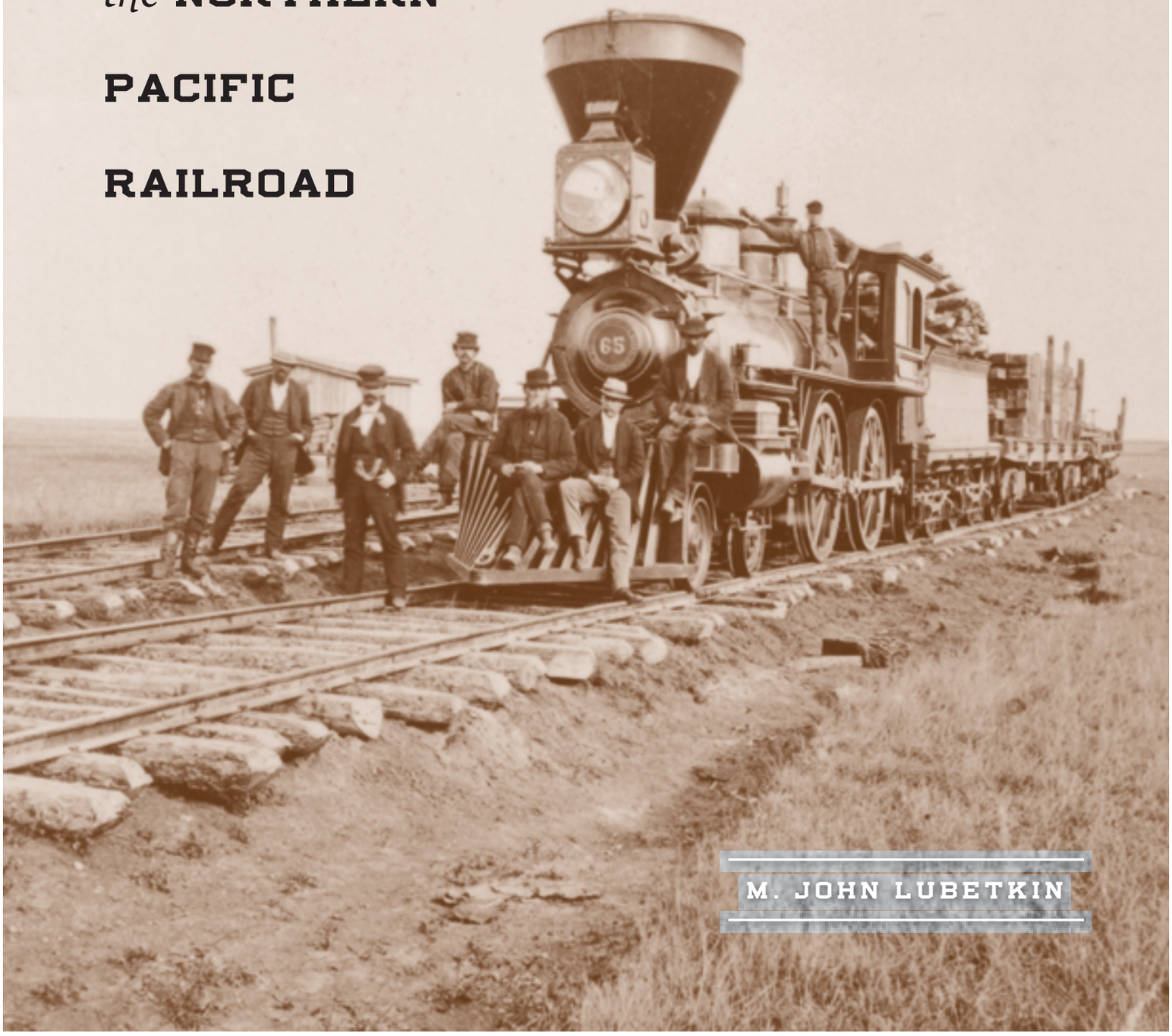
"Twenty-Six Feet

CONSTRUCTING *the* NORTHERN PACIFIC RAILROAD



M. JOHN LUBETKIN

and No Bottom"

Today the Northern Pacific Railroad lies largely forgotten, but just 136 years ago (February 15, 1870) it broke ground near Carlton, Minnesota, as the nation's second planned transcontinental railroad—and the first to be built by a single business entity. The NP had been created by an act of Congress in 1864, largely as a political sop to regional interests, and was not considered with great seriousness. Chartered to build track from Lake Superior to Puget Sound, it was always a distant second to the federal government's primary goal of connecting California with the East. After the Civil War, railroad growth had exploded: between 1860 and 1871 U.S. track mileage almost doubled, from 30,626 to 60,301 miles. The NP, however, was languishing without the political or financial support needed to begin construction.[1]

ONLY THE CENTRAL PACIFIC'S CROSSING OF THE SIERRA NEVADA WOULD SURPASS THE NORTHERN PACIFIC'S CONSTRUCTION PROBLEMS.

Then, in March of 1869, everything suddenly changed as Jay Cooke, the nation's leading banker, was passed over for the job of U.S. treasury secretary. The previous year Cooke had sold $4 million in bonds for the Lake Superior & Mississippi Railroad (St. Paul to Duluth), and now he began to focus on the Northern Pacific. Cooke was a man to be taken seriously. Economic historian John S. Gordon writes that during the Civil War, Cooke had "bypassed the banks and gone directly to the people . . . inventing the bond drive" and selling $1.6 billion in bonds to "about 5 percent of the [North's] population" by war's end. The respect in which Cooke was held, his wealth, and the political power he wielded were such that, as railroad historian Robert E. Riegel wrote, "No one doubted but that if Cooke took hold of the project its success was assured." By 1872, as the NP was poised to begin construction in Dakota Territory, Cooke ran the St. Paul & Pacific and was about to take control of the Lake Superior & Mississippi, in all some 43 percent of Minnesota's operational track. Cooke was also putting the finishing touches on Duluth's infrastructure; in addition, he controlled traffic to and from the Red River Valley and west-central Canada and was about to take over the large Oregon Steamship & Navigation Company.[2]

