Public dreams, private means

Cincinnati and its Southern Railway, 1869–1901

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A long line of scholars has examined the history of railway development in nineteenth-century America, documenting the difficulties of spanning the vast distances and challenging topographical barriers of a promising but capital-short land. One of the most important themes to emerge from this literature is the way in which Americans pragmatically put public money into privately controlled railway companies, an 'American System' which both speeded the completion of many lines and left many states and localities open to manipulation at the hands of railway promoters.[1]

In the later nineteenth century the most important development in rail operations was the consolidation of numerous railways into large systems under modern corporate managements. Alfred Chandler showed that entrepreneurs took the financially risky path of expansion because their efforts to stabilise the business through inter-firm collusion failed. In their attempts to stem cut-throat price competition, railway leaders repeatedly formed cartels to set prices and allocate traffic. When economic downturns brought plunging freight rates, however, cartels rapidly collapsed as participants broke ranks, cutting prices to attract freight. In response, railway companies acquired or built ever larger networks in order to gain control over pricing and investment. To operate these systems the railways evolved the first modern management structures in American business.[2]

The story of railway consolidation in the United States formed a key part of Chandler's empirical contribution to the theory of the firm. Oliver Williamson worked out similar ideas theoretically. Williamson identified the opportunistic behaviour that dogged the railway cartels as one type of 'principal–agent problem', a situation which arises from the diverging interests of parties to a transaction and imposes costs on one of the parties. Each railway faced the threat of high costs (e.g., lost revenue or defensive investment) if cartel agreements failed to curb opportunistic behaviour. If such a 'transaction cost' were high enough, the railway would find it preferable to invest in the (economically redundant) capacity needed to exert more control over competitive conditions.[3]

Cartel agreements bore high transaction costs because US law, as it developed in the nineteenth century, made them unenforceable. By contrast, English law maintained a more neutral stance toward cartels. Stripped of this tool for limiting competition, US railways, in a pattern that would be repeated across many American industries, chose to stabilise markets by growing large enough to dominate them. In this way, principal–agent problems played a decisive role in determining the structure of the American railway industry.

The case of the Cincinnati Southern Railway (CSR) reveals how a less well known set of principal–agent problems influenced another decisive aspect of industry structure—the mix of public and private provision. The Cincinnati Southern is unique in American history as the sole long-distance railway owned entirely by a public body. Principal–agent problems beset the railway throughout both construction and operation. In this case, however, the conflicts unfolded between the citizens of Cincinnati as owners of the railway (the principals) and the different parties who acted as agents for the city in building and operating the CSR. In effect, the CSR lay at the intersection of two forces that played decisive roles in American development – the capital market instability that led to public involvement in infrastructure provision and the social instability that stamped the nation's democratic politics.

The CSR was a 336 mile railway begun in 1869; it passed from the Ohio River city of Cincinnati south through the undeveloped highlands of eastern Kentucky and Tennessee to Chattanooga, rail hub of the South (see Figure 1). The intent of the road was developmental; Cincinnatians expected the CSR to help preserve the city's vulnerable mercantile base by tapping a new trading hinterland in the South. At the same time the line would give Cincinnati's important manufacturing sector access to known but undeveloped timber and mineral resources.

The project took shape at a time when the role which local governments played in the federal division of powers remained unsettled. In addition to the regulatory and police powers they had long exercised, many cities had begun to provide public utility services, especially water service, often after unsatisfactory experiences with provision by private franchisees. Beyond this, there were also some precedents for bold developmental ventures by municipalities. Public bodies had long had a hand in developing waterfront facilities in port cities, for instance, and the city of Boston had greatly expanded its land area through an ambitious series of dredge-and-fill operations.[4]

In spite of these precedents, the provision of public utilities by municipalities was by no means a settled question; the steady appearance of new services such as gas, streetcars and electricity kept disputes over the roles of public authorities and private enterprise lively into the 1910s. Contemporary with these developments, the courts moved decisively in the 1880s to subordinate municipalities to the sovereignty of the states, limiting cities' freedom to initiate new policies and to raise new tax revenues.[5] The ambiguous development of municipal power in the United States contrasted with changes in Britain, where Parliament was steadily expanding the powers of local councils through measures granting them such powers as the provision of gas and streetcar service.[6]

Given the uncertain legal and political foundations of public enterprise in the United States, the construction of the CSR entirely by the city of

