

# Plank Road Fever in Antebellum America: New York State Origins

By DANIEL B. KLEIN and JOHN MAJEWSKI

*The new roads would end rural isolation, speed commerce, improve wives and daughters, increase church attendance, bring wealth to investors. So said the promoters. The authors examine the New York origins of plank roads and analyze their giddy rise and traumatic decline. Daniel Klein is an assistant professor of economics at the University of California, Irvine. John Majewski is a lecturer in the history department of the University of California, Los Angeles.*

The story of how the Empire State ignited the transportation revolution has been told many times. The construction of the Erie Canal (completed in 1825 and still the subject of books and articles) propelled New York City and the rest of the state to economic supremacy, prompting commercial rivals such as Boston, Philadelphia and Baltimore to reach westward with projects of their own. Within decades a network of canals and railroads connected the Trans-Appalachian West to the large seaport cities.<sup>1</sup> Not so well known—and certainly not so glorious—was New York's role in promoting the plank road boom. From their New York beginnings in 1846, plank roads rapidly spread to all sections of the country. Hundreds

The authors wish to thank the following for comments and suggestions: Joyce Appleby, John Blundell, Price Fishback, Walter Grinder, Kevin Lacobie, Jim Meriwether, Jean-Laurent Rosenthal, Jeremy Shearmur, Ken Sokoloff, and Mary Yeager. The following organizations provided generous financial assistance: University of California Transportation Center, Hagley Museum and Library, the Arthur H. Cole Committee of the Economic History Association, the Institute for Humane Studies at George Mason University, and the Earhart Foundation.

1. Charles Sellers, *The Market Revolution: Jacksonian America, 1815-1846* (New York, Oxford University Press, 1991), 41-43.

of communities and a number of state legislatures and thousands of private citizens were caught up in the mania, which, in the manner of manias, lasted little more than a decade before it waned.

It was probably the short life of the movement that led historians to ignore plank roads or to treat them as a curiosity, even in New York.<sup>2</sup> This is unfortunate. The plank road was a device whose study provides substantial information relating to the history of engineering and, to some extent, of the growth of popular science in the nineteenth century. The explosive spread of the technique was a phenomenon that also tells us a great deal about the diffusion of information and the receptiveness of the American mind in mid century.

Plank roads, like the wooden sidewalks they resembled, may sound quaint or even absurd now, but antebellum Americans were almost as absorbed in improving roads for short-distance travel as they were in the canal and railroad systems that provided transport over longer distances. The latter, after all, did not connect individual farms with regional market centers, nor did they provide direct connections between smaller communities. These were the functions of the shorter roads. Public roads had formed a loose network throughout the settled regions of the country and therefore did offer the patient traveller a staggered means of long distance transportation, but their major use was within smaller regions. Their construction and maintenance was the responsibility of the townships and villages through which they passed, and residents usually paid road taxes by making periodic donations of their own labor. The results were not impressive. The public roads usually had

2. The standard textbook on New York State history devotes two short paragraphs to plank roads. See David M. Ellis et al., *A History of New York State* (Ithaca, 1967), 253–54. In Alexander C. Flick's ten-volume history, Oliver W. Holmes's forty-page section on the turnpike era devotes four pages to plank roads. See Flick, *History of the State of New York*, 10 vols. (New York: Columbia University Press, 1934), 5: 270–73. *New York History* has published many articles on roads, railroads and canals, but none on plank roads, which are mentioned only in passing or not at all. Harry Jackson deliberately concluded his study of the Utica Turnpike Road Company with the year 1848 when the road became a plank road. See Jackson, "The Utica Turnpike Road Company," *New York History* 40 (January 1959), 18, 31. One published essay that does focus on plank roads in New York is John Majewski, C. T. Baer, and Daniel B. Klein, "Responding to Relative Decline: The Plank Road Boom of Antebellum New York," *Journal of Economic History* 53 (March 1993), 106–22. The essay focuses on certain economic characteristics of the movement; unlike the present article, it offers no analysis of the promotional aspects of the phenomenon.

shallow foundations, if any, and were poorly drained. Their surfaces were muddy ruts in wet weather, dusty ruts in dry; travel was slow and extremely wearing on vehicles and on the animals that drew them. Plank roads burst upon New York and the nation as the solution to these problems—wooden roads that formed a hard flat surface upon which wagons could roll unhindered, with little discomfort to man or beast.<sup>3</sup>

The technique seems to have originated in Russia and was introduced into Canada around 1840.<sup>4</sup> Not surprisingly, news of the wooden roads drifted across the border into New York State. The story of plank roads in the United States thus begins in Salina, New York, a village near Syracuse, where in 1844 a group of townsmen formed a committee and obtained a charter from the state legislature to build a road from Salina to the nearby village of Central Square. Like many communities scattered throughout New York, the village wanted better access to canals and railroads. The committeemen had heard of the Canadian plank roads but knew nothing of their construction. One of their number, a civil engineer named George Geddes, became intrigued by the notion of wooden roads and made two trips to Toronto to investigate the procedure.<sup>5</sup>

George Geddes was a multi-faceted individual. Born near Syracuse in 1809, he attended military school in Connecticut and then studied law. He never practiced, however, because he decided to follow the calling of his father, James Geddes, and become a civil engineer. He laid out railways, planned the draining of the Montezuma Swamp, designed reservoirs for Syracuse and other cities, wrote a book on geology, served in the state legislature and specialized in railroad law and tax laws, superintended the Onondaga salt springs, and gained a reputation as a scientific farmer.

3. See George Rogers Taylor, *The Transportation Revolution, 1815–1860* (White Plains, 1951), 15–17; George W. Roach, "Colonial Highways in the Upper Hudson Valley," *New York History* 40 (April 1959), 93–116.

4. Charles Thomson, Baron Sydenham, governor-in-chief of British North America, introduced plank roads to Canada. His family was involved in the Baltic timber trade, and he had lived in Russia for several years. He was also interested in internal improvements. See *Dictionary of Canadian Biography*, s.v. Thomson, Charles Edward Poulett; William H. Bogart, "The First Plank Road Movement," *Hunt's Merchants' Magazine* 25 (Jan. 1851), 65.

5. Bogart, "First Plank Road Movement," 63–65. Bogart's is the first account of the New York origins of plank roads.

His 500-acre farm near Syracuse was an agricultural laboratory of sorts, and he wrote a number of articles for agricultural journals. But in 1844 his passion centered on plank roads.<sup>6</sup>

Plank roads were, of course, practical mainly in forested regions, like Ontario and New York, where the raw material was abundant. The technology, developed through some trial and error and varying slightly from region to region, was relatively simple: The road builders put down two parallel lines of timbers—called “sills” or “sleepers” or “stringers”—four or five feet apart. Upon these they laid, at right angles, planks that were about eight feet long and three or four inches thick. The planks were usually secured only by their own weight. A wide earthen track, graded as a “shoulder” of the plank road, allowed a vehicle to leave the road when it met

6. *The National Cyclopaedia of American Biography*, 10: 64; *Dictionary of American Biography*, s.v. James Geddes

*Plan and Cross Section of a Plank Road.*

Fig. 115. a.



