

The first separation of expenses occurred in 1916 and is summarized in table 2 for the Eastern, Western, and Southern districts of the United States. For the nation as a whole, the separation showed operating ratios of 72 and 74 for freight and passenger service respectively. Knowledgeable railroad industry critics generally conceded in the early 1920s that the railroads were not earning an adequate rate of return for several years prior to World War I.37 Martin shows that 1916 was a year typical of this period. Thus, an operating ratio of 74 indicates unprofitable passenger service in 1916. Passenger service grossed enough to cover its operating costs but not enough to provide an adequate return on investment. Because the passenger operating ratio stood at the even more unsatisfactory level of 77 for the Western District, in which the Southern Pacific and the Santa Fe were the largest companies, it is likely that passenger service for both of these railroads was unprofitable in 1916. This condition represented a considerable deterioration from the profitable operating ratios of 55 and 58 for Southern Pacific local and long distance passenger trains respectively in 1911, as estimated in the notes for tables 1 and 2 and as discussed in the previous chapter.

Part of the turnaround in passenger fortunes came from rapidly falling demand. Trends in the gross earnings per train mile for different trains could not be located, but statistics reported to the California Railroad Commission suggest what the revenue per train mile for individual trains told management. One message was the collapse in demand for many (but not all) local trains. Total traffic using intrastate trains remained fairly static over the period, but usage per person declined steadily after 1913. During this time, Americans were getting richer, as measured in gross national product per capita. Passenger traffic managers knew this in a general sense, and they expected local passenger traffic to increase with rising income. Yet we see in figure 2.1 that the percentage of income that Californians spent on intrastate trains declined by 70 percent between 1911 and 1917, much faster than the decline in spending by the average American for all passenger service. It also declined much faster than Californians’ spending
2.1 California passenger revenues as a percentage of California income, 1911–1920. Source: Table 20

on interstate trains. There could be no doubt in the minds of passenger traffic officers that many local passenger services were rapidly becoming less important in the lives of Californians.

Because the intrastate figures in table 6 are averages, they mask differences in demand for different types of intrastate trains. They reflect the results of trains as diverse as Pullman limiteds operating between Los Angeles and San Francisco, intercity locals running between large cities such as San Francisco and Sacramento, and rural locals such as those shuttling between Exeter and Coalinga in the San Joaquin Valley. Although revenue per train mile figures could not be found for such diverse trains, by looking at trends in electric interurban train usage, shown in table 7, we can infer what they told management. These figures suggest that the more rurally oriented the rail service, the earlier and more severe was the traffic decline. The most rurally oriented of these services, the Visalia Electric, carried sizable passenger volumes after it opened in 1908, but despite rapid population growth in its service territory, patronage dropped rapidly after 1914. The Tidewater Southern, connecting the larger towns of Modesto and Stockton, carried traffic more intercity in nature. Traffic grew faster than the rapidly growing population that it served until 1917, after which
traffic started dropping. Finally, the Oakland, Antioch & Eastern and its successors connected San Francisco and Sacramento with service that was faster than Southern Pacific’s until 1930, and it catered mostly to intercity travelers between large urban areas. Its traffic grew until the nationwide fare increase of August 1920, after which it shrank less drastically than the traffic of the other lines.40

These figures suggest that management saw demand collapse for its once lucrative rural passenger train services beginning about 1912. However, demand held up much more for trains linking large urban centers, such as Sacramento and San Francisco. Demand also likely held up for the Pullman and day trains linking Los Angeles and San Francisco, although even for these trains rapid growth likely tapered off.

The latter can be inferred by the fact that demand for some of the interstate trains serving California also started declining before World War I. Demand for Southern Pacific interstate trains kept up with population growth (see table 6), but not with income (figure 2.1). Economic cycles also influenced it. As shown in table 6, a two-year recession in 1914–15 broke a generally positive trend in long distance train usage between 1911 and 1917 for the Southern Pacific.