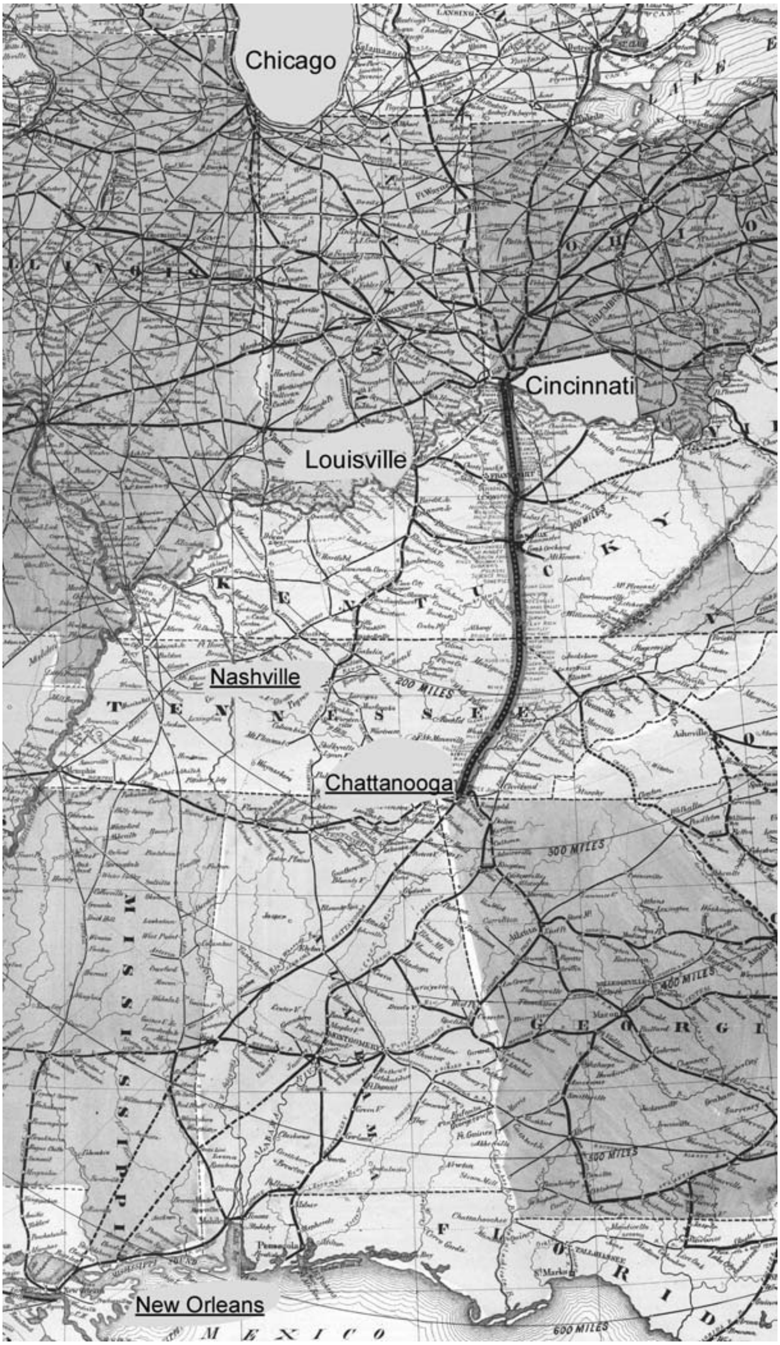

Figure 1 Map of the Cincinnati Southern Railway and connections … published for the Cincinnati Southern Railway (Cincinnati, 1879). *Source* Railroad maps, 1828–1900. Available http://hdl.loc.gov/loc.gmd/g3701p.rr003820, Washington DC: Library of Congress, Geography and Map Division

Cincinnati comes as a surprise. Public construction occurred mainly because private capital proved unwilling to build a road of uncertain profitability through the difficult terrain involved. The Ohio constitution made it impossible for the city to influence investment decisions at the margin through the usual method of subsidising a private venture. Though begun in 1869, political difficulties and the panic of 1873 delayed the line's opening until 1881. In spite of these setbacks, public ownership had its benefits. After the panic, Wall Street cooled toward private railway investments, but the CSR's construction bonds eventually found a market, backed as they were by the full faith and credit of the city. The panic raised the cost of funding the road, however, burdening the city's taxpayers in the depths of the 1870s depression. While forgoing the manipulations of contemporary railway finance, the CSR's Board of Trustees avoided as well the debilitating political patronage common in the Gilded Age.

The CSR soon occupied an important place in the emerging national rail network, linking the natural resources of the interior South to the industrialising Midwest. By the 1890s the CSR enjoyed the highest traffic density and some of the highest earnings of any Southern railway. The long-term success of the CSR was not achieved smoothly, however, but in the context of intense political conflict about the proper means of its construction and operation.[7]

The story of the CSR highlights the perils of pragmatism. Public ownership resulted not from the desire for public control so much as from the lack of alternatives. Many setbacks stemmed largely from a failure to accept that public ownership inevitably brought the management of the venture into the public arena, where trustees' actions were subjected to merciless scrutiny and even sabotage.

This article focuses on the debates surrounding the operation of the railway, which threw the public conflicts into sharpest relief. To understand these issues, however, some background information about the construction period is in order. Interest in the railway stemmed from the threat of economic decline. Situated mid-way down the Ohio Valley, the city had been ideally placed to exploit the potential of the steamboat when it appeared in the 1810s. Cincinnati soon commanded the trade of the entire Mississippi basin and developed a diversified manufacturing base. By the 1840s booming growth made Cincinnati, dubbed the 'Queen City of the West' by Longfellow, the largest settlement in the trans-Appalachian West, which it remained until overtaken by Chicago in the 1880s.[8]

Continued settlement of the West and the arrival of the railway signalled the end of Cincinnati's supremacy as cities farther west (St Louis, Chicago) absorbed the commerce of the north and west of Cincinnati's hinterland, and as Chicago in particular developed close transport and trading links with the New York metropolis. Cincinnati's fears of commercial encirclement heightened with the completion of the Louisville & Nashville Railroad (L&N) in 1859, which gave downriver rival Louisville the first direct link to the railways of the relatively undeveloped interior South (see Figure 1). The outbreak of the Civil War two years later cut off Cincinnati merchants from their fastest-growing trading area, the cotton belt on the lower Mississippi, while lining the coffers of the L&N with military carriage contracts. Complaints arose that the L&N discriminated against Cincinnati merchants' shipments in favour of those of Louisville competitors.[9]

Although the latter stages of the war stimulated the city's economy, with the return of peace in 1865 the city's economic outlook remained clouded. Commodity movements fell off steadily in real terms from 1866 to 1879.[10] For almost a generation the healthy trade growth of the late 1850s looked increasingly to Queen City businessmen like a lost golden age. It was these dim commercial horizons which pushed the city toward an idea dating from the 1830s: direct railway connections to the South. A line to one of the cities of the inland South would connect with existing lines to South Atlantic and Gulf points, opening up a relatively uncontested trading hinterland. While the isolated highland sections of eastern Kentucky and Tennessee had little agricultural potential, their timber and mineral resources appealed to a Cincinnati eager to offset declining trade with increased manufacturing.

Finance and construction

By the late 1860s it was clear that, in spite of a national surge in railway construction, no private company was prepared to build the desired southern connection. Better-settled regions in the West promised a quicker payback than the difficult Appalachian terrain, and, in contrast to Louisville, Cincinnati had no clear means of subsidising private construction. In the aftermath of the panic of 1837, public revulsion against perceived excesses in state transport subsidies had led to widespread opposition to public funding. This culminated in the new Ohio constitution of 1851, which imposed an iron-clad ban on both state and local aid to private railway projects. Repeated efforts to lift this ban failed.[11]

A brilliant Cincinnati lawyer found a way out of this constitutional strait-jacket. Established corporate attorney and erstwhile Democratic politician Edward Alexander Ferguson (1826–1906) crafted legislation which departed from the ordinary method of public investment in private ventures. Instead Ferguson proposed to vest funding power and ownership in a public body, an autonomous Board of Trustees of the Cincinnati Southern Railway. This board, appointed by a high-ranking local judge, was purposely insulated from the power of the City Council and also remained largely independent of the state legislature. Its members were drawn from among local businessmen, and Ferguson took a leading role on the board. Through public ownership Ferguson evaded the constitution's restrictions but at the same time isolated the board from accountability to the local electorate.

One peculiarity of the project was that, while it was an Ohio enterprise, almost all the track ran through Kentucky and Tennessee, necessitating charters from those states. Louisville interests made exemplary use of this fact to delay the Kentucky charter in the legislature for two years.[12]

The lost years were costly ones, for 1870–72 marked the crest of an enormous railway construction boom, when CSR bonds would have sold easily at favourable rates.[13] Instead the trustees went to the bond markets only on the eve of the panic of 1873. It took several months for the trustees to place their bonds, and then only at a premium that inflated long-term costs. The public backing of the securities, however, did allow the board to begin construction while private railways remained shut out of the money markets.[14]

The trustees had intended to act merely as paymasters. There was no conception of the CSR as a public utility, no thinking along the lines which were developing contemporaneously around municipal trading in Britain.[15]

The trustees' initial strategy had been to negotiate a contract to both construct and operate the CSR: a private railway would act as a general contractor in the construction phase, then take a lease to operate the completed road.[16] The presumption was that, to win the operating lease, railways would make low construction bids. Had this strategy worked the Ferguson Act would have remained merely a clever evasion of the constitutional prohibition, substituting a construction contract for the loan or stock subscription by which governments usually aided railway ventures. Even had matters worked out this way, Ferguson's legal handiwork would have put the city in an unusually strong position to secure performance, for many public bodies which subsidised private companies during the boom found themselves afterward with no guarantee that the lines aided would be built, and often little more than worthless railway securities to show for their money.