On New Year's Day 1870, Cooke and Northern Pacific Railroad president J. Gregory Smith formally completed their agreement to build the transcontinental railroad. Thus the NP, always low on cash and with only a skeleton staff, was suddenly faced with the daunting task of living up to the expectations and promises of a $100 million, 2,000-mile construction effort. In 1870 NP surveyors would spread out across the northwestern territories (Dakota, Idaho, Montana, and Washington) and work frantically in Minnesota to perfect a final route. Letters, newspaper stories, and "remembrances" by the "Corps of Surveyors"—as the idealistic young men called themselves—vividly relate their progress in Minnesota and the construction efforts that followed.[3]

Financier Jay Cooke

Congress had stipulated that construction occur at both ends of the route and, while 25 miles of track were completed in Washington in 1870–71, the railroad's

FACING PAGE: *Northern Pacific train and personnel at the end of newly laid track near Brainerd, 1871*

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primary effort was between Duluth and the Red River. The land was mostly level other than a ridge line southwest of Duluth (where track was being built by the Lake Superior & Mississippi) and some gentle hills near present-day Detroit Lakes. Yet of the first four American transcontinental railroads, only the Central Pacific's crossing of the Sierra Nevada would surpass the Northern Pacific's construction problems.[4]

THE NORTHERN PACIFIC'S MANAGEMENT MUST HAVE BEEN FULLY AWARE OF THE CONSTRUCTION DIFFICULTIES THEY WOULD FACE.

The glaciers that created Minnesota's thousands of lakes also scraped central Minnesota flat. Often the grade per mile is measured in inches, not feet. For more than 125 east-to-west miles there was porous glacial moraine with lakes, swamps or tamarack bogs, "sloughs," pine barrens, sinkholes, and floating islands of "solid" ground. In addition to visible creeks and rivers, underground streams flowed just below what appeared to be firm land. The deceptive covering was a forest of pine, spruce, tamarack, birch, and elm protected by seemingly impenetrable undergrowth. As Cornelia L. Meigs, the daughter of one surveyor, recounted in her novel *Railroad West*:

> Sometimes mere potholes into which a man would step and find himself wallowing waist deep . . . sometimes stretches three or five miles wide, but all . . . depressions in the root-entangled ground, filled with black muck which was not water, for no one could swim in it, nor land. For no one could walk upon its surface. . . . [When a] wind blew over it, [one] could see great heaving ripples, sinister and unbelievable, go across its surface. . . . a dark expanse . . . with stunted evergreens, bright insects hovering in the damp air, and the twisted knees of roots running back and forth everywhere.[5]

If the land were not fit for man nor beast, unchanging water levels made it ideal mosquito habitat. Indians learned to cover themselves with bear fat for protection, but railroad personnel were averse to the smell (there were also a finite number of bears). With mosquito netting not perfected, there was constant suffering. In addition to the swamps and mosquitoes, winters were exceptionally cold and long, significantly reducing the effective construction season. All of these problems were compounded by the land's freezing and expanding each fall and, in the spring, thawing and contracting. Over this, the first 150 miles of the Northern Pacific Railroad had to be built.[6]

Nevertheless, the problems of railroad building under these conditions were known. Benjamin Latrobe Jr., a leading railroad engineer, laconically wrote in the *Railroad Gazette* in 1870, "Construction of a permanent road bed over *boggy* ground [Latrobe's emphasis] is often an interesting problem for an engineer. . . . Upon the railways crossing our western prairies deep swampy spots have been successfully crossed by various expedients." Just as important, the Northern Pacific's management must have been fully aware of the construction difficulties they would face. It is not possible to believe that the surveyors did not report the conditions they encountered. Surveyor Richard Relf later recalled his labors at the watershed between the St. Croix and Mississippi rivers:

> This wet season had filled the swamps compelling us often to wade out sometimes almost waist-deep before getting onto the floating mass—which was anything but reliable, and several comical rescues were witnessed. Our intrepid head chainman had to take the lead and keep the line while the rest of us could steer around whatever open water was in the swamp so he was often in need of brush and poles to help him out.[7]

If Minnesota's wetlands presented one strategic problem, the Northern Pacific's president, J. Gregory Smith of St. Albans, Vermont, presented two others: His managerial skills were marginal and, to call a spade a spade, he was dishonest. In 1870 Smith was also president of the Vermont Central Railroad, which he and his father had acquired through a swindle in the 1850s. Smith took over the road after his father's death in 1858 and gradually built it into a 300-plus-mile system, adding a little each year or buying out smaller competitors. The planning and operational skills necessary to profitably manage a small system in a growing economy could be readily performed by a pragmatic, intelligent, hard-working man, which he was. Smith also had ample time to become the state's leading Republican and governor (1863–65). One of the few contemporary, candid comments on him came from Cooke's partner and brother-in-law William G. Moorhead (for whom the Minnesota city is named), who wrote that Smith was "selfish, obstinate and most visionary" [i.e., impractical]. [8]

"Pioneer corps" that ran the Northern Pacific line from Lake Superior to Brainerd. Surveyor Richard Relf stands in the center of the back line in the dark suit and hat; Ira Spaulding, head of surveying and construction, is the bearded man diagonally in front of Relf.

But by 1870 Vermont's railroad traffic was stagnating, competition was increasing from the similar-sized Rutland Railroad, and the Hoosac Tunnel (reducing the Albany-to-Boston mileage) was nearing completion. After signing his agreement with Cooke, Smith decided to lease the Rutland in order to control it. The $376,000 annual fee he negotiated in late 1870, however, was partially (and stupidly) based on Civil War traffic. Almost immediately, Smith tried to void the contract but failed and found his Vermont financial losses accelerating. Throughout 1870 and 1871, Smith was plagued by problems in Vermont, only briefly leaving the state; as Cooke biographer Ellis P. Oberholtzer wrote, "If Smith were almost never in Minnesota, so also was he seldom in New York" at NP headquarters. Thus, the president of the Northern Pacific's only experience was on a small stage. He had suffered few defeats from which to learn, had never experienced well-financed, intelligent competition and, remaining blissfully unaware of his limitations, found himself responsible for rapidly building a transcontinental railroad just as his Vermont operations began to fail.[9]

Northern Pacific president J. Gregory Smith, described as "selfish, obstinate, and most visionary."