Another reason for the poor financial showing of passenger service was the fact that management used it partly as a ploy to smooth over relations with the public. For most American railroads throughout most of their history, management viewed passenger service as a by-product of a physical plant whose primary function was to move freight.41 Even at its peak around 1916, American passenger service accounted for only a quarter of gross railroad revenues, although in more urban regions, such as the Northeast, the Great Lakes industrial areas, and California, the percentage was higher. Because of the Southern Pacific’s heavy local traffic in California, passenger revenues accounted for 36 percent of its operating revenues in 1916.42

The by-product status of passenger service suggests that management could have viewed it as something other than a source of profits if it chose to do so. Statements by railroad executives suggest such was the case. After several months of observing American railroad practices and interviewing the industry’s top managers in 1900, London Times reporter Edwin Pratt concluded that railroad managers stimulated passenger service as a means for promoting freight traffic:

Railway officials in America have an axiom that a man “ships” his merchandise by the route he travels, so that, if they can only secure his patronage as a traveler, which in itself may not be much, they will count on carrying his merchandise or agricultural products, which may amount to a great deal. . . . The leading
trains . . . become little more than traveling advertisements, which are talked about, make the line better known, but are not run at any direct profit.\textsuperscript{43}

Pratt added that management operated the great majority of passenger trains for the average person riding short distances and generally neglected these, an argument also made by the intellectual Walter E. Weyl.\textsuperscript{44} The Railway Age Gazette editorialized in 1914 that Pullman services, luxury trains, and the great marble temples serving as passenger terminals cost the industry dearly.\textsuperscript{45} John A. Droege, a superintendent for one of the nation’s important passenger haulers, echoed these views two years later when he wrote: “There are many reasons why the passenger business of American railroads does not pay; they nearly all come down to the simple fact that the American carriers, as far as passenger traffic is concerned, have ever made service their watchword instead of profits.” Droege went on to list the luxury services that railroads provided for elite groups at little or no added cost. In addition to palace-like city terminals, these included “observation cars, buffet smoking cars, and the provision of libraries, baths, stenographers, valets, maids, and barbers, either free or for a nominal charge.”\textsuperscript{46}

Few if any railroad executives argued that the railroads should curtail such wasteful passenger practices. Rather, they wanted more revenues to finance them. Had they viewed passenger service as a profit-making enterprise, they would have looked to passengers, particularly those who benefited from luxuries and the great marble palaces, as the source of extra revenues. Only in a few states in the West outside of California did the railroads seek minor passenger rate increases, and these were to bring local rates up to long distance rates.\textsuperscript{47} To finance these practices, as well as many others, the nation’s railroads wanted general freight rate increases.\textsuperscript{48} Thus, even the passenger services that the public demanded lost money in 1916, and they did so because the railroads did not run them in a businesslike—i.e., profit-oriented—manner.

Southern Pacific’s passenger decisions after 1910 reflected such objectives. Generally where the public, particularly members of the elite public, continued to use passenger trains, the company continued investing in the services, whether or not the trains earned a profit. Where the public stopped using trains, the company stopped investing in the services.

These practices perhaps grew out of efforts the company made after 1910 to heal the rift with California’s elites. Until his death in 1909, Edward H. Harriman served as president of the combined Union Pacific and Southern Pacific system. Harriman directed the affairs of the colossus from his offices in New York. Robert S. Lovett followed as president in 1910, but he quickly implemented a policy of decentralization. In 1911, following the disastrous California elections, Lovett relinquished the presidency of
both roads to separate presidents, who managed their respective companies from offices within the territories served. Lovett chose William Sproule, an affable Irishman with excellent public-speaking abilities, to manage the Southern Pacific from San Francisco. Sproule participated in the city’s social circles and carried the message throughout the state that the railroad was an institution whose well-being was essential for California. Other Southern Pacific executives also stressed the theme that if the public wanted continued service, it had an obligation to give its servant the sustenance necessary for good health. A nurtured, regulated California monopoly was preferable to competition from out-of-state corporations.