In the event, the capital stringency of the panic wrecked the trustees' original strategy. No operating railways came forward to bid on the project, forcing the trustees in effect to become their own general contractors and oversee construction of the line directly. The hope of getting the line built on the cheap faded, especially as the board felt bound by its duties of trusteeship to build to a standard higher than that of typical capital-starved southern lines. In short, the CSR board had to act as a full-fledged public enterprise, without an ideological consensus to legitimate such an undertaking. The result was that the trustees had to return repeatedly to the city's voters for additional construction funds, provoking acrimonious debates about the trustees' competence and accountability. In the latter stages of construction, local agitation even led the state legislature to impose burdensome and costly restrictions on the trustees' powers.

It took $18 million in bond funding to finish the railway, well above the initial $10 million issue, which many had assumed would suffice, a notion the trustees did little to dispel in the project's early days. The burgeoning railway debt weighed heavily on the city's taxpayers well before the connection to Chattanooga was completed in 1881, twelve years after the project was authorised (see Table 1).

Table 1 Summary of bonds, Cincinnati Southern Railway

Amount ($ million)	*Legislative authorisation*	*Referendum*	*Result*
10	4 May 1869	26 June 1869	15,435–1,435–1,500 pro
6	24 February 1876	14 March 1876	21,435–9,323 pro
2	18 April 1878	3 May 1878	11,349–11,179 con
2	18 April 1878	14 August 1878	16,224–10,424 pro

Note All votes were scheduled as special elections. Regular local elections routinely polled 25,000 voters at this time.

Operation

Even before the city had completed construction, controversy raged over the best way to operate the railway. While events had pushed the trustees into *ad hoc* policy decisions during the construction phase, the question of operation provided an opportunity to debate the significance of public ownership. With little support for municipal operation of the CSR, debate focused on a series of leases negotiated by the trustees from 1878 to 1901 under which the city retained ownership of the road while private railways operated the trains in exchange for payment of an annual rental. Though the lease debates often lacked both depth of analysis and breadth of views, they threw into stark relief the ambiguities of private control of a public asset.

'Control' of the railway was one of the critical yet ambiguous aspirations many Cincinnatians held for the project. As local notable Josiah Kirby explained in an 1869 comment backing Ferguson's plan, it would provide Cincinnatians with a road 'over which we could have control', which would bring 'gain beyond all calculation'. But what kind of control, and how exactly was control to bring gain? Did public ownership imply public operation? What stance should the CSR take in relations with other railways? Questions like these lurked just beneath the surface of enthusiasm for the CSR, emerging once the disappointments of the 1870s had dissipated the euphoria of 1869.[17]

Because public construction had been widely regarded as an unfortunate necessity rather than as an opportunity to develop a public utility, support for public operation of the railway was almost non-existent. With a single exception, discussed below, no one advocated the direct operation of the CSR by the trustees. Accordingly, most of the debate turned on how to square the public interest in cheap transport for local enterprises with the profit motives of private management.

One facet of this dilemma discussed as early as 1869 was the changing scale of railway enterprise. Citizens debated in particular whether the steady consolidation of small railways into interregional networks controlled by distant owners left room for old-style local favouritism in the management of lines. The city's newspapers echoed arguments made in the city's trade associations, whose debates they often reported verbatim. An editorial in the *Cincinnati Commercial* voiced the opinion of many when it asserted that the antebellum model under which the Louisville & Nashville had benefited the city still functioned.

> The purpose of the city in proceeding to build the Southern Railway, so long wanted, is, if the city understands itself, to have a road that will run for the benefit of Cincinnati, and not be tributary to any particular road or system of roads.[18]

According to this view the rise of large rail companies menaced the city, for their efforts to rationalise traffic might divert freight elsewhere. If management of the CSR fell into hands loyal to other cities, it could even be misused against its owners. To serve the city's interest the railway's managers should keep aloof from the growing networks, negotiating freely with all and avoiding preferential arrangements with any.

The *Cincinnati Gazette*, by contrast, denied that system-building posed a threat:

> Consolidation of lines is the order of the day, and this city would find its Southern line left out in the cold should it refuse to make the partnership running arrangements which other roads find necessary to their business. The city has undertaken this work because private capital would not. All it asks is that the road be built. When done, whatever management is best for the profits of the road, will be best for the interests of Cincinnati . . . The notion that this road is to stand aloof from all railway alliances and to dictate terms to the railway systems of the West and South is foolish.[19]

The backers of this argument pushed it as the only realistic view, but it ignored the emerging company power increasingly manifested in rate discrimination and pools. While the *Gazette* rightly noted that conditions had changed since the advent of the Louisville & Nashville, it shrank from drawing the pessimistic conclusion that this suggested: that Cincinnati was unlikely to enjoy from the CSR the favouritism which Louisville had received from its own line. The paper persisted in the argument that whatever maximised railway profits would benefit the city.

Eight years later, as the trustees considered the first lease of the CSR, the belief that the operating company should serve the public interest remained universal, but little progress had been made in facing the contradictions of this formula. A *Cincinnati Enquirer* editorial declared,

> That the city itself should, as a corporation, [run a railway] . . . would be repugnant to all proper ideas of the legitimate functions of Municipal Government or of any Democratic Government. That the [taxpayers'] road . . . should not be operated specially in their interest is another repulsive proposition. It would not be in accordance with the eternal fitness of things that Cincinnati's own road . . . should be used against her well-being. The thing which ought to be done seems plain. The capital, the private capital, of Cincinnati ought to operate the road which the tax-payers of Cincinnati have now nearly built.[20]

Here, as in much contemporary thought, the interests of the city and its businessmen were equated; informal attachments rather than contractual obligations would make local businessmen the reliable agents of the city. This congruence of interest did not need to be formalised: it would be safely left to the goodwill of local capitalists and the 'eternal fitness of things'.[21]

The assumption that local capital could operate the line in the city's interest was tested when the trustees implemented the so-called 'completing and leasing' strategy. Limping into the final phase of construction with scarcely enough money to finish the bare bones of the line's final miles, Ferguson drafted a 'Common Carrier Act' authorising local businessmen to organise a company to lease the completed half of the line for operation, the hope being that it could raise capital to finish building the incomplete section. As Ferguson explained it to a local business group,

> The City of Cincinnati is the party of the first part . . . and there is a very just expectation that the other party, the party of the second part, that shall hold and control the road, will be in the interest of the city, which has furnished a basis capital of $16,000,000. It is right and proper that it should be so, and it will be so if the merchants, manufacturers and capitalists and the corporate interests of Cincinnati interested in this road will themselves take hold and furnish a comparatively small amount of capital to do the work.[22]

For Ferguson and other lease advocates, local capitalists seemed the obvious parties to promote local interests. Ferguson and backers of the proposed operating company did not enjoy the unquestioned social legitimacy to arrange affairs quietly behinds the scenes, however. They faced a democratic electorate with a proprietary interest in the venture. Taxpayers quickly challenged the notion that local capitalists could be trusted to look after the city's stake in the CSR.