Fig. 115. b

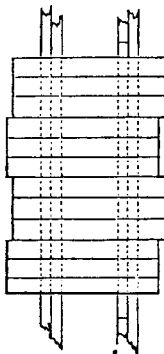


Fig. 115, a, Cross-section.

Fig. 115, b, Plan, or Top View.

Scale, 10 feet to 1 inch.

*This plan of a plank road appeared in W. M. Gillespie's A Manual of the Principles and Practice of Road-Making.*



*George Geddes in later years. From the Collections of the Onondaga Historical Association, Syracuse, New York.*

a vehicle coming from the opposite direction. On either side, the builders dug deep ditches to provide drainage.<sup>7</sup>

After two trips to Toronto, Geddes was convinced that the technology was practicable. He extolled plank roads as the cheap, smooth and all-weather road surface that antebellum Americans desperately lacked. The only hitch was durability. Covering roads with wood would be economically feasible only if the planks could withstand shod hooves, wagon wheels, and inclement weather over the course of many years. Using evidence from the Canadian roads, Geddes determined that the planks deteriorated proportionately to their traffic: heavy traffic meant wear and tear, but it also meant high toll revenues. Geddes reasoned that the high toll revenues would give the road more than enough revenue to replace worn planks, with plenty left over—perhaps 20 percent—for stockholder dividends.

Supporting his conviction with his own time and money, Geddes directed the construction of the Salina-Central Square Plank Road, completed in July 1846, which he later described in the *Scientific American*:

The road is of hemlock plank, four inches thick and eight feet long, laid on four-inch sills. The earth was broken up fine, the sills bedded into it, the surface graded smooth and firm and planks laid on the sills, care being taken that the earth is up to and touches the plank at every point. This is very important, for, if any space be left underneath for air, dry rot ensues. We did not let out to contractors the construction of the road, for the reason that we were desirous of securing the bedding of the timber perfectly, a thing that my observations in Canada convinced me was not always done when the work was done by the rod.

By doing our work by the day, we not only secured a perfect construction in this particular, but we saved some thousands of dollars in the cost. If you make a plank road, I advise you, by all means, to do the work by the day, and to put at the head of the business a man competent to engineer and direct the whole business. A variation of a few inches in the line of the road may tell largely in the cost. The estimated cost per mile for a single track, eight feet wide, is \$1,500.<sup>8</sup>

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7. W. M. Gillespie, *A Manual on the Principle and Practice of Road-Making* (New York: A.S. Barnes & Co., 1847), 231–44.

8. George Geddes, "Plank Roads," *Scientific American* 5 (April 27, 1850), 11. Geddes is warning that a contractor paid a given sum to build a given stretch of road may work with inordinate haste in order to increase his profit.

The road's success prompted one writer to proclaim that "The road has fully and completely succeeded. . . . The revenue justifies the prediction which was made by its builder."<sup>9</sup> By 1847, the New York State legislature had received so many petitions for plank road charters that it passed a general incorporation law. The law opened the floodgates, as more than 340 New York plank road companies received charters between 1847 and 1854.

Geddes remained an important source of information throughout the plank road boom. People across the nation—including John C. Calhoun—asked him for information on construction methods. Remarking that consultation and correspondence took much of his time, Geddes followed his short description of the Salina-Central Square Road in the *Scientific American* with a short pamphlet entitled *Observations upon Plank Roads*, published in 1850. He repeated his arguments about durability: roads would wear only if their traffic were heavy, and heavy traffic would generate sufficient revenue to buy and install new planks. But Geddes also provided readers with a concrete durability figure, estimating that planks on the Toronto road had lasted eight years.<sup>10</sup>

Experience proved Geddes wrong. Planks lasted four or five years, not eight, whether the roads were lightly or heavily travelled. What is more, after the planks began to deteriorate the roads became very hazardous: wagon wheels and the slender legs of horses would sometimes slip through the planking, with ruinous results. Much of Geddes's mistake stemmed from the poor quality of the Canadian data. The Canadian plank roads had been built by the government, but the right to collect tolls had been auctioned to private parties. The result was disorganized information about revenue, maintenance costs, and ultimately about profits.<sup>11</sup>

One wonders about the roots of Geddes's enthusiasm, which obviously led him to misinterpret the Canadian data. Why did Geddes make the trip to Canada in the first place? Fortune is probably not the answer. As an engineer and as a farmer who (according to the 1850 census) owned real estate worth \$10,000, Geddes did not seem to be in pressing financial need. He probably owned stock in the

9. See Bogart, "First Plank Road Movement," 65.

10. George Geddes, *Observations Upon Plank Roads* (Syracuse: L. W. Hall, 1850), II.

11. See Bogart, "First Plank Road Movement," 64.

Salina-Central Square plank road, but this does not explain his effort to spread the plank road idea across New York and ultimately the nation. An important clue to Geddes's motivation was his proclivity for invention and innovation. As an engineer, he was often involved in large projects, but he could also tinker for days to develop the "Geddes' Swinging Gate" or the "Geddes' Harrow," as he also composed essays for *Country Gentleman*, the *New York Tribune* and other publications on the latest advances in agriculture. A speech for a local agricultural fair reveals much about his outlook. Geddes expounded on the glory of the inventor, earnestly declaring that "any man who can by the power of his mind render labor more efficient in any processes. . . does really add to the happiness of every member of this vast partnership."<sup>12</sup>

Geddes's disposition for improvement may have been inspired by the example of his father, James Geddes, whose career had followed a similar course. James, like George, had first pursued a career in the law. He was admitted to the New York bar and eventually became a country judge. He was twice elected to the New York State Assembly and also served a term in the United States Congress. In 1804, during James's first term in Albany, Surveyor General Simeon De Witt told him about a nebulous idea: a canal that would connect the Hudson River to the Great Lakes. Though Geddes had no formal technical education, he had much experience as a surveyor; he therefore took up the idea and made the survey himself. In 1809 he reported the feasibility of a canal to the legislature. The route that he suggested was essentially the route later followed by the Erie Canal. He became one of the engineers for the Erie and Champlain Canals. For the remainder of his active life he was a promoter of canals and gained a nationwide reputation.<sup>13</sup> He was as influential in raising the canal fever of his day as George was in arousing the plank road mania of a later decade.

Because the personal papers of neither man has survived, it is difficult to gauge precisely the influence of James Geddes upon

12. George Geddes, *Address of the Hon. George Geddes Delivered at the First Agricultural Fair of the Skaneateles Farmers' Club* (Auburn: Knapp and Peck Printers, 1856), 3-4.

13. *Dictionary of American Biography* s. v. Geddes, James; George Geddes, *Genealogy of the Geddes Family Deriving from Paul Geddes, 1660-1720* (No publisher, 1926), 19-23. This genealogy can be found at the Brooklyn Historical Society.