Danny McGanny credited Sproule with winning California’s elites to the railroad’s side during its fights with the Justice Department over control of the Central Pacific. McGanny was in a position to know the company’s lore. He hired on as an office boy in the San Francisco headquarters before World War I and rose to become the railroad’s vice president of research during the 1960s. He was particularly proud of the fact that even the newly reorganized railroad commission came to the Southern Pacific’s support. Stuart Daggett’s writings confirm this and also stress that the normally anti-railroad San Francisco Chronicle changed its editorial tone before World War I. By the early 1920s, if not before, the weight of California opinion supported the Southern Pacific.

Under Sproule, it appears that the railroad entered into a social contract with the state’s leading interests. Part of the railroad’s obligation in return for support in the Central Pacific fight was to provide a comprehensive transportation service to the state. Its decisions on passenger service suggest that Southern Pacific management viewed heavily used passenger services as essential to its social contract, even if they were unprofitable. However, if the public stopped using passenger services, the company would discontinue them.

By 1914 Southern Pacific management realized that passenger traffic growth no longer kept pace with the mushrooming population. It attributed part of the slow growth to temporary conditions, including the economic slump of 1914 as well as the deferment of long distance travel to 1915, when San Francisco would host the Pan Pacific Exposition. More ominously, it noted a new condition that only could be expected to worsen: growing use of the private automobile, which particularly affected rural local trains. By 1916 management added the state highway policy to the list of causes. In that year of economic recovery, long distance passenger traffic rebounded, but rural local traffic continued to decline. The company reprinted a story from the Redding Courier Free Press entitled “What is to Become of Railroads Paralleled by State Highways?” The writer argued that highways
should be built to serve stations in order to build up rail traffic, but instead they were being built parallel to mainlines and were designed to siphon traffic away from trains. The reporter observed that empty trains ran along mainlines paralleled by new state highways over which traveled hundreds of automobiles carrying freight and passengers.54

Southern Pacific executives undoubtedly were among the first buyers and users of autos, as were their social contacts in San Francisco’s elite clubs. From such a perspective they likely viewed the impact of autos and highways on local trains fatalistically. If passengers stopped using trains because they owned autos and advocated roads, so be it. As early as 1915 the company’s timetables advertised that passengers could take their autos with them on the company’s Sacramento River steamers. By 1917 a company brochure promoting travel to San Francisco gave more details about getting around the Bay Area by automobile than it did about local trains.55

In 1915 the company ceased expanding rural local trains and stopped investing in them as well. Its opening in 1915 of a large and beautiful passenger station in Visalia marked the end of such investments. Most of the trains themselves continued to operate with increasingly outmoded wooden cars.

Thereafter the company sought means to reduce operating costs. It experimented in the application of motor vehicle technology in an effort to cut operating costs where traffic was light. By 1914 it had implemented McKeen gas-mechanical cars on several runs over the Sierra and on its old mainline into San Francisco, as well as on the Los Banos route in the San Joaquin Valley. It also installed automatic ticket machines in the Ferry building to expedite exposition traffic. To make coach travel more attractive in the San Joaquin Valley at a low cost, the company in 1917 equipped some trains with small lunch trolleys that served passengers from the aisles, much like today’s airline service. It also improved food and beverage service on its El Dorado operating between San Francisco and Sacramento.56

The company treated its electric operations more favorably, although its heavy investments in suburban electric train operations apparently never earned a return. The financial performance of the electric lines stood out, because the company organized them as autonomous sections of the railroad or as subsidiary companies, effectively segregating their financial performance from the rest of the system. In 1914 the Pacific Electric Railway carried huge and increasing numbers of passengers in the rapidly growing Los Angeles metropolitan area, and although revenues covered expenses, not enough was left to pay bond interest. Electric operations in the San Francisco area performed even more poorly. After about 1917 the Peninsular Railway no longer covered operating expenses, although the economic historians George Hilton and John Due attributed part of the problem with
this system to absentee management. Work rules contributed to financial problems for the company’s East Bay electric operations, which operated under steam railroad work rules rather than the less restrictive streetcar work rules governing the Pacific Electric. Southern Pacific’s $10 million investment made between 1909 and 1912 to improve these lines failed to earn even operating costs in 1914, let alone a return on investment. I have no evidence on the profitability of Southern Pacific’s rural electric services in Oregon, but in view of the results in the Bay Area, it is almost certain that they, too, lost heavily.\textsuperscript{57}

Although the electric operations lost money, their ridership grew rapidly into the 1920s. As we have seen, the company attempted to increase the revenues of its East Bay electric services by fare hikes and decrease their costs by work rule changes, but when politics foiled both efforts, the company faithfully continued operations. It continued investing in both its Oregon and its Los Angeles suburban operations until the early and mid-1920s, when ridership began to decline.