To many, Ferguson's plan left the city too dependent on the lessee. As one businessman argued, any lessee would keep the road if profitable and throw it back to the city if not. It would be safer for the trustees to operate the road themselves, at least until traffic developed enough for the city to gauge its worth.[23]

The spearhead of opposition was the Board of Transportation (BoTr), a manufacturers' group which denounced the plan as an inside deal for a clique linked to Ferguson. Out of these critiques emerged the only sustained advocacy of direct public operation in the CSR's history.[24]

Safe manufacturer Neil Macneale led the charge, thundering that any long-term commitment to the Common Carrier Company (CCC) ran the risk of becoming 'a virtual abandonment of sixteen millions of dollars to a few individuals for their own enrichment at the cost of the majority of our taxpayers'. In an age of infamous railway finance, Macneale argued that Common Carrier investors could leverage a small outlay into control of a $16 million public property.[25]

In a report to the Board of Transportation Macneale presented the sharpest criticism of the policy. He denounced the trustees for secretively raising the cost of construction, exhausting their funds and leaving themselves dependent on the Common Carrier Company to finish the job.

> It was stated the tax-payers have now done enough and individuals should so the rest. I do not think so. Tax-payers have not done enough. They have paid out their money, they should get the returns. Individuals have not done any thing yet, and, in my opinion, they had better keep their hands off a little longer.[26]

Others in the Board of Transportation echoed Macneale's concerns. The board championed public ownership as a guarantee of the road's benefits to local production and trade. Moreover, it insisted that transparent dealing before the public was the only safeguard of the city's financial interest in the CSR.

> When the time comes for leasing . . . the terms of the contract should be a matter of open public negotiation, by and with the tax-payers.
>
> It is forcibly argued that while we have the . . . management of the railway secure in the hands of our tax-payers, the raw materials upon the line will be brought to Cincinnati at a rate which will not only pay the management, but give our manufacturers the advantages of their favourable location . . . thereby greatly promoting the interests which the railway was originally designed to foster and maintain.[27]

This argument implied rejection of the very idea of delegating the public interest in the CSR to any agent, whether trustees or lessee. After years of delay and cost surprises, many people no longer trusted the Board of Trustees to represent the taxpayers' interests. Even so, Macneale and others argued, faced with the more uncertain and potentially more enduring principal–agent conflict posed by private lessees, Cincinnatians should stick with the devil they knew, insist that the trustees operate the line themselves, but also that they deal in the open, under the watchful eyes of an aroused public.

Chamber of Commerce member Harry Smith also saw the CSR as a principal–agent problem and proposed to eliminate the agent. His plan departed from Macneale's in narrowing the definition of the principal from the electorate to the much smaller group of taxpayers. Under Smith's scheme the Board of Trustees would turn over the road to a new company controlled by taxpayers, each receiving stock in proportion to his tax bill. By vesting the city's interest in this new body, Smith's plan avoided the pitfalls of leasing to an unaccountable operating company, instead handing the CSR to a quasi-public corporation identified not with the citizenry but with the much smaller group of taxpayers. This would avoid the uncertainty of further referenda and please those who regarded the publicly funded CSR as a raid by non-taxpaying voters on the property of their fellow citizens.[28]

At bottom both Macneale and Smith opposed delegating any power to an agent, advocating instead direct democratic management, by the electorate or the taxpayers. Fanciful as their schemes appear, Macneale and Smith highlighted a principal–agent problem afflicting not only the legally exotic

CSR but also the private railways, for in these years the courts began to legitimate the separation of ownership and control which characterises modern corporate enterprise.

In the 1870s the formation of large railway networks in the midst of the depression led to a growing number of legal conflicts between holders of railway securities and company managements. Out of this litigation emerged a major innovation in civil law. For the first time, American courts in bankruptcy proceedings began to find for management and against owners. This reversed the traditional understanding of principal–agent relations and constituted a landmark in the separation of ownership and control.[29] In their plans for the CSR Macneale and Smith argued, in effect, for the right of the people, as owners, to depose the Board of Trustees, as managers. In drafting the CSR legislation Ferguson had deliberately excluded this possibility. In this way he neatly anticipated the judges who opened the way to the separation of ownership and control in private industry, and the ascendancy of managers over owners.

Unwilling either to countenance Macneale's arguments for public operation or to experiment with Smith's novel idea, the leading trade associations left themselves no real alternative to the untried Common Carrier Company. They backed Ferguson's policy, and the Common Carrier Company received a short-term operating licence in 1878.

For three years locally owned companies operated the Cincinnati Southern, but soon increasing demands from local shippers for better onward connections led the trustees to seek a new lessee from among the growing railway networks. The abrogation of its interim arrangements with the local operating companies marked the end, both of remaining aloof from the emerging interregional networks, and of protecting the public interest by entrusting it to prominent local businessmen. At this juncture Cincinnati abandoned localism as a solution to the principal–agent problems inherent in such public–private partnerships. In this sense the CSR was the last descendant of antebellum trunk lines like the Baltimore & Ohio and the Pennsylvania, which joined public and local mercantile capital under local management in pursuit of local development.

In this new phase of the CSR's history, detailed contractual agreements became the chief protection of the public's interest in the property. As Carter Goodrich noted, contemporaries regarded the transition from public to private control of infrastructure in the United States as such an obvious step that it generally proceeded unquestioned.[30] As a result most municipalities gave away too much to railway companies. Perhaps because he felt himself its proprietor, almost certainly because he possessed unmatched knowledge of its details, E. A. Ferguson avoided this tendency. In 1881 the Board of Trustees concluded a twenty-five-year lease with the Cincinnati New Orleans & Texas Pacific Railroad (CNO&TP), part of a nascent Southern system being assembled by London financier Emile Erlanger.[31] Ferguson drew up an exacting lease that, in the context of the times, protected the city's ownership interests in the road exceptionally well, forcing the lessee to invest substantial sums in finishing and improving the line.

What even Ferguson's crafty draughtsmanship could not accomplish, however, was to ensure favourable freight rates. Though Ferguson included an anti-discrimination clause in the lease, Cincinnati shippers complained regularly that rates from the South to distant points like New York were as low as those to Cincinnati. The dream of using the city's own railway to win advantages in transport costs – the vision that motivated the line's construction – proved elusive once the operation of the road had been handed to managers attuned to the economics of long and short-haul pricing.