Equally important were Smith's operational ethics. Overwhelming contemporary evidence, if anecdotal, makes it clear that the Northern Pacific was riddled with graft and corruption in its planning, purchasing, and construction. During 1870–71 Cooke was deluged by newspaper stories (especially in the *Duluth Minnesotian*) and letters of complaint from investors, associates, and NP directors. The issues included contracts that were let under suspicious circumstances, unnecessary and/or unusually large purchases, good equipment traded away, billing for phantom miles of track, and "certified" track not meeting specification. Moorhead and NP director S. M. Felton jointly wrote Cooke that a large investor "is very emphatic in his language of condemnation of the manner in which the road has been built. . . . If there is to be a ring to manage our contracts please count us out of any farther participation."[10]

Nowhere was the issue worse than in the Lake Superior & Puget Sound Land Company, created to purchase land and develop the new towns that the railroad would establish. Operated by a Smith crony, the company's be-

havior was egregious, according to historian John Harnsberger: "The methods it used handicapped the actual construction of the railroad and interfered with the sale of Northern Pacific securities." The highly respected travel writer and Children's Aid Society founder, Charles L. Brace, recorded in 1873 what was then common knowledge: "For a time there was a kind of Crédit Mobilier affair of a small kind—the Lake Superior & Puget Sound Land Company. . . . Some of its directors, it is said, were directors in the [NP] also." Furthermore, business historian J. Kevin Graffagnino wrote that Smith "came under attack for the same sort of financial tactics he had perfected in Vermont, as a growing number of observers charged him with extravagance and misuse of NP funds to enrich himself and his associates."[11]

THE RAILROAD PRESIDENT ADMITTED TO COOKE THAT THERE "MAY HAVE BEEN VERY GRAVE MISTAKES IN THE LOCATION OF THE ROAD."

In January 1870 the *St. Paul Weekly Press* wrote that the "direct line, as surveyed, is in reality a pretty crooked one for, through the first 150 miles of its course, it winds about among the sloughs, and lakes, and bogs, and wooded and sandy ridges of a curiously broken and barren country." This route from Duluth to the Red River ten miles south of Georgetown, via present-day Brainerd, was almost exactly 250 miles. Yet a 25-mile shorter route involving less wetland construction was available by following the St. Louis River north and then west. Alternatively, a longer path along the Mississippi River between Brainerd and St. Cloud crossed the fewest miles of wetland. Whether the Brainerd route was chosen because of Smith's speculative desires is unknown, but that fall the railroad president admitted to Cooke that there "may have been very grave mistakes in the location of the road."[12]

The man chosen to lead Minnesota's surveying and construction efforts was General Ira Spaulding, whom Smith had hired in 1867. During the Civil War he had served in and then commanded the Fiftieth New York Engineers. After being wounded, Spaulding developed a chronic cough with frequent pleurisy attacks, which hobbled him until his death in 1875. Six feet tall, the blue-eyed Spaulding was recalled by a Northern Pacific surveyor as "a kindly man, genial and much respected." But in 1870 it became clear that he was unable to manage construction effectively, possibly because of his wounds, a lack of authority or, as former Minnesota governor William R. Marshall believed, because Spaulding "had been bought."[13]

One of Spaulding's first 1870 hires was Edward C. Jordan, 24, some of whose letters and diaries survive. Jordan, from an upper-middle-class Maine family, had chosen a civil and railroad engineering education, enrolling at Union College in Schenectady, New York, one of the few schools teaching such courses. Besides French, German, and mathematics, the curriculum included drafting, engineering statistics, leveling (for construction), mechanics, mensuration (measuring), roads and railroads, stability of structures, stereotomy (cutting through solid materials), and surveying. Jordan had worked for the Central Pacific (he was at Promontory Summit in 1869) and was likely the best-trained *railroad* engineer of any surveyor.[14]

Youthful surveyor Edward C. Jordan in his college-graduation picture

Jordan's May 23, 1870, letter of employment from Spaulding defined both the goals of a surveying team and Spaulding's no-nonsense approach:

> You will please proceed to Otter Tail City as soon as practicable for the purpose of making a Topographical Survey of a portion of the county which will be indicated to you on the map before you start. . . . To be of any value, your work must be done as rapidly as possible consistent with sufficient accuracy for our purposes. The object of the Survey is to obtain the information necessary for us to locate the line of the Rail Road upon the best ground within the belt of the country to be examined. . . . All time and labor . . . beyond what is necessary to obtain the information mentioned above, would be a waste of money and must be avoided. . . . Please advise me often of your progress.[15]

While stepping up the pace of surveying was incremental, getting meaningful construction underway proved to be more than Smith

and Spaulding could manage. Cooke and the NP had been in extensive discussions in mid-1869. Reconnaissance of the route from Portland, Oregon, to Bozeman, Montana, completed in September 1869, yielded an overwhelmingly positive report. When J. Cooke & Associates printed tens of thousands of copies of the report a few weeks later, it was a clear signal of the financier's intentions to begin building as soon as possible.[16]

TO OBJECTIVE OBSERVERS AND SOPHISTICATED INVESTORS, THE HIGHLY RESPECTED COOKE LOOKED NAIVE.

Amazingly, Smith and Spaulding, who by late 1869 were sitting on surveying reports covering hundreds of miles, did not formally choose the Brainerd route until mid-April 1870. Thus, requests for proposals for grading, bridging, masonry, ballasting, rails, ties, and other necessities were not released until early May—and then with a June 1 deadline. One can only speculate why the route and bidding decisions were delayed for so long, but even weak hindsight indicates that the specifications could have been prepared, at least in preliminary form, by late fall 1869 and issued in January. Given Cooke's public enthusiasm, Smith and Spaulding could have entered into conditional contracts; they should have done *something* to start the process. The delay meant that much of the $5.5 million that Cooke had raised in January, to say nothing of additional millions that followed, sat idle until mid-August.[17]

In May bidders rushed to submit proposals and by mid-June contracts were let, but the process was too rapid to be honest. Highlighting everyone's paranoia, the major contract went to the apparently unqualified Charles and Ferdinand Canda of Chicago. Obliquely referring to a Crédit Mobilier-type management, Cooke's biographer Oberholtzer wrote that the company "was said [to be] composed of officers and employees" of the Northern Pacific. Compounding the problem—humorous in hindsight—many thought that Canda was a *Canadian* firm, sparking further protests. To objective observers and sophisticated investors, the highly respected Cooke looked naive. Nevertheless, because of his towering reputation, all assumed that he would rectify the problem.[18]

Making matters worse for the Northern Pacific, railroad construction in the United States was booming. By 1870 construction—about 6,000 miles of track per year—was at least double that of 1867. This meant that the largest and most experienced companies were fully committed and at work by the time the NP got around to issuing bids. The construction companies that won the bids were cobbled together. Even if they had been thoroughly honest they, like the NP, would be facing a significant learning curve.[19]