George. The similarities of their careers is obvious. George's regard for his father's accomplishments is evident in a talk he presented to the Buffalo Historical Society in 1867, in which he emphasized James's role as a progenitor of the Erie Canal and as the engineer most influential in determining the final route of the canal. He also noted his father's regional interest and promotional abilities:

Mr. Geddes lived near the center of the State, and all his interests were connected with the growth and prosperity of the country in which he had made his home, and untiringly he pressed his investigations as to the character of the surface of the country west of the great chain of swamps. Extensive correspondence was resorted to with land agents, surveyors, and other men who, it was supposed, might be able to give information, and every available map consulted. He did not rest with this; he formed public opinion, and agitated the subject, until, in 1807, it had become a theme of so great interest in Onondaga County, that it became the turning point of local politics.<sup>14</sup>

The Geddeses were both interested in physical and mechanical matters in an era of exploding scientific consciousness and, like all engineers, they were solution oriented. They worked on a common problem—the roughness and sluggishness of land transportation—and they championed complementary solutions—canals for long-distance transportation, plank roads for lesser spans. But fate was not to smile equally on father and son.

For a short time it looked as if plank roads would match or pass the fame of the Erie Canal. Built by private companies who had the right to collect tolls, the roads spread like wild flowers. Between 1844 and 1854 some 340 companies in New York State built more than 3,000 miles of plank roads. Companies in Pennsylvania, Ohio, Michigan, Wisconsin and other areas soon followed suit, and at least one thousand plank roads were chartered nationwide. (See Table 1) Most of the boom was concentrated in the Midwest and the Mid-Atlantic states, with a smattering of roads in the South. Robert Dale Owen in the Midwest, William Kingsford and William

14. George Geddes, "The Erie Canal: Origin and History of the Measures that led to Its Construction," *Publications of the Buffalo Historical Society* 2 (1880), 271-72, 299.

Gillespie in the Mid-Atlantic region, and William Gregg in the South were instrumental in promoting roads in their regions. In the hands of the regional promoters, information about plank roads resembled a fisherman's tale, with successive claims increasingly exaggerated.

The role of Robert Dale Owen in Indiana was similar to that of George Geddes in New York. In 1849 the New Harmony and Mount Vernon Plank Road Company nominated Owen, who was

**Table 1**

**Plank Road Incorporation by State**

<u>State</u>	<u>Number</u>
New York	335
Pennsylvania	315
Ohio	205
Wisconsin	130
Michigan	122
Illinois	88
North Carolina	54
Missouri	49
New Jersey	25
Georgia	16
Iowa	14
Vermont	14
Maryland	13
Connecticut	7
Massachusetts	1
Rhode Island	0
Maine	0

Note: The Ohio number is for the period through 1851; Pennsylvania, New Jersey, and Maryland through 1857; Wisconsin through 1871. Except for Wisconsin, few plank roads were chartered after 1857.

director of the company, to visit western New York to obtain information about construction methods. After visiting numerous roads, including the Salina and Central Square, Owen wrote several newspaper articles, and became widely known as a plank road expert. He received so many requests for information that he penned *A Brief Practical Treatise* in March of 1850. The booklet helped fan the flames of plank road fever throughout the Midwest. His biographer notes that the publication proved "most useful and accessible for the people of Indiana, Illinois, Kentucky, and Ohio. It was greeted by the Western press without distinction of party."<sup>15</sup>

The sources of Owen's personal mania for plank roads is as uncertain as that of George Geddes. Perhaps enthusiasm was a family trait. Owen's father, Robert Owen, was a free-thinking British manufacturer whose collectivist ideals made him famous on both sides of the Atlantic. Robert Dale Owen imagined his father's utopian community of New Harmony, Indiana, as a center of an entire network of plank roads, drawing commerce from as far away as St. Louis. As a politician who served in numerous state offices and in Congress, he may also have thought of plank roads as a device to attract the attention of voters and men of influence. He readily admitted "a natural ambition for influence and prestige"<sup>16</sup> Whatever the cause, Owen wrote in an overtly promotional tone. Confidently claiming that planks would last twelve years, he frequently cited examples of the profitability of the New York plank roads. He declared that he "could not hear of one [New York plank road] in full operation, that paid less than ten per cent over expenses." He added that "Some of them divide 20, some 25, 30, and even 40 per cent of yearly profit over expenses."<sup>17</sup> He was incorrect on all counts. Evidence from annual reports filed with the New York secretary of state indicates that in fact few New York plank roads paid a dividend of as much as 10 percent, even in their first years.

15. Robert Dale Owen, *A Brief Practical Treatise on the Construction and Management of Plank Roads* (New Albany: Kent and Norman Publisher, 1850); Richard William Leopold, *Robert Dale Owen: A Biography* (Cambridge: Harvard University Press, 1940), 266.

16. Leopold, *Owen*, 252.

17. Owen, *Practical Treatise*, 17-18, 85.

Another enthusiast of uncertain motives was William Kingsford, who employed overtly promotional rhetoric in his 1851 pamphlet, "A Few Words on Plank Roads."<sup>18</sup> Kingsford was an Englishman who came to Canada with the First Dragoon Guards in 1838. He learned something about surveying and road-building while in the Dragoons, and when he left the army in 1841 he remained in Canada and became a surveyor and civil engineer. A self-taught, mercurial individual, he was also a writer for several Canadian newspapers and the author of a score of books, including works on canals, various engineering topics, and a little-read ten-volume history of Canada. He became an important figure in the professionalization of civil engineering in Canada and in the meantime plied his trade in Europe, South America and the United States. He lived in New York State from 1849 to 1851, laying out streets in Brooklyn and conducting a survey of New York's plank roads for the state, before moving on to other adventures.<sup>19</sup>

When he wrote his pamphlet on plank roads, Kingsford, according to census manuscripts, was thirty-one and living in a boarding house in Hudson with his wife and nine-month-old son. Industrious but not thoughtful, Kingsford demonstrated "a life-long preference for physical activity over study, for the knowledge of experience over that of books."<sup>20</sup> It is not surprising therefore that while Kingsford's essay was well received (*Hunt's Merchants' Magazine* suggested that it "should be well circulated throughout the country") it contained a number of egregious errors. For example, Kingsford proved his point that plank roads stimulated commerce and raised land values by citing the example of Hamilton County, New York. Such claims would undoubtedly have surprised the residents of Hamilton County, who did not build a single plank road. The two "Hamilton County" roads that he cited actually ended more than five miles from the Hamilton County line, and no one from that county invested in them. Similarly, Kingsford reported that

18. William Kingsford, "A Few Words on Plank Roads," in *History, Structure, and Statistics of Plank Roads in the United States and Canada* (Philadelphia: A. Hart, 1851).