From a transaction cost perspective, Cincinnati shippers were caught in the contradictions of their own interests. The desire to escape continued discrimination on shipments over connecting roads had led them to favour the shift from local management to the integration of the CSR into the Erlanger system. The logic of such systems was, however, to combine high local rates with low through rates, and Cincinnati proved to benefit from this process less than larger terminals like New York. Frustration stemmed from the realisation that the CSR would not help the Queen City regain its antebellum position as the low-cost point for a broad range of regional commercial transactions.

Erlanger was not alone in the attempt to build large-scale rail networks in the South, and all such efforts were hampered by the region's sluggish economic development, which limited its revenue potential. In 1890 Erlanger admitted defeat in the struggle for regional dominance, selling a majority stake in the CNO&TP and other properties to a subsidiary of the Danville road.[32] Within a few years the house of Morgan had made the Danville and associated roads the core around which it reorganised the South's many bankrupt railways into the Southern Railway System (SRS). Early in this process the CNO&TP's holding company entered receivership, clouding the status of the line in the public eye. The CSR was an obvious complement to the developing Morgan network, and soon the road's managers raised the question of purchasing the CSR outright from the city. The debate on what institutional arrangement would best defend the public interest in the railway was opened again.

The first plea to sell the road came in 1891 from Samuel Felton, first post-Erlanger president of the CNO&TP (and hence a representative of the system builders of the Danville). He pointed to a thorny issue which remained close to the centre of discussions until 1898 – the conflict between the need for new investment on the line and what he claimed to be the insufficient time (fifteen years) remaining on the lease. In this same year respected local railway manager M. E. Ingalls acknowledged the lease duration as a problem, but advocated a long lease (e.g., ninety-nine years) as the best way out of this dilemma, claiming that too many legal obstacles hindered a sale. These two strategies became the principal opposing positions as the debate heated up.[33]

Sale proposal of 1896

The conflict over what to do with the CSR continued episodically for the next ten years as local citizens strove to agree on the public good in a decade which, like previous periods of economic depression, witnessed rapid railway consolidation. As two-thirds of the country's rail mileage passed under the control of seven major systems, widespread public anxiety greeted financiers' tightening grip on the transport system – indeed, the development of the rail systems was the basis for the emergence of modern Wall Street. Against this backdrop, Cincinnati voters distinguished themselves by keeping their cool in the face of a high-pressure campaign to sell the road. When the fate of the CSR hung in the balance in 1896, Cincinnati's voters proved choosier than most of their leaders, rejecting a poor sales proposal by the slimmest of margins and holding out for a better deal in the face of pressure from the nation's most powerful financier.[34]

Owing to Morgan's skill in shutting rivals out of the South, the city had little choice but to deal with the Southern Railway System. New SRS president Samuel Spencer kept up the pressure, pointing out that after 1893 the CNO&TP lost money, and even claiming that his company ran the line merely out of consideration for the city. In fact the losses were cyclical and the SRS simply wanted to improve the profitability of a basically sound line; the CNO&TP's cash flow situation made the $1 million annual rent the obvious place for the SRS to look for cost savings (see Table 2).[35]

Table 2 CNO&TP earnings, 1881–95 ($)

			% change	
Year	*Gross*	*Net*	*Gross*	*Net*
1882	2,623,995	917,053		
1883	2,647,344	796,023	0.9	–13.2
1884	2,659,185	821,210	0.4	3.2
1885	2,681,547	971,044	0.8	18.2
1886	2,882,172	1,048,592	7.5	8.0
1887	3,377,551	1,260,765	17.2	20.2
1888	3,525,776	1,163,402	4.4	–7.7
1889	3,655,859	1,145,256	3,7	–1.6
1890	4,309,144	1,580,963	17.9	38.0
1891	4,379,143	1,354,640	1.6	–14.3
1892	4,337,498	1,137,688	–1.0	–16.0
1893	4,174,970	998,715	–3.7	–12.2
1894	3,676,979	911,764	–11.9	–8.7
1895	3,487,942	976,767	–5.1	7.1
1896	3,685,865	1,039,992	5.7	6.5

Note 1881 and 1889 earnings are for periods less than one year. 1881–88 results refer to calendar years, 1890–95 results to a fiscal year ending on 30 June of the named year.
Source *Cincinnati Enquirer*, 17 June 1896, p. 12.

Advocates of selling the CSR argued thus: the road was doing poorly and faced pressure from the Louisville & Nashville. In order to remain competitive it must be expensively modernised, complete with a proper terminal in Cincinnati, which neither the city nor Erlanger had built. The lease expired in 1906, too soon for the operating company to risk such an investment; nor could the city's voters be induced to fund improvements. Thus the city should sell the line to the SRS, which could fund improvements through the capital markets once it had a secure interest in the line.

Most parties to the ensuing debate agreed on the diagnosis but not on the treatment. Some advocated selling the road, echoing the old arguments that the city simply had no business running a railway or that the CSR would fall victim to political corruption. With the current lease the city enjoyed rentals higher than the road's traffic could justify; the lessee could default on the rent at any time, leaving it to the city to dispose of the road at a distress price. The Cincinnati terminal was a perennial headache. The anomalous presence of the railway in the municipal accounts was a drag on the city's credit, and Cincinnatians should rid themselves of the CSR as soon as possible.[36]

Several factors made the sale argument less appealing than it had been in the 1870s, at least to the organs of articulate opinion available to historians. The arguments of the SRS were transparently self-interested and not credible to many businessmen. In particular the claim that the CSR was a perennial money-loser contradicted all experience prior to 1893: its financial problems were cyclical, not structural. This led many to conclude that selling the road in the depths of depression would cheat the city of its true value.[37]

The sale terms the trustees had negotiated would sharply cut the city's annual receipts from the road. Negotiator Charles P. Taft stated that the base rent of $760,000 was the best the city could do and pointedly refrained from stating that the deal would allow the city to reduce its debt load and hence to cut taxes. Given the widespread feeling that the city should insist on a $1.25 million annual rental after 1906 and that the chief appeal of selling the road was tax reduction, this made for a weak case.[38]

Critics lost no time in dissecting the losses these terms entailed for the city. In the article announcing the deal, the *Enquirer* noted that in comparison with the current lease the city would lose $450,000 in the first five years and $2.2 million in the following five years (see Table 3). Division in the business community over the sale reflected disagreement about whether the city could obtain the full value of its road if it stood fast.[39]

With the argument to sell tarnished, advocates of a perpetual lease occupied the middle ground. A ninety-nine-year lease would give the lessee its investment horizon, and when the economy revived a lessee could earn a respectable

Table 3 Value of CSR under 1881 lease and under 1896 sale proposal ($)

Payment period	*1881 lease*	*1896 sale proposal*	*Difference*
1897–1902	5,840,379	5,052,461	787,918
1897–1906	9,426,328	7,232,718	2,193,610
1897–1996	30,631,249	19,692,237	10,939,012

Source Boyden, *Beginnings*, p. 112. Present values calculated with 4% discount rate (the city's municipal bond rate at the time). The present value of 1897–1996 in the '1881 lease' column indicates the hypothetical lease of the road at $1.25 million per annum on a ninety-nine-year lease – the rent level in the last five years of the 1881 lease, a figure many felt the city should insist upon, and roughly adequate to fund the construction debt. The table ignores the provision for payment to the city of 10% of gross earnings above $4.5 million, which during the referendum campaign was mostly discounted as too uncertain to depend upon.

profit and pay rental enough to fund the construction debt. The taxpayers were more likely to see a return on their investment this way than from a sale at depression values.