Ira Spaulding (back row, third from right) and his staff of surveyors, including chief engineer Thomas L. Rosser (seated, wearing white hat), Brainerd, 1871

Construction was off to a slow start, but at least Spaulding wasted no time with the surveying. In January 1870 he launched four 16-man teams into various parts of Minnesota. The teams had 45 days' rations and, since it was winter, draft animals pulled sleds with the 300 pounds of supplies. But if winter surveying were difficult, it was worse once the snow and ice melted. Jordan's first crew totaled, including himself, nine men: an assistant, two chainmen, a picketman, axeman, one undefined worker, a teamster, and a cook. Writing to a friend, Jordan later described some of his difficulties in the Ottertail-Detroit Lakes region. After leaving Ottertail City ("two stores, three dwelling houses, and a sawmill") and joining a feast with 300 Chippewa ("fat dogs, baked beans, and fish)" his team returned to work:

> Nothing was left but to push through a dense growth of timber some 40 miles wide—full of lakes, swamps, marshes, and mosquitoes. I packed three horses with 20 days rations, one blanket per man and cooking kit . . . and started in to cut our way through at the rate of one mile per day.
>
> All this was very interesting, time passing quickly in our contest with mosquitos and Tamarac swamps. Most of the so called Tamarac swamps are floating forests of trees, and beneath the network of roots and moss there is generally a mud lake from ten to 20 feet deep; one has to only step on the interlacing roots to walk along quite safely. My Indian pony was adept at this; he carried a pack of 200 lbs. and jumped from root to root occasionally floundering but always recovering.
>
> But with the horses it was different. A misstep would send them through the sod discouraged only to be got out by slipping poles beneath and lifting them by strength. This, together with an occasional disappearance of everything but the head of some unlucky chap, to be extricated in the same beastly manner, gave a variety that was not to be harkened after, but which served its purpose in giving spice to our life. For 15 days this life continued, the men growing cross and surly from the prolonged hardship of wet clothes, disturbed sleep and the incessant warfare with mosquitos.[20]

"Our Cook," sketched by surveyor Montgomery Meigs, whose drawings recorded people, places, and activities along the NP line

"Marking Stakes," another Meigs sketch

Jordan was soon working with Edwin Johnson Jr., the son of the Northern Pacific's chief engineer; Montgomery Meigs, son of the army's Quartermaster General; and Frank Eastman, son of the artist, soldier, and surveyor, Seth Eastman. Others included a Smith and a Morse. "Looking around," Jordan continued, "I found each one the possessor of a Saratoga trunk and expecting transportation for same." Finding that no provision had been made for the trunks, the new arrivals stuffed months of clothing and necessities into something about the size of a large laundry bag. "These young men, laughed and sneered at by some of the rough, common members of the party were more willing and suffered the many little disagreeable duties with less complaint than the very men that [we] hired for *tough* [work]." Smith proved unable to swim, and Jordan recounted with delight his and Morse's various mishaps:

> Smith land[ed] safely and after several [lengths of the 66-foot] chains got on with varying floundering success when suddenly Morse disappears again and on rising swears that some one pulled his shoe off while he was down. "Twenty six feet and no bottom," called the sounder—"I guess I will let the shoe remain" [said Morse as] Smith was trolled across this and other places."

EVERY DAY, "PATHFINDERS" MOVED FORWARD WITH SHOVELS, AXES, TWO-MAN SAWS, AND PICKAXES TO CLEAR BRUSH, FELL TREES, AND FILL.

Going through the bogs and swamps, Jordan wrote, "was like walking on a feather bed; at each step I took it billowed up before me, threatening to engulf me constantly, but the secret of success was in rapid motion." Meigs came through like "a drowned, slimy rat." In the end, their efforts were wasted. After meeting with Spaulding, Jordan was told to "back up and swing to the north, this crossing is impracticable!" Spaulding then sent them on a reconnaissance to look for alternate routes. "Having reached the Red River of the North, Meigs and myself took . . . an old Chippewa scout, and started across the country with a canoe and hunting [gear]. We followed the chain of the Buffalo Path Lakes, carrying the canoe on our head across the connecting portages; and through the lakes and rivers we traveled for a hundred miles or more . . . several times we snagged and had narrow escapes from dangerous swims."

Jordan's letter does not indicate that anything came of this last trip, although he proudly noted he was acting "Resident Engineer" and mentioned the "bitter experiences . . . the wading of brooks, marshes and river[s] during the latter part of the cold fall months." Jordan also noted the winter's "astonishing cold" that made it a "terror," an interesting comment considering he was from Portland, Maine.

Meaningful construction on the Northern Pacific did not begin until late August 1870. As the Canda brothers and other contractors proved unable to find workmen, the NP had to wait until the Lake Superior & Mississippi Railroad had finished its final (and difficult) construction southwest of Duluth. Only then were its 1,600 men released to work on the NP, but the transfer proved difficult. On October 22 the *Duluth Minnesotian* reported that the NP had graded 30 miles and laid track on 17, but that only two miles were completed. Smith's response to the delays was to hire more men, and by early November, 3,000 were working. As Smith had promised Cooke and the public that track would reach the Red River by July 1, 1871, he made the decision to continue construction through the winter.[21]

After construction began and the first wetlands were reached, the gradings were made by a "fill" of sand, gravel, wood chunks, brush—anything that could be poured in to meet the specifications calling for a single-track, 12-foot-wide roadbed. In 1886 chronicler Eugene V. Smalley noted that workers had found it almost impossible to locate solid ground to sink piles: "The filling of one day would disappear during the night." Every day, "pathfinders" moved forward with shovels, axes, two-man saws, and pickaxes to clear brush, fell trees, and fill. The area had little rock, so gravel was brought in by rail. As the contractors were paid by completed mileage, one can assume that they took shortcuts by filling with wood, brush, sand, and even muck, much of which later compacted, disintegrated, or floated away. Even with proper fill, if the sides of the grading were not properly anchored, roadbeds soon slid or buckled under a locomotive's weight.[22]

The first Lake Superior & Mississippi Railroad depot, Duluth, 1872

Yet, as engineer Latrobe had written, similar issues had been surmounted elsewhere. While the wetlands were exceptionally difficult, the problems were as much a result of the Northern Pacific's management as they were physical. Besides being unable to complete the planning necessary to get construction under way in early 1870, there is no indication that during the brief bidding process management made contractors fully aware of, or were truly concerned about, wetlands construction. Well before work began, Smith had established a chain of

command—and filtering system—that stretched from the wetlands to Minneapolis to New York to St. Albans and back. Smith, seeing nothing, heard what he hoped to hear.