19. *Dictionary of Canadian Biography*, 12: 493-96; William Kingsford, *The Canadian Canals: Their History and Cost* (Toronto: Rollo and Adam, 1865); Kingsford, *The History of Canada*, ten volumes (Toronto: Roswell and Hutchison, 1887-98).

20. M. Brook Taylor in *Dictionary of Canadian Biography*, 12:493.

the Salina-Central Square Road was built in 1837, nine years before its actual construction. The false impression that a plank road had been in operation for thirteen years gave credibility to claims that planks would last eight years before needing replacement.<sup>21</sup>

William Gillespie, an engineering professor at Union College in Schenectady, New York, also played a part in promoting the roads in the Mid-Atlantic region. Gillespie devoted a chapter of his textbook, *Manual on the Principles and Practices of Road Making*, to plank roads. Favorable reviews in business journals and agricultural periodicals established *Principles* as an authoritative guide to road building.<sup>22</sup> Yet, citing Geddes as his source of information, Gillespie maintained that "sanded plank on this road [Toronto] would wear at least ten years. . . . It is believed that oak plank, well laid, would last twelve or fifteen years."<sup>23</sup> Geddes, as noted earlier, had predicted that planks would last only eight years. It is not clear, however, that Gillespie had more than a scholarly interest in the subject. His book discussed the technology of all roads, and he never altered the chapter on plank roads in later editions, which were published long after the plank road mania had subsided. But of course his purpose over time is less important than the immediate effects of his book.

Although southerners built only a handful of plank roads, William Gregg, the region's main promoter, was just as enthusiastic as Owen, Kingsford, and Gillespie. As a wealthy and well-connected South Carolina textile manufacturer, Gregg envisioned an industrial South dotted with textile mills and iron foundries. Plank roads became part of that vision. Gregg's 1851 pamphlet *Essay on Plank Roads* was also published in the influential *DeBow's Review* in the same year. Typical of the regional promoters, he claimed that many New York Plank Roads were "regularly paying twenty to twenty-five per cent. on the capital invested," "while the planks themselves" will last from fifteen to twenty years."<sup>24</sup>

21. "Progress of Plank Roads in New York and Canada," *Hunt's Merchants' Magazine* 27 (Oct. 1852), 508.

22. See, for example, *The Plough, Loom, and Anvil* (May 1847), 507-09.

23. W. M. Gillespie, *A Manual of the Principles and Practice of Road Making*, third edition (New York: A. S. Barnes, 1850), 248.

How do we account for such over-inflated rhetoric put forth by the regional promoters? Maybe the root cause was their unrelenting celebration of progress. Progress took many forms: for Owen, it was the prosperity of his father's utopian community; for Kingsford, it was an obsession with improved transportation; for Gregg, it was a vision of an industrialized South. Images of people producing and creating, invoked throughout the plank road literature, fueled the imaginations of the promoters. Perhaps the resulting enthusiasm, or even a sly intent to mislead, accounts for the embellishments that accumulated over time. A more cynical explanation would be the quest for fame. Owen and Gregg were important state-level politicians, Kingsford was a young engineer and writer in need of publicity, and Gillespie would probably not have minded selling more engineering manuals. Being at the forefront of an important innovation could obviously benefit all four, giving them a natural incentive to exaggerate the viability of the roads. The most likely explanation is that dreams of progress and dreams of fame mingled to become a single ambition. Regardless of motive, their efforts rapidly spread the word of plank roads and at the same time exaggerated the positive qualities of the technology.

Other promoters, also of unknown motivation, played a role similar to that of Owen, Kingsford, Gillespie, and Gregg. In Kentucky, the secretary of the board of improvements reiterated the durability estimate of eight to twelve years. In Virginia, a civil engineer named Wall quoted a "civil engineer in New York" in a speech promoting plank roads. Similarly, an engineer in Alabama reported that "in the state of New York plank roads have now a recognized place in the economy of the social system." Civil engineers in other Southern and Middle Atlantic states also promoted plank roads. There is an obvious logic in associating the rise of the civil engineer with the enthusiasm for plank roads.<sup>25</sup>

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24. William Gregg, "Essay on Plank Roads," *DeBow's Southern and Western Review* 10 (April 1851), 475; 10 (June 1851), 665-67; 11 (July 1851), 63-64. Gregg's promotional activities are outlined in Broadus Mitchell, *William Gregg, Factory Master of the Old South* (Chapel Hill, N.C.: University of North Carolina Press, 1928), 152-63.

25. North Todd Gentry, "Plank Roads in Missouri," *Missouri Historical Review* 30 (1937), 272-87; Joseph Durrenberger, *Turnpikes: A Study in the Toll Road Movement in the Middle Atlantic States and Maryland* (Valdosta, Ga: Southern Stationery and Printing Company, 1931), 146; *DeBow's Review* 2 (1854), 382.

The New York State legislature gave its own endorsement of the technique. In 1847, in response to a growing number of petitions for articles of incorporation, the state senate's committee on roads and bridges issued a highly favorable report on plank roads. The report emphasized the prospects of improved transportation and higher property values. On the crucial issue of durability, the report stated that the planks "will last 7-12 years" and "from the improvements already made in the mode of building, that average can be enlarged."<sup>26</sup>

More important than the report was the 1847 general incorporation law, which greatly simplified the process of starting a plank road company. Instead of petitioning the legislature, the company merely had to certify that stockholders had subscribed to at least \$500 of stock per mile, and then file articles of association with the secretary of state's office. It required no great legal effort to file the articles, which gave the company name, location of the road, name of directors and stockholders, and other basic information.<sup>27</sup>