Long distance trains presented still a different situation. Although their usage increased, they lost money by 1914, according to Southern Pacific board chairman Julius Kruttschnitt. Kruttschnitt testified that Pullman services cost more than the railroad received in compensation. Yet everybody believed that Pullman trains were necessary, and the Southern Pacific kept expanding them.\textsuperscript{58} Between 1910 and 1917 it replaced their wooden coaches, dining cars, and observation cars with new steel cars. This was partly in response to the Pullman Company’s retiring most of its wooden sleeping cars in favor of the steel cars. The policy also reflected the fact that California’s elites rode such trains and would continue doing so, even if they owned autos. Unfortunately, the heavy steel trains, which increased the tare weight per passenger by more than 40 percent, contributed to the worsening economic performance of passenger service. They cost much more than the wooden-bodied trains they replaced, and the weight liability came not only in the cars but in the locomotives. To pull the heavy steel trains, the railroads ordered much larger and costlier locomotives. Through the 1920s locomotive weight increased as the heavy trains were speeded up. By the end of the decade locomotives generally weighed half as much as the rest of the train. Trains almost always were accelerating or braking, and as average speeds for passenger trains increased, the liability of the heavy steel equipment became ever greater in fuel consumption and in wear and tear on the locomotives and track. These factors undoubtedly contributed to the trains’ declining economic performance by 1914 and likely plagued the railroads even more in later years as they converted ever greater proportions of their service to the heavy steel equipment while also speeding up service.\textsuperscript{59}

General investments in Southern Pacific infrastructure declined after
1913. In that year Sproule threatened to cease investments if earnings were not permitted to increase. They were not, and with the Justice Department threatening to strip the Central Pacific from the company, the company curtailed many of its planned investments in 1913, including double tracking the main route between Sacramento and Ogden, building a new line between California and Oregon, and improving the line over Tehachapi Pass.

Santa Fe management generally adopted the same approaches toward its passenger operations as did the Southern Pacific before 1918. Between 1911 and 1916 the Santa Fe expanded its intra-California passenger service by 45 percent, measured in train miles, even though in 1914 Santa Fe president E. P. Ripley claimed all passenger service lost money:

You may say of the traveling public that the freight business is paying a portion of their expenses right now, for there is not a railroad in this country, at least no railroad west of the Allegheny Mountains, whose passenger business and mail business, judged by any proper standard of the ratio of expenses to income, is compensatory.

The company also re-equipped its mainline passenger trains between Los Angeles and Chicago with steel cars, and it increased the amount of service offered by these trains. Between 1911 and 1917 their California service grew by 26 percent, and in 1917 it grew by another 2 percent.

Although both types of Santa Fe passenger trains lost money, the company expanded them until 1916, and after 1916 it continued to expand its interstate trains. However, in 1917 the company abruptly changed its strategy for intra-California services by cutting train mileage 7 percent. At that time these trains provided heavy local service in the San Joaquin Valley, on various main and branch lines in the Los Angeles basin, and between Los Angeles and San Diego. It can be inferred by this action that the importance of at least some of the trains suddenly diminished in the eyes of company managers.

Had the United States not entered World War I, California’s rail passenger managers probably would have done little more for several years. As it was, the country’s entry into the conflict in April 1917 precipitated a crisis for American railroads that drastically changed the nature of passenger service in California and forced rail managers to inject a greater dose of economic considerations into their passenger decision making.