Certainly a glance at the earnings pattern shows that, however much Morgan's men talked down the CSR, they knew that it had performed tolerably well through the depression (see Table 2). Its 20 per cent fall in gross earnings from peak (1891) to trough (1895) was no worse than average, its net earnings held up quite well and its capital structure was sounder than that of most of the roads in the SRS.[40] They could expect economic recovery to return the CSR to the high earnings of the recent past. With annual net earnings near $1 million, the $250,000 rent reduction they sought would have provided an immediate 25 per cent boost to the bottom line.

Cincinnati's electorate in these years was divided between a Republican organisation that strove to appeal across income, ethnic and neighbourhood divisions; and reformist insurgencies that regularly threatened the machine's delicate balancing act. The organisation mobilised to campaign for the measure, amid rumours that boss George B. Cox had a financial interest in the sale proposal. Critics denounced both the hastily passed legislation authorising the deal and the August timing of the election as schemes to sell the road against the will of the people.

Both the city's German-language newspapers came out against the sale, as their traditional concern for fiscal rectitude and protecting the small taxpayer overcame the ferocious partisanship that normally divided them. Among the English-language dailies the Democratic and reform papers opposed the sale, while the regular Republican sheet endorsed it.

The 3 August vote saw the course urged upon the electorate by the dominant political organisation and much of the business community rejected by the majority of just 170 voters. The electorate stopped the sale by a vote of 15,831 to 15,493. While the strongest anti-sale majorities came from the 'German' areas of small householders and skilled workers, weak support in affluent suburban areas also exposed divisions in the elite. The issue also failed to motivate the poor inner-city voters the Republicans usually turned out in large numbers. Above all, however, the petty taxpayers and middling earners of the city had prevailed over their leaders, just as they had done in the first 1878 bond referendum.[41]

Lease extension of 1901

After this debacle, the SRS abandoned its attempt to purchase the line and sought an extension of the lease. The main goals for the Southern's management were to reduce its rent and to settle the long-running headache of terminal facilities in Cincinnati.

Obstacles to these goals included the voters' unwillingness to accept a drastic rent cut and the fact that the trustees had no money for a terminal. After long negotiations, however, the SRS and the Board of Trustees reached an accommodation that reduced the lessee's rent and solved the terminal controversy in ways that saved face for both sides. They reduced the rent by deferring 80 per cent of the increase due for 1902–06. The practical effect was to keep the rent near its 1901 level until 1946, when it would rise to $1.2 million. The trustees thus avoided an outright rent rollback. To fund the terminal and other improvements, the city agreed to issue $2.5 million in municipal bonds, which would be repaid by the SRS, an arrangement which lowered the Southern's cost of capital. Altogether the deal was a favourable one for the SRS, lowering its rent, giving it a secure leasehold upon which to finance improvements and cheapening the cost of a Cincinnati terminal.

The lease extension struck a balance between the $19 million proposal of 1896 and the $30.7 million in principal and interest which the CSR had cost the city. The deferred rental was a significant concession to the SRS. Had the city insisted on an annual rental of $1.25 million with no deferral, it would have obtained a present value of over $28 million for the CSR, instead of the $25 million actually obtained.

The lease ended an era of turmoil over the operation of the city's railway. For a decade in the 1870s the taxpayers had borne an unprecedented debt burden in a desperate bid to stem their city's economic decline. For a generation voters and businessmen debated how to make their new asset realise that aspiration. Once it became obvious that the city could exercise little control over the management of the railway, its citizens turned their attention to salvaging at least their direct financial interest in the enterprise, even as many of their leaders seemed ready to write this off. The 1896 and 1901 results indicated that the city only solved the principal–agent problems posed by the railway once the public had accepted the limitation of its interest in the CSR from an operational to a purely financial relationship. In a generation of conflicts over the CSR the people had learned that the only politically realistic protection of their interests lay in detailed and carefully drafted lease agreements.

After 1901 relations with the lessee assumed an uncharacteristic calm; periodically the voters approved bond issues to fund improvements to the line, with repayment by the lessee. Disputes over freight rates were channelled to the federal Interstate Commerce Commission, which provided a bureaucratic arena for the perennial pursuit of lower rates.

Conclusion

Begun as a clever innovation in public finance, the CSR unintentionally became an experiment in public ownership. The trustees tried to finesse the implications of this, and the result was years of conflict, much of it focused on the board's own management. Ferguson had made the board independent of the existing political institutions because he did not trust the City Council or the state to carry out the project competently and cleanly. In his distrust he was hardly alone. The dispersed power of the American political system did not provide the machinery for accomplishing ambitious public purposes. In the course of the nineteenth century, political parties moved into this vacuum, providing the missing machinery but lacking civic legitimacy. Ferguson's plan attempted to clothe the Board of Trustees in such legitimacy by assuring it autonomy and elite personnel. Once problems developed, however, this very aloofness undermined the legitimacy of the board in the eyes of taxpayers. This left no local forum in which questions about ultimate costs and benefits could be aired and resolved openly and definitively. Questions recurred, grievances festered and problems persisted in a pattern typical of American politics.

The weakness of Ferguson's institutional design resulted not only from American political culture but also from the general causes highlighted by Williamson's transaction cost analysis. Williamson noted that the efficiency of the market mechanism is governed by two influences on the behaviour of the contracting parties: bounded rationality and opportunism. Bounded rationality refers to the imperfect ability of the transacting parties to obtain information – they behave in economically rational ways, but lack of information may lead to suboptimal outcomes.

Opportunism refers to the propensity of one contracting party to take advantage of another, as when one party has superior (e.g., more detailed) information about conditions relevant to the transaction. While opportunism presents a moral dimension which bounded rationality does not, both indicate asymmetries (imbalances) in the information available to the bargaining parties.

Williamson focused on transactions involving assets committed to highly specific uses, such as specialised production equipment, retail distribution systems – and railways. He argued that in these fields the importance of detailed knowledge of products or processes creates information asymmetries which make contracts difficult (hence expensive) to negotiate. In such situations it becomes more efficient to abandon bidding in the market and to internalise the transaction within an enterprise, replacing the price mechanism with a management hierarchy. This is the dynamic by which large companies, rather than markets of autonomous small firms, came to dominate economic sectors characterised by such specialised assets.[42]

Chandler had identified the railways as America's first big business, and Williamson gave Chandler's findings a theoretical basis by showing how bounded rationality and opportunism had promoted the growth of large railway systems. By contrast, the history of the CSR is an example of institutional failure to cope with conflicts fuelled by information asymmetries.