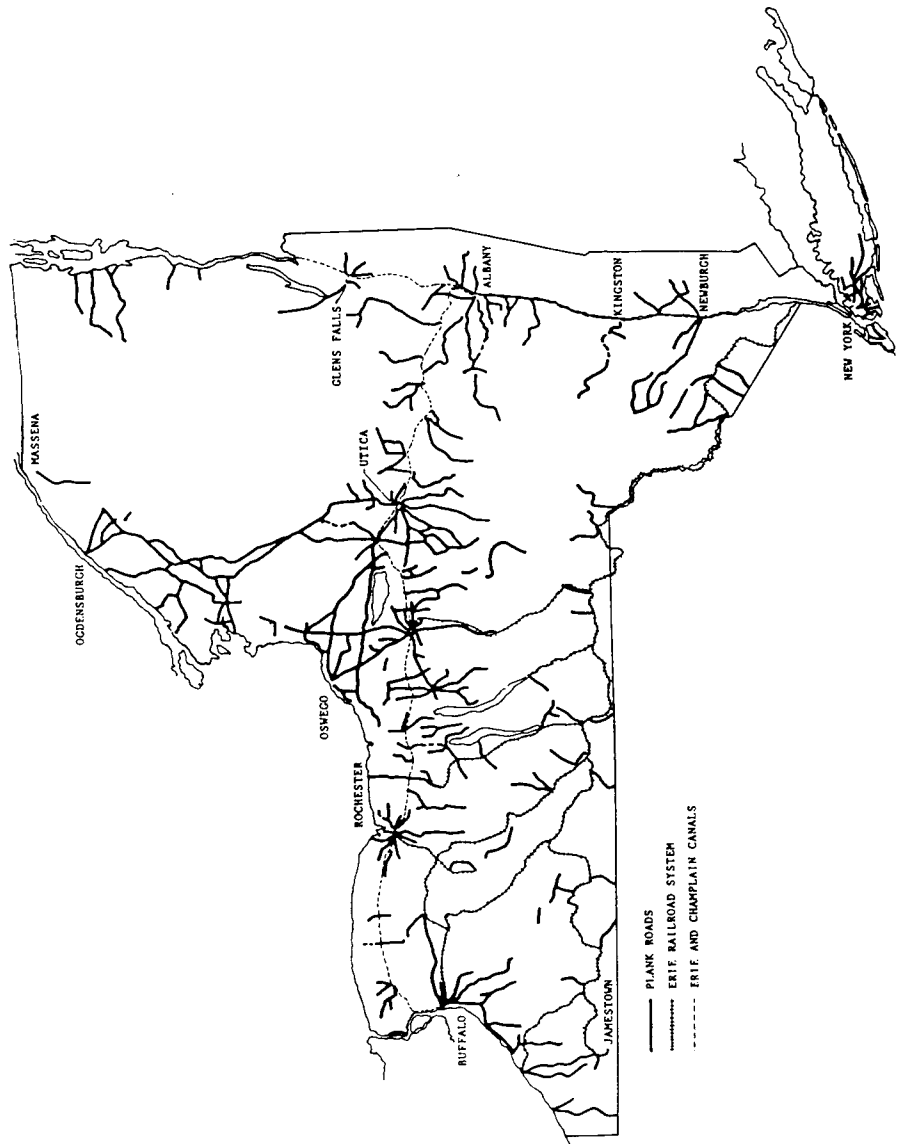
The legislature by no means allowed plank road corporations free reign. The law included provisions to protect property owners and existing roads. It specified the dimensions of the roads, and the materials to be used, and it provided for periodic inspections. The law also prescribed the tolls that could be charged and declared that in no case could a company charge or receive tolls in high enough amount to enable it to pay dividends exceeding 12 percent of capital stock, after accumulating a repair fund limited to an amount equal to 10 percent of capital stock.<sup>28</sup> The legislature thus made it clear that plank roads were designed to serve public commerce, but allusions to dividends of 10 and 12 percent undoubtedly reinforced the growing perception that plank roads would be a profitable area of investment.

The impetus behind the New York legislature's encouragement of plank roads was the desire to find a dependable road surface

26. "Report of the Committee on Roads and Bridges, in Relation to a General law for Plank roads," *New York State Senate Documents*, Document 50 (1847), p. 5.

27. *Laws of New York*, 70th Session (1847), chap. 210, pp. 216-31.

28. *Ibid.*, p. 226.



Plank Roads of New York: 1845–1846. By C. T. Baer, 1991.

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that did not require state funds. As a report of an 1836 internal improvement convention noted, surfacing roads with crushed rocks (known as macadam) would require millions in state subsidies; but subsidies and bad loans to unprofitable canals had nearly brought the state government to bankruptcy in the 1840s.<sup>29</sup> The resulting atmosphere of fiscal retrenchment made large public expenditures for improved roads impossible. Since private investors financed almost all plank roads, by liberalizing the law the legislature could help swell the plank road wave without dipping into the treasury. As historian Carl Abbot has noted, "the passage of the New York plank road law. . . may have seemed a kind of official seal of approval."<sup>30</sup> Both Geddes and Owen included a copy of the New York laws in their promotional pamphlet, strongly suggesting that the law helped validate the lore of plank roads.

Though existing evidence does not warrant overly broad generalizations, there is little question that some members of the legislature had a personal interest in plank roads. Salina resident Thomas G. Alvord, for example, was a member of the New York State Assembly when he accompanied George Geddes on his second trip to Canada in 1846. In that same year, Alvord gave up his law practice (though he would continue to serve in the legislature) to engage in the manufacture of lumber and salt.<sup>31</sup> William H. Bogart, who may be remembered (or not) as the author of a biography of Daniel Boone, was an Albany native who served a term in the legislature in the 1840s and was for many years clerk of the senate. He wrote, as has been noted, the first account of the Salina-Central Square plank road. There is no evidence that he profited directly or indirectly from plank roads; he is significant for his legislative position and for his enthusiasm, as exemplified by his statement:

The plank road is of the class of canals and railways. They are the

29. "Reports on Roads, at the Internal Improvement Convention of the State of New York . . ." Bound with item 385 N559 at the New York State Library (1836), 4; Ronald Seavoy, *The Origins of the American Business Corporation, 1784-1855* (Westport, Conn.: Greenwood Press, 1984), 177-79.

30. Carl Abbott, "The Plank Road Enthusiasm in the Antebellum Middle West," *Indiana Magazine of History* 67 (June 1971), 115.

31. *Appleton's Cyclopaedia of American Biography*, 1:63; *The National Cyclopaedia of American Biography*, 2:413.

three great inscriptions graven on the earth by the hand of modern science, never to be obliterated, but to grow deeper and deeper, as channels of comfort and prosperity.<sup>32</sup>

Most of the people who actually invested in plank roads probably never read the legislative reports or the work of Geddes and the regional promoters. Lodged between the regional promoters and community groups was a diverse lot of secondary promoters. Some, like farm-magazine editor J. S. Skinner, resembled the regional promoters in that they influenced a wide audience. Other secondary promoters, such as editors of small-town newspapers and public-spirited citizens, operated locally. Yet in both cases, the words of the secondary promoters directly influenced investment decisions.

Of the secondary promoters, J. S. Skinner, the editor of *The Plough, The Loom, and the Anvil*, had the broadest national audience. Skinner wrote the introduction to William Kingsford's pamphlet and a companion essay titled "On Roads in General."<sup>33</sup> As a champion of scientific agriculture, Skinner thought that plank roads would dramatically eliminate the mud and ruts and thereby increase farm productivity. Not surprisingly, his *Plough, Loom and Anvil* frequently mentioned plank roads; it featured long articles by Geddes and extracts from Gillespie. Agricultural periodicals across the country, including the *Southern Planter* (Richmond, Virginia), the *Prairie Farmer* (Chicago), *The Cultivator* (Albany), and the *New England Farmer* (Boston), emulated Skinner's efforts.<sup>34</sup> As already noted, business journals such as *Hunt's Merchants' Magazine* and *DeBow's Review* also spread the word. The result was an impressive array of periodicals that supported the roads.

Local newspapers also pushed plank roads and were obviously of particular importance because they reached a particular geographic area, and plank roads had a particular local application. Rather than exposit the general merits of plank roads, local

32. Bogart, "First Plank Road Movement," 63. See *Appleton's Cyclopaedia*, 2:302.

33. J. S. Skinner, "On Roads in General" in *History, Structure, and Statistics of Plank Roads in the United States and Canada* (Philadelphia: A. Hart, 1851).