After the country entered the war, rapidly rising freight traffic paralyzed eastern ports and the rail yards serving them. The paralysis spread as eastbound freight trains backed up along mainlines feeding into the eastern seaboard. Soon choked yards and stranded trains tied up so many cars that
shippers across the country could not obtain empty cars. To unsnarl the mess, the nation’s rail leaders formed coordinating councils. When their efforts failed, the government stepped in.\textsuperscript{64}

In a December 1917 executive order, President Woodrow Wilson established a new federal controlling agency, the United States Railroad Administration (USRA). Wilson appointed Secretary of Commerce William McAdoo as director general of railroads and charged him with the task of getting freight where it was needed for the war effort. While the operation of the nation’s trains remained under the control of most of the same managers who had previously operated them, these managers now looked to McAdoo for leadership. Decisions were made by councils of railroad executives and labor officials in consultation with McAdoo. In a move that neither users nor the Interstate Commerce Commission anticipated when they encouraged federal control, Wilson, and later Congress, left them out of the decision-making process.\textsuperscript{65}

McAdoo ordered that each railroad eliminate unessential passenger service. He also prohibited competitive passenger service between railroads. Where competition existed, one railroad would emerge as the dominant carrier. To the extent feasible, railroads also would jointly use passenger terminals and city ticket offices, closing those made redundant by such consolidation. Finally, McAdoo ordered railroads to curtail the use of observation and dining cars and to cut out the operation of second and third sections of trains to the extent feasible.\textsuperscript{66}

In California the USRA designated the Southern Pacific/Union Pacific Overland Route as the primary passenger service between San Francisco and Chicago. It chose the Santa Fe as the primary carrier between Los Angeles and Chicago. It evidently chose the Southern Pacific as the dominant carrier for most intra-California traffic.\textsuperscript{67}

California’s railroads quickly responded. The Santa Fe abandoned its efforts to develop local train service in California, while the Southern Pacific showed its intent to keep providing comprehensive passenger rail service in the state. On New Year’s Day 1918, Santa Fe president E. P. Ripley ordered the demise of the \textit{Saint} and the \textit{Angel}. Only seven years earlier he had inaugurated these overnight luxury sleeping car trains between Los Angeles and San Francisco to compete with the Southern Pacific \textit{Lark} and \textit{Sunset Limited}. Although the Santa Fe ran its contenders as fast as possible, speed could not overcome the Santa Fe’s inferior route between Los Angeles and San Francisco. The \textit{Saint} and \textit{Angel}’s seventeen-hour schedule paled in comparison to the \textit{Lark}’s fourteen hours. Except for the exposition year of 1915 and the war-inflated year of 1917, the two trains typically carried about forty to fifty passengers each.\textsuperscript{68} They expired on January 6,
1918. Six months later the Santa Fe eliminated more than half of its intra-California train mileage. Its Los Angeles to San Diego line emerged as its only strong service in the state. The Santa Fe also virtually eliminated service between San Francisco and Chicago. While the Southern Pacific also cut back its mainline and local trains in California, it continued to operate more complete service, with several trains per day on most of its routes. The exception was in the Los Angeles basin, where it slashed most of its remaining local train service. However, its subsidiary Pacific Electric Railway served these areas.69

War-related policy of the USRA favored the Southern Pacific by eliminating most coastal shipping competition during the duration. The War Department requisitioned the Harvard and the Yale as well as other fast passenger ships in the San Francisco to Portland trade. Remaining coastal steamers came under the jurisdiction of the USRA, which raised their rates. Coastal steamer companies had already raised their rates by 63 percent in 1917 to compensate for higher costs. In 1918 the USRA increased coastal steamer rates by another 25 percent, bringing rates to 108 percent higher than in 1916.70 As is seen in table 6, these actions, together with the end of Santa Fe competition, swelled the volume of Southern Pacific passenger traffic in California, while the Santa Fe’s intrastate passenger presence dropped precipitously. However, the Santa Fe emerged from the conflict with heavily developed passenger service between Los Angeles and Chicago.