As we have seen, legitimacy and accountability issues plagued the Board of Trustees. Public resentment of the trustees grew as the board neglected to use its superior knowledge of the railway's affairs to manage the public's expectations of the line and its difficulties. Instead the board remained secretive and silent, content to allow the public to feed on a diet of enthusiasms and promises until suddenly there was bad news to report about delays and cost overruns. Inevitably, some critics accused board members not only of making the wrong decisions (bounded rationality) but also of using inside information for private gain (opportunism).

Of course, information asymmetries could work in the city's favour as well: Ferguson used his peerless knowledge to extract expensive investment commitments from Erlanger in the 1881 lease. But whereas private railways were free to adapt to overcome the problems posed by asymmetric information, the CSR board's fixed legal status meant that it adapted only in response to the sharp reproofs of electoral and legislative defeats.

Even the shrewd Ferguson proved unable or unwilling to erect a powerful managerial structure to operate the CSR. This precluded any attempt to use the line to favour the city's commercial interests. Williamson saw highly specific assets as the *raison d'être* of modern management: the more specialised an asset, the harder it is to maximise revenues by contracting through markets, and the greater the incentive to subject it to a managerial structure. Railways exemplified such asset specificity, and the proposal frequently voiced in the CSR's early history – that it should contract freely with all connecting roads – thus made no financial sense. To maximise revenues, the CSR had to be integrated into a larger network. Theoretically this could have been done either by the surrounding privately owned roads or under a public body like the CSR Board of Trustees, had it been able to acquire and integrate connecting roads. With no ideological consensus to back such an ambitious programme of public action, it was inevitable that integration would be driven by the private railways, and hence that the city would have little control over the commercial policy of its railway.

Institutional weakness also helps explain the otherwise surprising outcome of the 1896 sale referendum. A narrow majority of the electorate discerned, despite a drumbeat of assertions to the contrary, that the city's financial interests were ill served by the deal. The ability of the electors to grasp complicated financial propositions in the face of obfuscation redeemed the potential of municipal democracy in a period when many states, motivated by fears of corruption or distrust of mass democracy, were busy stripping local governments of various powers and vesting them in new bodies dominated by elites or professional experts. For a generation, smaller taxpayers in Cincinnati had criticised elite proposals for the CSR but lacked an institutional outlet for their frustrations. After eighteen years the sale referendum gave them a forum for their thrifty views.

This leads to a final observation, about a rhetoric of complaint common to the Cincinnati of the 1870s and the Britain of today. In 1877 the *Cincinnati Enquirer* denounced the notion that private managers might deviate from the public interest in operating the CSR, but other commentators sensed the conflict. In Britain today many voices express the view that private train companies should serve the public interest, not because the regulatory regime induces them to do so, but because it is fair, or because it is the desired outcome. The idea that fairness ought somehow to prevail in the absence of effective, concrete measures to see that it does echoes the faith in the 'eternal fitness of things' quoted earlier. Such naivety was perhaps to be expected of a newly industrial America actuated by evangelical religion and optimistic crusades for social reform. It comes as a surprise in the secular and ideologically jaded Britain of the twenty-first century. Those looking for a revival of Britain's railways can take comfort from this demonstration that hope springs eternal. Cincinnati's experiences, however, suggest that money and strategy outperform pious sentiments.

Notes

1 Public participation usually took the form of loans or stock purchases. This literature is conveniently reviewed in Carter Goodrich, 'Internal improvements reconsidered', *Journal of Economic History* 30, 2 (1970), pp. 289–311. Older works indispensable for their overviews of relations between the public and private sectors in the railway era are *id.*, *Government Promotion of American Canals and Railroads*, *1800–1890* (New York, 1960), pp. 286–8, and George Rogers Taylor, *The Transportation Revolution*, *1815–1860* (New York, 1951), pp. 86–96.

2 Alfred D. Chandler, Jr, *The Visible Hand: the managerial revolution in American business* (Cambridge MA, 1977), pp. 81–187.

3 Oliver Williamson, 'The modern corporation: origins, evolution, attributes', *Journal of Economic Literature* 19, 4 (1981), pp. 1537–68.

4 Hendrik Hartog, *Public Property and Private Power: the Corporation of the City of New York in American law*, *1730–1870* (Chapel Hill NC, 1983); William Novak, *The People's Welfare: law and regulation in nineteenth-century America* (Chapel Hill NC, 1996); Walter Muir Whitehill, *Boston: a topographical history* (Cambridge MA, 1963).

5 Gerald Frug, 'The city as a legal concept', *Harvard Law Review* 93 (1980), pp. 1059–154. Curbs on municipal power resulted in part from concerns about public subsidies to railways. See also Eric Monkkonen, *The Local State: public money and American cities* (Stanford CA, 1995).

6 William A. Robson, 'The public utility services', in Harold Laski, W. Ivor Jennings and William A. Robson (eds), *A Century of Municipal Progress*, *1835–1935* (1935), pp. 299–335; Douglas Kroop, *Principles and Methods of Municipal Trading* (1912).

7 The thorough investigations of John Moody, *Moody's Analyses of Railroad Investments* (New York, 1909), confirm the CSR's relative financial strength.

8 The steamboat is treated briefly by Taylor, *Transportation Revolution*, pp. 63–73, and at length in Albert Hunter, *Steamboats on the Western Rivers* (Cambridge MA, 1949). The two best works on the CSR are Jacob H. Hollander, *The Cincinnati Southern Railway: a study in municipal activity*, Johns Hopkins University Studies in Historical and Political Science 12 (Baltimore MD, 1894), and Henry Payne Boyden, *The Beginnings of the Cincinnati Southern Railway: a sketch of the years 1869–1878* (Cincinnati OH, 1901).

9 Hollander, *Cincinnati Southern*, pp. 16–18.

10 Cincinnati Chamber of Commerce Annual Report, 1890, p. 77; figures deflated by Pearson–Warren wholesale price index.

11 The clause resulted from the political victory of Jacksonian Democrats over the Whig party, traditional promoter of public infrastructure provision. The Ohio ban was much stricter than those passed in other states in these years, forbidding both state and local aid to private ventures in rigid terms. Louisville, in the neighbouring state of Kentucky, did not face such restrictions.

12 'Cincinnati Southern Railway: struggle between two rival cities for metropolitan dominance, 1860–1929', in N. S. B. Gras (ed.), *Casebook in American Business History* (New York, 1939), pp. 328–83.

13 Approximate US railway mileage built:

1870	6,000
1871	7,000
1872	6,000
1873	4,500
1874	3,000
1875	1,500

See Jeremy Attack and Peter Passell, *A New Economic View of American History*, second edition (New York, 1994), p. 432.