34. *Plough, Loom, and Anvil* (May 1847), 507-09; (June 1849), 762-65; *Prairie Farmer* 7 (March 1847), 123-24; *The Cultivator* 1 (Oct. 1844), 309; *The Southern Planter* 4 (November 1844), 241; *New England Farmer* 21 (Oct. 12, 1850), 341-42.

editors generally urged public-spirited citizens to invest in specific projects. An 1850 article in the *Long Island Democrat*, for example, remarked: "Now that the opportunity is offered for doing something that will promote the prosperity of the village and enhance the value of property along the line of the proposed plank road, we trust that our citizens will subscribe liberally." Newspapers like *The Fredonia Censor* also encouraged investment by praising investors for exhibiting "a commendable degree of enterprise in getting up the stock" of a local plank road company.<sup>35</sup>

Newspapers provided the community stamp of approval, but the real battle to win the support of rank and file investors was conducted in face-to-face encounters. Town meetings provided an excellent forum for personal contact. At such meetings, those supporting plank roads would present information from the various promoters to bolster their case. A committee appointed by an 1849 town meeting in Ithaca, New York, for example, cited Gillespie's "recent and most valuable American publication," and then went on to state that "the duration of plank roads is from eight to twelve years."<sup>36</sup> The town meeting also served to create the perception of a community consensus—whether real or fictional—that everybody in the town supported the roads. The published report of the Ithaca meeting, for instance, equated failure to invest with pessimistic "croaking" and lack of community spirit. It is quite probable that town meetings had a similar function elsewhere.<sup>37</sup>

Community spirit and other sources of inspiration are evident, for example, in a speech delivered by Matthew Vassar, president of the Poughkeepsie and Stormville Plank Road Company, at a dinner marking the opening of the road in December 1851. Vassar said that the directors of the road were motivated to build the road by community pride—Dutchess County not having a single plank road while Ulster and Orange Counties had two or three. He then heaped scorn on those who said that plank roads would not be profitable in the eastern counties. He noted the role of experimenta-

35. *The Long Island Democrat* (Mar. 12, 1850), 2c; *Fredonia Censor* (Dec. 30, 1851), 1.

36. "The Report of the Committee, Appointed at a Meeting of the Citizens of Ithaca, New York," pamphlet at the New York Public Library (1848), 16.

37. See, for example, the account in John E. Raitt, *Ruts in the Road*, 3 vols. (Delhi, NY: John E. Raitt, 1983), 3:25.

tion and practicality in American genius. "Why gentlemen," he declared to his audience, "almost everything which pertains to human progress and elevates the condition of human society, in the *onset* is an *experiment*." He noted that "river craft croakers" and others had said, a few short years before, that a railroad on the rocky banks of the Hudson was impossible. But some men were willing to *experiment*, and now, he said, trains were "streaking some forty miles per hour" along the river.

Plank roads, he said, "are of a very modern *experiment*." They were a sound investment, served agriculture, manufacturing, mining, foundries. They also saved wear and tear on horses, wagons and harnesses and cut blacksmiths' bills in half. Then, warming to his subject, he declared:

Plank Roads are emphatically the *people* roads; they can use them with regularity to fit their own convenience, they promote social intercourse among neighbors, afford ready dispatch for medical relief in cases of sickness by abridging distance, and remove all occasion for excuse to attend religious worship in bad weather. Every improvement in locomotion benefits society morally, and intellectually, and not only tends to expedite interchanges in the various productions of the soil and of the arts, but increases intercourse and removes the local and provincial prejudices, and thus links together the social fabric with stronger and more lasting bonds.

Willing to admit that the Poughkeepsie-Stormville road was still "an *experiment*," he assured his audience that any device introduced as a luxury becomes, with use, a necessity. He who travels for a time at forty miles per hour will never again settle for ten miles per hour. "We are not only a people of progress," he concluded, "but of eagle's flight swiftness—a go ahead people—what was well enough for our fathers is out of date for their children . . ." The Poughkeepsie-Stormville plank road therefore, "will forever in my humble opinion be continued . . ." <sup>38</sup>

A. B. Pease, a director of the road, expressed similar sentiments but in "poetic" form:

In former years with puny loads,  
And clumsy teams, o'er rutty roads,

The farmer trudged along.  
But now, through banks (though sand) they glide  
As smoothly as the ebbing tide,  
With laugh and song.  
Ha, Ha, they shout, we clear the track  
With fifty hundred on our rack,  
And feed short oats.  
Russ pavements city bucks may covet.  
But when you've got a load 'an would shove it,  
Plank roads "am some."<sup>39</sup>

Mr. Pease's verse may have been influenced for good or ill by the thirteen toasts that were drunk just before his presentation. His sentiments nevertheless represented a broad and sober consensus.

Networks of friends and family members also helped to advance the plank road movement. An 1847 letter written from William K. Fuller to an organizer of the Cazenovia and Chittenango Plank Road reveals that Fuller's brother "acquainted our leading citizens" with the project. Fuller assured the organizer that "you may confidentially rely upon contributions from the inhabitants of this town commensurate with the extent of their interest."<sup>40</sup> Family connections such as those between Fuller and his brother were common among plank road investors. The articles of association of New York plank roads reveal that many investors had the same surnames.

The basic elements in the salesmanship of Fuller's brother and other plank road promoters were the social and economic characteristics of their audience. As any good salesman knows, reaching the "right" audience is as important as the content and delivery of the pitch. The "right" audience for the promoters proved to be residents of small towns eager to embrace plank roads as a lifeline to bigger markets, expanding population, and higher prop-

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38. Clifford M. Buck, ed., "Account of the Poughkeepsie and Stormville Plank Road," *Dutchess County Historical Society Year Book* 65 (1980), 21-28. All italics are in the original.

39. Ibid., 27. Mr. Pease was more enthusiastic than artistic. By "Russ" he may be referring to the color of city pavement. His poetry may also have lost something in the original transliteration.

40. William K. Fuller to Ledyard Lincklaer, May 20, 1847, Box 5, Fairfield Collection, New York Public Library.

erty values. Many small-town Americans had been by-passed by canals and railroads, which attracted trade and population away from areas that had once been a local or regional hub. Roberta Miller's study of Onondaga County, New York, for example, shows how settlers built a number of thriving villages along turnpikes. The completion of the Erie Canal, however, decimated the turnpike villages, even though they were less than ten miles from the canal. While the county as a whole grew rapidly, a turnpike township like Manlius lost more than 25 percent of its population. As early as 1827, a resident of Manlius despaired that his village had "an old, dilapidated, forlorn look . . . the construction of the Erie Canal, had a very injurious effect upon the business of the village."<sup>41</sup> Anxious to regain past standing, the residents of towns like Manlius listened to anyone who promised to revitalize their community.