While the Northern Pacific had purchased four of the recently invented Otis steam shovels for $12,000 each, the "monster scoops" were often useless in wetlands. Pile drivers were needed, but only one appears to have been purchased in 1870–71. In fact, Jordan wrote to Spaulding about the problem and, obliquely, its solution in December 1870: "In regard to the portion of the line through the tamarack district of the Detroit woods [southwestern Becker County and large sections of Otter Tail County], the question arises as to when the pile bridging for open culverts will be put in—since the positions of several of them are such that the gradings would be very much facilitated by having them in place."[23]

If the work were not difficult enough, along the line tent-cities quickly sprang up, populated by construction workers and a predictable mix of lawless low-life. Workers lived in tents "insulated" with wood and dried mud. Food quality was scandalous; most workers made $14 a week, five of which were subtracted for board, a practice inevitably leading to shortchanging. By October the Lake Superior & Mississippi Railroad, over which everything was being shipped, attempted to bar liquor, a sure indicator of heavy drinking by the disgruntled workers. Predictably, the liquor ban was unenforceable and caused more resentment. While construction figures vary, Louis Renz's *History of the Northern Pacific Railroad* indicates that by February 1871 completed track was 28 miles east of Brainerd, while grading had progressed 20 to 30 miles west of it.[24]

Meanwhile in Philadelphia, Cooke was flooded with reports of problems and, as Oberholtzer wrote, "some actual dishonesty in the awards of contracts and the execution of them." Alvred B. Nettleton, a trusted Cooke associate, "inspected a portion of the completed line and reported that much of it would have to be done over within a short time," a prediction that soon proved correct. An oft-told story related how a locomotive carrying supplies traveled on a newly finished section of track. As the train moved forward, the roadbed began shuddering, part of the track slipped into the muck, the train rolled backwards and, as the crew bailed out, the locomotive and cars slowly sank out of sight until they disappeared entirely.[25]

Cooke and his supporters' dissatisfaction initially focused on the Northern Pacific's chief engineer, Edwin Johnson. At 68, Johnson was deaf, increasingly feeble, and unable to travel from New York or process the huge flow of data from the field. Smith made no effort to defend Johnson from Cooke. As only W. Milnor Roberts, the man who had undertaken the 1869 reconnaissance of the western half of the line, had the knowledge, prestige, and Cooke's support, the board of directors appointed him chief engineer on October 1, 1870.[26]

Unidentified work crew laying rails, about 1870

Roberts began November 1, immediately facing mountainous paperwork and the frightening fact that only some 16 miles of track were operational. "Light Dawning—the Beginning of the End of a Swindle, We Hope!" read the headline in the *Duluth Minnesotian*, which had peppered the summer and fall with articles detailing Northern Pacific mismanagement. "We regard [this] as an auspicious sign," the paper told its readers. "It was about time that Jay Cooke & Co. came to the rescue of themselves and their Bondholders . . . from a most corrupt, villainous, scampish combination of forty thieves . . . [with] affiliations . . . amongst the highest officials of the company itself."[27]

Roberts's accession was to make little difference in Minnesota. Smith, who did not want him anywhere near where the money was being spent, soon sent him to the West Coast to clean up construction problems that had popped up there. When Roberts returned in mid-spring, Smith then sent him west again to run the railroad's surveying operations in Montana, Idaho, and Washington. Smith could not take Roberts out of the picture totally, however. Roberts complained to his close friend, the president of the Pennsylvania Railroad, who, in turn, wrote Cooke, "At present, according to Mr. Roberts, there is no system observed in the management of the work whatever."[28]

Privately, Smith was likely horrified by the lack of construction progress. To him, Spaulding was at least partially responsible for the mess that Smith, himself, could not admit. Sometime in the winter of 1870–71 he reduced Spaulding's responsibilities by putting the Minnesota and Dakota surveyors and related engineering under Daniel C. Linsley, a capable engineer and Vermont friend.[29]

Both the St. Paul & Pacific and the Lake Superior & Mississippi railroads were of strategic importance to Cooke and the Northern Pacific. Cooke's 1868 bond sales had led to an insider position and control of the LS&M in 1872. The long-troubled SP&P, however, with its land grants and operating or planned lines running northwest to the Red River (Breckenridge), north to Canada (St. Vincent), and up the Mississippi from Minneapolis-St. Paul, represented grave potential competition. In December 1870 Cooke acquired operational control of the company and placed his partner, William Moorhead, in charge of what would today be called an executive committee. Construction for all three SP&P branches was planned for 1871.[30]

AS THE WEATHER GREW WARMER, MORE AND MORE SECTIONS OF TRACK BEGAN SINKING INTO THE BOG.

As in 1870, the Northern Pacific Railroad's major 1871 construction effort was in Minnesota. In January some 1,600 men were still working in the Brainerd area, even though the *Railroad Gazette* quoted one supervisor as saying that the ground was frozen from two- to two-and-one-half-feet deep. It was also noted that the Northern Pacific was using nine locomotives (four being "pony" or small engines), 130 flatcars, and 26 boxcars. More locomotives and rolling stock were on the way, and engine houses, coal sheds, and water tanks were rapidly being built. However, the *Gazette* also ominously noted that the "grading is very difficult—good grading, one might suspect, quite impossible."[31]

About March 15, Northern Pacific personnel telegraphed the *Railroad Gazette* that track (94 miles) had reached the Mississippi, the Brainerd bridge was completed, and the first train had crossed the river. By early April construction crews were back to 3,000 men. The *St. Paul Daily Press* noted on April 13, "The work on the Northern Pacific Railroad is being prosecuted with extraordinary vigor. . . . By September next, trains will run to the Red River." However, two days later a short, unsettling story appeared in the *Duluth Minnesotian*: "The frost leaving the ground, has invited the track in

Officials and guests of the St. Paul & Pacific Railroad, Breckenridge, 1873

many places of its winter-constructed roadbed, to sink further into it. . . . All had better possess their souls with patience until the line is ballasted and surfaced up. . . . It will take two or three weeks yet to put the line in workable order."[32]