Federal control also increased both the costs and fares for passenger service. In 1918 McAdoo granted skilled railroad workers 30 percent wage increases to keep them from leaving railroad shops and trains for more lucrative manufacturing jobs. Coming on top of a 1916 law that reduced the railroad worker day from ten to eight hours, this increase pushed daily wages to 62.5 percent above those in 1916. McAdoo raised both freight and passenger rates about 40 percent in partial compensation. Passenger fares, which had hovered around 2.2 cents per mile for the previous twenty years, rose to 3 cents per mile in 1918. McAdoo also slapped a surcharge on the rent for Pullman rooms. Railroads rather than the Pullman Company kept this amount. The surcharge was intended both to depress Pullman usage and to compensate railroads for a service that railroad managers believed was becoming increasingly unprofitable.71

Users protested the rate increases, to little avail. While their protests prompted McAdoo to rescind the Pullman surcharge, they had no effect on the other freight and passenger rate increases.72 Because they were excluded from decisions affecting what they considered to be their transportation system, shippers turned against government control.
When the war ended in November 1918 McAdoo recommended that Congress extend government control for another five years. Labor interests and some others advocated outright nationalization. Users, on the other hand, demanded a return to the pre-war situation when their voices dominated decisions of the Interstate Commerce Commission. Railroad managers vehemently opposed nationalization but would submit again to the ICC if it were made more responsible to the needs of the railroad industry. A compromise between railroad users and managers prevailed. Congress returned the nation's railroads to private operation with reformed regulatory oversight in March 1920.73

Before they did so the USRA and labor agreed on new national work rules and cost increases that were to affect the postwar viability of passenger service. Many view these agreements as a deleterious consequence of government control; a more accurate interpretation is that they were the price railroad management paid to return to private control. Upon deciphering the will of Congress in January 1919, McAdoo resigned as director general in favor of Walker D. Hines, a lawyer and board chairman of the Santa Fe who allegedly was contemptuous of labor and shipper interests. He subsequently signed national agreements with the railroad brotherhoods on the eve of private control in order to quell labor unrest. Labor's mood turned ugly upon learning of Congress's intent to return the roads to private control. It appears that managers needed a labor force with a better attitude and gave labor large concessions in an attempt to get it.74

Whatever the reasons, the agreements left the nation's railroads headed for a $1.2 billion operating deficit. Higher rates were needed, but Hines refused to further anger users. Instead, he slashed the 1919 maintenance program and passed the onus of rate increases on to the new Interstate Commerce Commission. When the USRA returned the railroads to private control in March 1920, deferred maintenance and the need for higher rates for both freight and passenger service topped the agendas of railroad managers. The ICC would have to deal with these issues.75

During the 1910s Southern Pacific and Santa Fe managers interpreted the changing context for passenger service through managerial hierarchies that typified those of the industry. These structures separated the analysis of costs and revenues into separate functions and led to large-scale cross subsidization within the industry. Cross subsidization also supported the growing awareness among railroad managers of their status as servants to their users, which included protecting less efficient markets from the more efficient.

As it became aware of the falseness of the traditional railroad cost para-
digm, the ICC increasingly criticized such railroad management methods. It advocated a more efficient approach based on cost analysis and cost-based rates. Its efforts resulted in the separation of costs between freight and passenger service, which from that point on pressured railroad managements to make passenger service self-sustaining. The USRA further pushed railroad managements to consider passenger service in a business sense.

Under these circumstances passenger service changed its character in California. As the dominant carrier in the state, the Southern Pacific sought to provide comprehensive passenger service wherever its tracks ran, even if it lost money. While rural local trains were rapidly becoming unimportant to Californians, the Santa Fe’s departure from the market gave the Southern Pacific incentive to continue providing such service, if on a reduced basis. Although they lost large amounts of money, Southern Pacific’s electric operations were well used, and the company kept investing in them. This also was true for its long distance trains. The Santa Fe, on the other hand, greatly reduced the amount of its intrastate service while it increasingly concentrated its passenger efforts on trains running from Los Angeles to Chicago. As the 1920s dawned all of these passenger services as a whole were losing money.