Promoters also played on fears of economic isolation. William Kingsford, for example, stressed that plank roads would not only spur commerce and raise property values, but would also bring isolated farmers "closer to civilization." Farm families would dress better, go to church more often, and improve their manners. Always ready to provide evidence, Kingsford quotes an unnamed "gentleman" as saying that "wives and daughters are no longer the same persons. They have improved wonderfully. . . . Such are the results that have in every instance attended the introduction of plank roads."<sup>42</sup>

Plank road promoters also helped create "social proof" by frequently mentioning the large number of plank roads chartered and specific examples of roads in operation. For an investor on the fence, the knowledge that thousands of other people were investing in plank roads must have lent added credibility to the idea. How can thousands of Americans be wrong?<sup>43</sup> Economist Robert J. Shiller has found that fads and fashion profoundly influence today's sophisticated stock markets. One should not be surprised that the same factors inspired investors in the nineteenth century.<sup>44</sup> Although

41. Roberta Balstad Miller, *City and Hinterland: A Case Study of Urban Growth and Regional Development* (Westport, Conn.: Greenwood Press, 1979), 51.

42. Kingsford, "A Few Words," 17.

43. See Robert B. Cialdini, *Influence: How and Why People Agree to Things* (New York: William Morrow & Co., 1984), 115-62.

44. Robert J. Shiller, "Stock Prices and Social Dynamics," *Brookings Papers on Economic Activity* 2 (1984), 457-98. We thank Kenneth Sokoloff for this reference.

plank road fever may not merit space in Charles Mackay's *Extraordinary Popular Delusions*, there certainly was some comic "following the crowd" element in the episode.<sup>45</sup>

Another important factor was the lack of engineering knowledge among secondary promoters and investors. In an era when college educations were rare, the word of an "expert" might have special influence. The promoters capitalized on this situation by using "scientific" engineering calculations, which must have impressed those with little training in engineering. The following passage from William Kingsford, comparing macadam roads with plank roads, is representative of the engineering rhetoric used by the promoters:

When newly laid, the resistance for heavy trains on the latter [plank roads] has been calculated variously at 1 in 98 and 1 in 70, while that of the stone road in perfect condition is named at 1 in 67. But while the plank road for at least two years after it has been laid down retains an equality of surface, the stone road is never in such order that so low a ratio of resistance can be received. In ordinary condition, the resistance of 1 in 25 is received. Taking a mean of the two, we may call the average resistance of the Macadam road 1 in 46.<sup>46</sup>

Translated into plain English, Kingsford's argument is that a horse could pull between 70 and 98 pounds on a plank road as easily as it could pull 46 pounds on a macadam road. Kingsford never tells the source of the experiments and uses vague phrases like "heavy trains," yet arrives at definitive conclusions that convey scientific certainty. More rigorous experiments at the turn of the century showed that Kingsford's argument was greatly exaggerated.<sup>47</sup>

Investors might have doubted Kingford's calculations if they had read a pamphlet on plank roads by Canadian engineer Thomas Roy. Published years before Geddes visited Toronto, the pamphlet pointed out that the planked portion of the famed Toronto road had a thick

45. Charles Mackay, *Extraordinary Popular Delusions and the Madness of Crowds* (London: Richard Bentley, 1841).

46. Kingsford, "A Few Words," 7.

47. Ira Osborn Baker, *A Treatise on Roads and Pavements* (New York: John Wiley and Sons, 1905), 31.

covering of sand. The thick sand would normally impede travel, but since most heavy traffic traveled downhill into the city, it presented little problem. Travelers rarely used the other planked portions of the roads because of a series of difficult passes. Calling the success of the Toronto road a "mere delusion," Roy argued that estimates from wooden wharves and canal locks showed that plank roads would last three to four years. Roy implored his readers that "the present mania for plank roads . . . be arrested, before it produces so much evil."<sup>48</sup>

Roy's words proved prophetic. Promoters had predicted that the wooden planks would last from seven to twelve years. But companies soon discovered that planks became rotten and worn within three or four years. By 1852 many plank road companies faced the task of replacing worn planks, but they had not generated sufficient revenue to do it, and many companies folded. According to a few surviving cost estimates, the cost of relaying a plank road was about 60 percent of the original cost of the road.<sup>49</sup> To meet replanking costs, companies would have to generate annual net revenues of 12 to 15 percent of their capital stock. Most companies, caught by surprise, could not replank. The Saranac River Plank Road Company of New York, for example, remarked in an 1853 report to stockholders that "the originators of these roads and the legislature were greatly mistaken both as regards to the durability of the roads, and the amount of tolls that would be earned under that act." The company reported that three years of heavy travel had already destroyed half of their road, with the remainder expected to last only another two years. Already more than \$15,000

48. Thomas Roy, *Remarks on the Principles and Practice of Road-Making, Applicable to Canada* (Toronto: H. and W. Roswell, 1841), 32.

49. Kingsford (p. 10) estimates that planks were about 70 percent of the initial cost of the road; Owen (p. 80) says that planks would make up about 57 percent of the initial cost of the road; while Gillespie (p. 245) argues that planks would make up 67 percent of the initial cost. Most of the annual reports do not give cost breakdowns, but we have found cost figures of 4 plank roads in historical societies and libraries: The New Baltimore Plank Road (Greene County Historical Society in Coxsackie, New York), New Berlin and Brookfield Plank Road Company (New Berlin Public Library in New Berlin, New York), Northern Plank Road (Oneida Historical Society in Utica, New York), and the Saranac River Plank Road ("Report of the Directors," cited in n. 50, below.) The average cost of the planking for the four roads was 63 percent.



in debt, the company claimed that it would fold unless the legislature increased its toll rates.<sup>50</sup>

In the years following 1852, the legislature took numerous measures to ease the sudden predicament of plank road companies. Between 1852 and 1854, it passed dozens of acts that allowed companies to borrow money, to erect additional tollgates, and to increase their tolls. In 1853 a general law increased toll rates about 25 percent. A number of acts provided for highway labor to be performed on specific plank roads, until an 1853 general law granted the privilege to all companies. In 1854, the legislature implicitly acknowledged that the movement had failed when it permitted all companies to abandon or to turnpike all or part of their road.<sup>51</sup>

These various measures came too late. The bubble had already burst. John Taylor, a prominent businessman in the Albany area, typified the plight of investors. In 1850 Taylor invested \$900 in three local plank roads. Over the twelve-year period his combined dividends totaled less than \$80. In 1856 he unloaded \$250 worth of stock in the Albany and Rensselaerville Plank Road Company for the rock-bottom price of \$25. His investment in the Albany and Fort Hunter Plank Road was especially disastrous. Taylor scribbled in his account book that "This road worn out and burst out without paying dividends, leaving heavy debts."<sup>52</sup> By 1865, the vast majority of plank roads that had been constructed had been either abandoned or connected to turnpikes of earth and gravel.