The *Minnesotian*'s prediction of a few weeks proved wildly optimistic: the "completed" track was in much worse shape than anyone realized. As the weather grew warmer, more and more sections of track began sinking into the bogs; as a result, locomotives and rolling stock became useless and repair crews were unable to travel from one sector to another. Instead, men had to collect the right equipment, find mules or Indian ponies to carry it, get to the "sinkage," then refill and rebuild it. Frequently logs had to be carried in and manually driven in as bracing. Only then could refilling begin.[33]

The rebuilding not only utilized all of the Northern Pacific's work force, but crews were also commandeered from planned SP&P construction projects, the Sauk Rapids-to-Brainerd work being the first to shut down in mid-June. Repairs dragged into the summer, complete, of course, with mosquitoes. A June 23 internal NP telegram to Linsley stated, "It will be at least thirty days before a loaded train can run up safely" from Carlton to Brainerd. In late July, when Smith and the NP's board of directors visited the area, one person recalled, "The comical element was strong. When the train had to be moved through the swamp district . . . the cars were separated by means of long [chain] links to permit of safety to them, and the passengers were asked to walk around the sink hole." William P. Ogden, a respected member of the board, wrote Cooke, "One perplexing thing about the road east of Brainerd is this: portions of the track over or near lakes continue to sink." Even after the road had been formally repaired, sinkings reoccurred well into 1872.

DESPITE THE WEATHER AND LACK OF SNOWPLOWS FOR MANY LOCOMOTIVES, CONSTRUCTION INCHED FORWARD.

It was not until August 7, with four full months lost, that construction toward the Red River resumed. At first it was believed that the railroad would reach Moorhead by early fall; in September, however, the date was pushed back to mid-November. On October 12 the *St. Paul Pioneer* reported that construction crews were laying track at the rate of two-and-one-half miles a day and were some 48 miles from Moorhead. With the wetlands finally behind and grading far easier, the feeling was that the railroad could still reach Moorhead by year's end.[34]

Northern Pacific engine and bridge on the Brainerd line, about 1871

There was no margin for error, however. In keeping with the Northern Pacific's bad luck, the year's unusual weather, which gave rise to terrible fires across the Plains and Midwest, also saw the early arrival of a particularly cold and forceful winter. In December the *New York Times* noted: "The story of the Plains, in this Thanksgiving time, is one of sorrow and death."[35]

This weather slowed construction. On November 23, with track 11 miles from Moorhead, 16 inches of snow fell. The temperature dropped below zero and stayed there for days. The *St. Paul Pioneer* wrote that with "King Winter master of the situation, there now seems little prospect of striking another blow until spring." Yet despite the weather and lack of snowplows for many locomotives, construction inched forward. Not surprisingly, the quality of the work decreased while mishaps became common. Late in the afternoon of December 10, two engines were pushing 39 boxcars "quite rapidly" when they hit a section of half-spiked track some 20 miles from Moorhead. Sixteen of the cars slid down an embankment, most of these tumbling over. Among the numerous injured workers was the son of a key Northern Pacific officer, who suffered "severe injuries on the head and face."[36]

The Northern Pacific's 1871 construction in Minnesota ended with a whimper and a fib. On December 31, engineer Linsley telegraphed Cooke that on the previous afternoon, at 4:35 P.M., track had reached Moorhead. But Moorhead and the Red River were not the same thing. As the *Railroad Gazette* was to report within a week, track was still one-and-one-half miles from the river. The same *Gazette* article indicated that the thermometer was at -36°, "a number of the engines are stuck in the snowbanks" at Brainerd, and there was no superintendent of operations, two people having refused the job.[37]

THE NORTHERN PACIFIC BARELY SURVIVED ITS BANKRUPTCY AND WENT ON TO FINISH CONSTRUCTION A MONTH OR SO BEHIND THE SOUTHERN PACIFIC IN 1883.

The surveyors, on the other hand, had completed most of their Minnesota work by the spring of 1871. Jordan, Meigs, and the others were shifted to Dakota Territory, their base a tent city in present-day Fargo. Many took part in the highly successful 1871 eastern Yellowstone Surveying Expedition that went from Fort Rice to the Yellowstone River, finding a route through the badlands. Part of that route remains in use today.[38]

Rosser (third from left) and his staff of surveyors in their Fargo tent city, 1872, when their Minnesota work was finished

In Minnesota, however, 1871 had proved disastrous for Northern Pacific construction. The Red River was reached six months late, the key Sauk Rapids-to-Brainerd spur was postponed (and then not built), and applications for federal certification (which would have given the NP millions of acres of Minnesota land to sell) were never submitted. The financial story was one of a company and its financier in deep trouble. Minnesota's cost overruns and wetlands-construction problems told only part of the picture; millions of dollars had simply disappeared in 1870–71.[39]

In mid-1872 Cooke forced Smith from office, and in late September the Vermont Central collapsed. (Aided by a friendly legislature, Smith kept his railroad, which soon became the Central Vermont.) The Northern Pacific's infighting had left the railroad without a functioning chief executive, and railroad construction between the Red and the Missouri rivers floundered. Late that summer Cooke all but ran out of cash. The Northern Pacific limped along, and the St. Paul & Pacific ceased construction. The late fall of 1872 saw most of the surveyors laid off (including Jordan), although some were rehired the following spring.[40]

Despite these problems, by October 1872 Cooke had secured an able replacement for Smith, George W. Cass, in an act that saved the Northern Pacific. When Jay Cooke & Associates and the NP went bankrupt and the Panic of 1873 began, the NP had a strong management team in place, millions of acres of certified land to sell, and operational revenues that slightly exceeded expenditures.[41]

The Northern Pacific barely survived its bankruptcy and the Panic of 1873 and went on to finish construction of its transcontinental railroad a month or so behind the Southern Pacific in 1883. More important, while the NP had taken the first steps in the development of the northwest, it was not to be *the* economic engine of regional development that Smith, Cooke, and others had hoped. Construction cost overruns in 1882–83 again brought the railroad to its knees, never fully to recover. Earlier, in 1878, a consortium including James J. Hill had taken over the St. Paul & Pacific, which later became the Great Northern. The NP was unable to push aside Hill's well-managed railroad in the late 1880s and '90s, or the Milwaukee Road (Chicago, Milwaukee, St. Paul & Pacific) and others after the turn of the century.