14 This repeated the experience of the late 1830s, when the only Ohio railways to continue construction were those receiving state aid. See Harry N. Scheiber, *The Ohio Canal Era: a case study of government and economy*, *1820–1861* (Athens OH, 1969), p. 285. Boyden, *Beginnings*, p. 28, relates the fraught bond negotiations, which concluded with the trustees

selling 7.3 per cent thirty-year irredeemable gold bonds. This deal highlighted the uncertain course of the dollar in a period when resuming its gold convertibility was a divisive political issue. The inability of the trustees to refund this debt at the lower interest rates which later prevailed made this sale expensive over the long term.

15 Robson, 'Public utility services'.

16 Hollander, *Cincinnati Southern*, p. 36.

17 Kirby, quoted in *ibid*., p. 6.

18 *Cincinnati Commercial*, 1 July 1869, quoted in *ibid*., p. 13. On the rise of rail systems in the United States see Chandler, *Visible Hand*, pp. 81–187.

19 Two editorials in July 1869, quoted in *ibid*. Both papers were Republican.

20 *Cincinnati Enquirer*, 19 April 1877, p. 1.

21 Goodrich, 'Internal improvements', p. 289, noted that, in typical mixed-enterprise railways, boosters and jurists both tended not to analyse potential conflict between public and private bodies, but to assume that both shared an interest in the completion of projects. See Richard Hofstadter, *The American Political Tradition and the Men who Made It* (New York, 1948), chapter 7, for an eloquent account of the conflation of public and private aims in the Gilded Age.

22 Hollander, *Cincinnati Southern*, pp. 120–1, reprinting verbatim report of a speech in the *Cincinnati Commercial*, 19 April 1877. $16 million was the amount voted for construction up to that time.

23 'Southern Railroad . . . the question of the location of a depot', *Cincinnati Gazette*, 3 November 1876.

24 In this period merchants and those owning substantial amounts of urban land were generally much wealthier than manufacturers.

25 'The Southern road: the people's batteries turned loose', *Cincinnati Enquirer*, 1 May 1877; 'CSRR: meeting of the Citizens' Committee', *ibid*., 26 April 1877; editorial, *ibid*., 2 May 1877; 'The Southern Railroad', *Cincinnati Commercial*, 29 June 1877. For operation Macneale proposed to lease the road on short licences. 'The Southern Railroad problem', *Cincinnati Enquirer*, 15 April 1877, also complained that Ferguson's legislative wizardry had foreclosed the option of direct operation, in effect delivering the benefits of the road to a third party. Trustee Henry Mack, one of the city's wealthiest merchants, publicly aired his opposition to Ferguson's plan, saying it would turn the road over to sharpers. This he did, however, only *after* the issue had been decided.

26 Macneale, in his report to the Board of Transportation, referring to Ferguson's characterisation of the role of the Common Carrier Company ('individuals') in his 'completing and leasing' plan.

27 Cincinnati Board of Transportation Annual Report (1878), pp. 20, 24.

28 'Cincinnati Southern Railroad: who shall run it?' *Cincinnati Commercial*, 6 December 1876. Stock ownership was to be limited to twice the value of an owner's tax liability, to prevent control by one or a few men.

29 Peter Tufano, 'Business failure, judicial intervention, and financial innovation: restructuring US railroads in the nineteenth century', *Business History Review* 71, 1 (1997), pp. 1–40.

30 Goodrich, 'Internal improvements', p. 289. R. L. Gunn, *The Decline of Authority: public economic policy and political development in New York, 1800–1860* (Ithaca NY, 1988), also argues that New York State quickly transferred innovative undertakings to the private sector.

31 Erlanger's investments in Southern railways came in the wake of his most famous financial *coup*, the placement of a $3 million loan to the Confederacy during the Civil War. Later Erlanger & Co. concentrated on investments in Southern Africa. Unfortunately the literature on the City makes few references to Erlanger and says nothing about his adventures in Southern railroading. See Stanley Chapman, *The Rise of Merchant Banking* (1984), pp. 85, 202, and David Kynaston, *The City of London: the golden years, 1890–1914* (1995), *passim*.

32 John F. Stover, *The Railroads of the South, 1865–1900: a study of finance and control* (Chapel Hill NC, 1955), p. 246; Chandler, *Visible Hand*, pp. 165 ff.

33 See M. E. Ingalls, 'The Cincinnati Southern Railway', box 61, folder 3, Commercial Club of Cincinnati Papers, Cincinnati Historical Society. Ingalls was president of the CCC&C, or Big Four, railroad, allied with Vanderbilt's New York Central and hence a rival of the Morgan interests in the South. In 1893 the CNO&TP itself went into receivership due not to operating losses but to a large liability from an earlier stock fraud.

34 On the railway consolidation of the 1890s see Chandler, *Visible Hand*, pp. 171–5.

35 I infer this from the operating results in the annual reports of the CNO&TP and the tables in Moody, *Analyses*. The SRS was the only practical operator for the CSR because the New York Central had failed to gain control of key connecting lines at Chattanooga, whilst the L&N's only interest in the CSR would have been to eliminate its competition. By contrast, the CSR represented a crucial link to the Midwest for the developing SRS, as later traffic patterns would prove.

36 'Both sides: Southern Railroad problem freely handled', *Cincinnati Commercial Gazette*, 14 April 1895, reporting remarks of W. T. Perkins of the Manufacturers' Association, a group with links to the railways, according to Robert Wiebe, *Businessmen and Reform: a study of the Progressive movement* (Cambridge MA, 1962), p. 23. Perkins was thought by anti-trustee forces to be conspiring with Ferguson to get control of the road. See 'Only slight interest: business men not worrying about the Southern', *Cincinnati Tribune*, 23 March 1895.

37 'Only slight interest . . . ', quoting a banker.

38 'Accepted: the Southern bid', *Cincinnati Enquirer*, 14 June 1896. The basic sale price was $19 million, only $1 million more than the principal on the bonds and $11 million less than the road's net cost to the city (i.e., principal and interest payable less rentals received). Moreover, this was payable not in cash but in 4 per cent gold bonds for 100 years, with no down payment. This was to be supplemented by $240,000 annually until 1902; thereafter by 10 per cent of gross earnings above $4.5 million. This would freeze the base rent at the current level until 1902, releasing the lessee from a pending increase. The 1902–06 increase would be replaced by the uncertain earnings-linked payment. The lessee contracted to spend $250,000 annually for eight years on improvements on the line.

39 *Ibid*.

40 See Moody, *Analyses*, for analysis of company earnings through the depression decade.

41 For a detailed analysis of the election result see Zane Miller, *Boss Cox's Cincinnati: urban politics in the Progressive Era* (New York, 1968), pp. 100–1. In contrast to previous referenda, the trustees played almost no role in the 1896 debate.

42 '*the normal presumption that recurring transactions for technologically separable goods and services will be efficiently mediated by autonomous market contracting is progressively weakened as asset specificity increases*' (Williamson, 'Modern corporation', p. 1548, italics in original).

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