Why did people so rapidly absorb and so readily accept an idea that so quickly proved impracticable? The answer to this question—aside from the receptiveness of the "right" audience, already discussed—relates to the manner in which information about plank roads found its way into the minds of the typical small-town investor. The information filtered down a pyramid of diffusion. George Geddes was positioned at the pyramid's apex. Two groups made up the strata immediately below Geddes: regional promoters

50. *Report of the Directors of the Saranac River Plank Road Company Submitted to the Stockholders* (Saranac[?], N.Y.: J. W. Tuttle, 1853), 2.

51. See *Laws of New York*, 76th Session (1853), pp. 535, 1206 and *Laws of New York*, 77th Session (1854), p. 167.

52. Private notebook of John Taylor of Albany, New York. Photostat copy in the manuscript collection of the New York State Library.

who trumpeted the roads in a particular region, and the New York State legislature, whose quick embrace gave legitimacy to the movement. The next layer was composed of secondary promoters, such as civil engineers, newspaper editors, and local community leaders. Using both the written word and face-to-face encounters, promoters convinced thousands of investors, whose participation formed the base of the pyramid. In each stage of the process, the law and lore of New York played a crucial role in expanding the boom.

This construction lends considerable insight into the mechanics of nineteenth-century information diffusion, a topic that has received much scholarly attention in recent years.<sup>53</sup> The pyramid of diffusion worked exceedingly well in spreading information quickly over long distances. Promoters, responding primarily to non-monetary incentives, provided "scientific" estimates of plank durability, statistics on profitability, and numerous examples of successful plank roads that eventually filtered down to local papers and town meetings across the country. But if the process was effective in terms of speed, it was obviously inept in terms of accuracy. The promoters' claims became so exaggerated that they bordered on outright fabrication.

John Taylor's fate testifies to the glaring lack of means to evaluate investment information. The plank road boom shows that information could quickly travel far and wide during the antebellum period. Within a few short years, information about a Toronto road had traveled through a variety of networks to reach investors like Taylor. But such investors had no way of evaluating the claims of plank road promoters, which became increasingly exaggerated over time. State and local governments were no help—in fact, they played a crucial role in disseminating inaccurate information. As Alfred Chandler has outlined, the proliferation of investment opportunities led to the rise of business analysts like Henry Varnum Poor, who specialized in providing potential investors with accurate information. Poor, ironically enough, began publishing the *American Rail-*

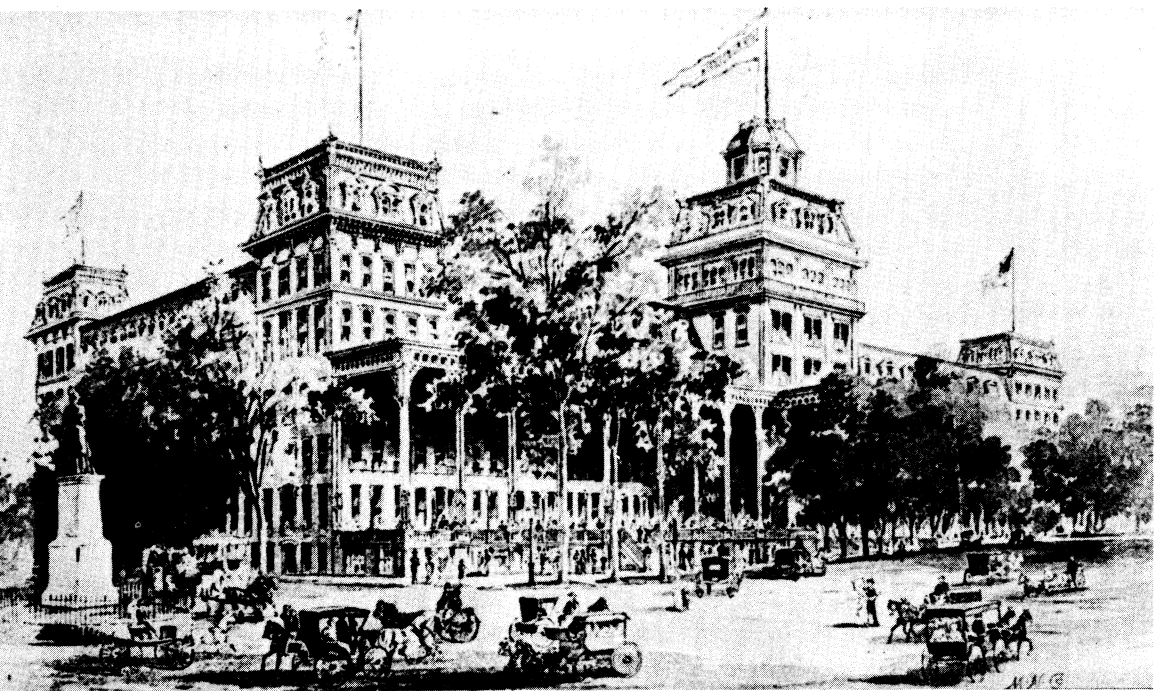
53. See, for example, Richard D. Brown, *Knowledge is Power: The Diffusion of Information in Early America, 1700–1865* (New York: Oxford University Press, 1989); William J. Gilmore, *Reading Becomes a Necessity of Life: Material and Cultural Life in Rural New England, 1780–1830* (Knoxville: University of Tennessee Press, 1988); David Jaffee, "Peddlers of Progress and the Transformation of the Rural North, 1760–1860," *Journal of American History* 78 (1991), 511–35.

*road Journal* in 1849, at the height of the plank road movement.<sup>54</sup>

It is doubtful that even Henry Varnum Poor could have stopped the plank road boom. His voice, like that of Thomas Roy, would have been lost in the boundless stirring for economic and material progress, shared by promoters and investors alike. Such desires left enduring monuments, like railroads and canals. But the plank road boom reminds us that the price of such successes are frequent failures, for the ambitious always run the risk of backing the wrong horse. George Geddes's horse opened well—the plank road boom probably helped him win a state senate seat in 1848—but it faltered down the stretch. His career as a promoter and engineer was badly damaged. Although Geddes won the Republican nomination for state engineer in 1857, the opposition argued, perhaps with plank roads in mind, that "It is impossible for him to make the proper calculations from an engineer's calculation book."<sup>55</sup> Geddes lost, and never held political office after he departed the Senate in 1851. He retreated to his farm near Syracuse, spending his remaining days as a farmer, amateur inventor, and local orator.

54. Alfred Chandler, "Henry Varnum Poor: Business Analyst," in Thomas K. McGraw, ed., *The Essential Alfred Chandler: Essays Toward a Historical Theory of Big Business* (Boston: Harvard Business School Press, 1988), 23–45.

55. *Atlas and Argus* (Oct. 18, 1857).



*The Setting: The Grand Union Hotel, Saratoga Springs, in the 1870s. Courtesy of the George S. Bolster Collection of the Historical Society of Saratoga Springs, New York.*