Finally, in 1970, 100 years and two weeks after its groundbreaking, the Northern Pacific, like virtually every other U.S. railroad, succumbed to the inevitable financial economies of scale. It merged, along with the Great Northern, into today's Burlington Northern Santa Fe system. ▣

Notes

*This article could not have been written without the help of the staff and the resources of the Minnesota Historical Society. Whether visiting in person, via phone, or inter-library loan, access to and assistance with the MHS's exceptional collection of Northern Pacific Railroad materials was always available on a timely basis. Special thanks also to the many members of the Northern Pacific Railway Historical Association (*www.nprha.org*) who have been so helpful over the years.*

1. *Historical Statistics of the United States, Colonial Times to 1970* (Washington, D.C.: U.S. Bureau of the Census, 1975), 2:731. A good overview is Robert E. Riegel, *The Story of the Western Railroads: From 1852 through the Reign of the Giants* (1926; repr., Lincoln: University of Nebraska Press, 1968). Robert L. Frey, ed., *Railroads in the Nineteenth Century* (New York: Facts on File, 1988) is an exceptionally valuable volume of brief articles about major railroads, railroad leaders, and the railroad business; Eugene V. Smalley, *History of the Northern Pacific Railroad* (1883; repr., New York: Arno Press, 1975) remains the best source on the railroad from its inception until its 1883 completion.

While the Northern Pacific was the second to formally begin a transcontinental railroad, it finished third, by a month.

2. John S. Gordon, *An Empire of Wealth: The Epic History of American Economic Power* (New York: Harper Collins, 2004), 193; Riegel, *Story of Western Railroads*, 122; *Railroad Gazette*, Jan. 27, 1872. The three railroads had 666 miles of operational track, but the *Gazette* figures for state mileage varied slightly between its January 13 and January 27 reports.

For more on Cooke, see Frey, ed., *Railroads*, 57–63; Matthew Josephson, *The Robber Barons* (1934; repr., New York: Harcourt, Brace & World, 1962); Ellis P. Oberholtzer, *Jay Cooke, Financier of the Civil War* (1907; repr., New York: Augustus M. Kelly, 1968); Henrietta M. Larson, *Jay Cooke: Private Banker* (Cambridge: Harvard University Press, 1936).

3. Major sources for this article are the remembrances collected in 1906, surveyor presentations, and contemporary newspaper articles concerning the January 10–12, 1906, Northern Pacific surveyors' reunion in Minneapolis—all in the George A. Brackett Papers, Minnesota Historical Society (MHS). See also, M. John Lubetkin, "The 1906 Reunion: Thomas L. Rosser and the Northern Pacific Pioneers of 1873," *The Mainstreeter*, vol. 22, no. 2, 2003, p. 22–26.

4. Smalley, *History of the Northern Pacific*, 113–18, 133–40, 159–62. The Lake Superior & Mississippi Railroad was completed from St. Paul to Duluth in early August 1870 and operated some 23 miles of track between Duluth and Northern Pacific Junction at Carlton. The NP had arranged use of its track into Duluth, thus saving the costs of track duplication.

5. *St. Paul Weekly Press*, Jan. 6, 1870, p. 4; Henry J. Winser and Eugene V. Smalley, *The Great Northwest: A Guidebook and Itinerary for the Use of Tourists and Travelers over the Lines of the Northern Pacific Railroad* (St. Paul: Riley Bros., 1886), 323; Cornelia L. Meigs, *Railroad West* (Boston: Little, Brown & Co., 1937), 12. While simplistically plotted, the novel makes for frequently fascinating reading, as Meigs clearly recounts stories that her father told her. In a Jan. 8, 1906, letter to George Brackett, J. O. Perkins mentions a friend who died in a sinkhole in the 1870s; Brackett papers.

6. *St. Paul Weekly Press*, Jan. 6, 1870, p. 4.

7. Benjamin Latrobe Jr., "Engineering Lecture," *Railroad Gazette*, Apr. 30, 1870; "Narrative of Richard Relf," 1906, Brackett papers. Latrobe's resume included being the Baltimore & Ohio Railroad's chief engineer; he is not to be confused with his father (same name) who designed the U.S. Capitol.

8. Moorhead quoted in John L. Harns-

Celebration of the opening of the Northern Pacific Railroad, Minneapolis, September 1883

berger, *Jay Cooke and Minnesota: The Formative Years of the Northern Pacific Railroad, 1868–1873* (1956; repr., New York: Arno Press, 1981), 82. For a gentle handling of Smith ("These were times when any means seemed to justify the end"), see Robert C. Jones, *The Central Vermont Railway: A Yankee Tradition* (Silverton, CO: Sundance Publications, 1981), 1:42–51.

9. Oberholtzer, *Jay Cooke, Financier*, 2:263. Smith's Vermont problems are fully discussed in Jim Shaughnessy, *The Rutland Road* (Berkeley, CA: Howell-North Books, 1984), 23–52 (see p. 35 for $376,000) and Jones, *Central Vermont Railway*, 1:42–51.

10. Moorhead and Felton to Cooke, Jan. 15, 1871, quoted in Oberholtzer, *Jay Cooke, Financier*, 2:250.

11. Harnsberger, *Jay Cooke and Minnesota*, 89–90; Brace, "The New North-West," *New York Times*, Aug. 6, 1873; M. John Lubetkin, in "From Our Readers," *North Dakota History*, vol. 69, no. 1, 2002, p. 25–28; J. Kevin Graffagnino, "John Gregory Smith," in Frey, ed., *Railroads*, 366. In the Crédit Mobilier scandal, which erupted during the 1872 presidential campaign, Union Pacific Railroad insiders awarded construction work to friendly contractors who paid kickbacks—involving federal dollars—and bribed congressmen.

12. *St. Paul Weekly Press*, Jan. 6, 1870, p. 4; Smith to Cooke, quoted in Harnsberger, *Jay Cooke and Minnesota*, 80. There is evidence that Moorhead *was* selected over Georgetown for speculative reasons, but the facts behind the rest of the route are murky.

13. Ed Malles, ed., *Bridge Building in Wartime: Colonial Wesley Brainerd's Memoir of the 50th New York Volunteer Engineers* (Knoxville: University of Tennessee Press, 1997); "Narrative of Richard Relf," Brackett papers; Harnsberger, *Jay Cooke and Minnesota*, 77.

14. Jordan's school record is at Union College, Schenectady, NY; a photocopy of his 1870–71 diary is in MHS; and some letters, 1870–72, are held by Mark Jordan (Gorham, ME) who transcribed them for the author. For more on Jordan, see M. John Lubetkin, *Union College's Class of 1868: The Unique Experiences of Some Average Americans* (McLean, VA: privately printed, 1995), 129–83. The Northern Pacific Railway Records, MHS, contain fascinating 1870s applications for surveying positions from graduates of many of the country's best colleges.

15. Spaulding to Jordan, May 23, 1870, courtesy Mark Jordan.

16. W. Milnor Roberts, *Special Report of a Reconnaissance for the Route of the Northern Pacific Railroad Between Lake Superior and Puget Sound via the Columbia River* (Philadelphia: Riley Bros., 1869).

17. Isolated facts related to the delay are known: In 1869 Spaulding's staff was tiny; his decision in Spring 1870 to move from St. Paul to Minneapolis ignited a time-consuming storm of protest; and the eventual route (wholly or in part chosen for land speculation) had not been finally selected. Whatever the reasons, the delays reflected Smith's management.

18. Oberholtzer, *Jay Cooke, Financier*, 2:244–48.

19. *Railroad Gazette*, Jan. 14, 1871, Jan. 13, 1873; note that the statistics differ somewhat. See also *Historical Statistics of the United States*, 732.

20. Here and three paragraphs below, *St. Paul Weekly Press*, Jan. 27, 1870, p. 4; Jordan to Neil Hillhouse, Jan. 14, 1871, courtesy Mark Jordan. Steel measuring tape was invented about 1840, but Jordan's comments indicate that his crew had to work with iron "Gunter chains," a 250-year-old measurement tool.

21. *Duluth Minnesotian*, Oct. 22, 1870, p. 2, Nov. 19, 1870, p. 1; *Minneapolis Tribune*, Nov. 12, 1870, p. 4; *Railroad Gazette*, Nov. 19, 26, 1870.

22. Harnsberger, *Jay Cooke and Minnesota*, 72; Winser and Smalley, *Great Northwest*, 383.

23. *Duluth Minnesotian*, Nov. 19, 1870, p. 1; Louis T. Renz, *History of the Northern Pacific Railroad* (Fairfield, WA: Ye Galleon Press, 1980), 35; Jordan to Spaulding, Dec. 25, 1870, Engineering Dept., General Records, correspondence and misc. records, 1870–1944, NP records, MHS.

24. *Duluth Minnesotian*, Oct. 1, 1870, p. 3; Renz, *History of the Northern Pacific*, 35–36.

25. Oberholtzer, *Jay Cooke, Financier*, 2:243; Harnsberger, *Jay Cooke and Minnesota*, 78; Meigs, *Railroad West*, 13–17. In July 2001, at the Northern Pacific Railroad Historical Association's Duluth conference, the author asked the director of the Lake Superior Railroad Museum, Tim Schandel, if there were any truth to the incident. He stated that he had heard the story a number of times but had never seen any documentation.

26. Oberholtzer, *Jay Cooke, Financier*, 2:246–47.

27. *Duluth Minnesotian*, Oct. 22, 1870, p. 2.

28. Oberholtzer, *Jay Cooke, Financier*, 2:247, 250.

29. Technically, Linsley reported to Roberts, and Spaulding continued to report to Smith. On a practical basis, however, Linsley was also involved in the construction process, although the operating lines of authority are not clear. For a brief profile of Linsley, see *National Cyclopedia of American Biography*, 16:233.

30. The best account is Larson, *Jay Cooke: Private Banker*, 335–37; Oberholtzer's *Jay Cooke, Financier*, 2:242–344, is far from clear. See also Augustus J. Veenendaal Jr., *The Saint Paul & Pacific Railroad: An Empire in the Making, 1862–1879* (DeKalb, IL: Northern Illinois University Press, 1999), 55–56.

31. *Railroad Gazette*, Jan. 28, 1871. The *Duluth Minnesotian*, Feb. 25, 1871, p. 4 reports slightly different statistics.

32. *Railroad Gazette*, Mar. 18, 1871; *St. Paul Daily Press*, Apr. 13, 1871, p. 1; *Duluth Minnesotian*, Apr. 15, 1871, p. 2.

33. Here and below, *St. Paul Weekly Press*, June 22, 1871, p. 2; Thomas L. Rosser to D. C. Linsley, telegram, June 23, 1871, Northern Pacific Railway, Secretary's Unregistered Letters Received, microfilm M459, NP records; George Cushing to M. C. Kimberly, Jan. 6, 1906, Brackett papers; Ogden letter quoted in Oberholtzer, *Jay Cooke, Financier*, 2:257.

34. *Railroad Gazette*, Aug. 12, 1871; *Philadelphia Inquirer*, Aug. 22, 1871; *St. Paul Pioneer*, Sept. 10, 1871, p. 4, Oct. 12, 1871, p. 4.

35. *New York Times*, Dec. 13, 1871. For one story about a frontier tradesman barely surviving the early winter, see *St. Paul Pioneer*, Dec. 23, 1871, p. 4.

36. *St. Paul Pioneer*, Nov. 25, 1871, p. 4. Numerous papers reported the accident; see, for example, *Minneapolis Tribune*, Dec. 12, 14, 1871, both p. 4.

37. Oberholtzer, *Jay Cooke, Financier*, 2:262; *Railroad Gazette*, Jan. 6, 1872.

38. The survey went through the badlands at present-day Medora, reached the Yellowstone at Glendive, and safely returned—all within 40 days.

39. Harnsberger, *Jay Cooke and Minnesota*, 91, 325–28. Harnsberger makes a thorough and objective attempt to document the Northern Pacific's woes; see 313–37.

40. M. John Lubetkin, *Jay Cooke's Gamble: The Northern Pacific, the Sioux, and the Panic of 1873* (Norman: University of Oklahoma Press, 2006), 162–74.

41. On Cass, see *Dictionary of American Biography,* and Smalley, *History of the Northern Pacific Railroad*, 190–97.

The photo on p. 7, bottom, by Mathew Brady, is in the Brady Civil War-Era collection, record group 111, Still Picture Records LICON, National Archives, College Park, MD; p. 8 is courtesy Union College, Schenectady, NY; p. 10 are from the Montgomery Meigs Orr Family Archive. All other images are in MHS collections.