

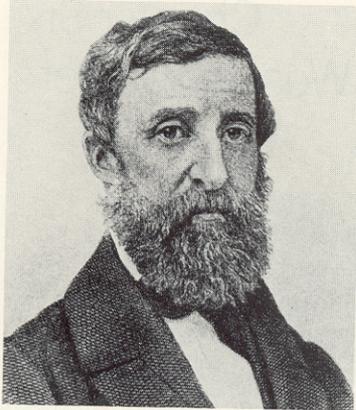
## Chapter Six: Western Waters

The Father of Waters dominates and yet divides the St. Paul District. To the west and north of St. Paul are two long river systems and two large lakes which have been important in the cultural and economic development of Minnesota and North Dakota. The two water routes are the Minnesota River and the Red River of the North, and the large aquatic bodies are Red Lake and Lake of the Woods. Farther west are two other large rivers, the Missouri and one of its main tributaries, the Yellowstone. During the nineteenth century the St. Paul District was also responsible for projects on the upper reaches of these two water systems.

The waters of the Red and Minnesota rivers originate only a few miles apart at the upper end of Big Stone Lake along the Minnesota-South Dakota border. The Minnesota River, a slow-moving, meandering stream, runs southeastward from Ortonville to Mankato (225 miles) and there turns northeast to its confluence with the Mississippi at the Twin Cities (109 miles). This river flows through a fertile basin formed by the water draining out of glacial Lake Agassiz, some of the most productive farm land in Minnesota. The Red River, from the confluence of the Bois de Sioux and Otter Tail Rivers at Breckenridge, Minnesota, flows north about 400 miles to the Canadian border, passing through the major communities of Moorhead, Minnesota, and Fargo and Grand Forks, North Dakota. Its wide, flat valley covers 34,300 square miles of some of the richest soil on earth.

Congress appropriated funds for the Corps of Engineers to improve the two large lakes in this western section for navigational purposes. Red Lake consists of two bodies of water that cover 441 square miles. Upper Red Lake has an average depth of three and one-half feet and Lower Red Lake an average depth of eighteen feet. The greatest part of the two shallow water lakes lies within the Red Lake Indian Reservation. Lake of the Woods covers 1,500 square miles on the Minnesota-Ontario border.

These farmers are working on a bonanza farm in the Red River Valley in 1880.



Henry David Thoreau steamed up the Minnesota River in June, 1861. After the Civil War the river was only used for an occasional excursion trip.

The commercial history of these western waters can be divided into two stages. The first or navigation era began before the St. Paul District was founded in 1866, and ended about 1916. The second stage began twenty years later with the passage of the Flood Control Act of June 22, 1936. It will be covered in Chapter Nine.

Western Minnesota, the Dakotas, Wyoming and Montana are known for their wide open spaces. As Theodore Roosevelt discovered when he lived in this region, the people of the plains take pride in a certain "rugged individualism" that in the late nineteenth century produced strong pockets of agrarian "populism." Dismayed with the corruption of both political parties, frustrated over the control of capital by financial institutions, fearful of large corporations and concerned with the loss of personal freedom, people from this area formed alliances to oppose the power of railroads, grain companies and banks. It was during this period that the Corps of Engineers also confronted the "public be damned" attitude of large corporations. Conflicts occurred on the Red River of the North, with logging operations on the Northwest Slope and in the development of Yellowstone Park. Major Frederic V. Abbot, Captain Dan C. Kingman, Lieutenant Hiram M. Chittenden and Lieutenant Colonel Francis R. Shunk all expressed some of the impatience of the populists in their negotiations with large corporations. Their policies, however, were closer to the "progressive" ideal of utilizing federal agencies as regulatory forces between the interests of the general public and the economic goals of corporate enterprise.

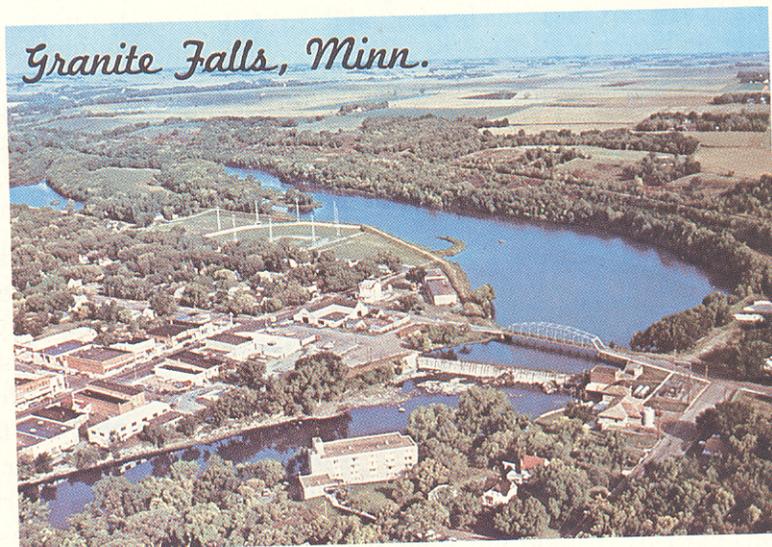
## Minnesota River

In June, 1861, Henry David Thoreau made an excursion trip up the Minnesota River to Redwood Falls with Governor Alexander Ramsey, a German band and about 100 passengers. Thoreau claimed that this winding stream was "eminently *the* river of Minnesota," and he enjoyed the novel experience of reaching out to "pluck almost any plant on the bank from the boat." He reported that the water was low and the boat frequently went aground, or encountered snags and sawyers.<sup>1</sup>

One had to be well-endowed with patience and a good sense of humor to navigate the Minnesota. Only occasionally has the river been used for commercial traffic, except for short stretches near its mouth.<sup>2</sup>

Captain John B. Davis attempted to negotiate the whole length of the river in May, 1859. His steamer, the "Freighter," was a 137- by 20-foot boat of ninety-five tons, drawing only twelve inches of water. Davis hoped to cross Big Stone Lake, pass over the continental divide at Browns Valley into Lake Traverse, and then go down the Red River to the Canadian border. A few weeks after his departure from St. Paul, Davis ran aground about eight miles below Big Stone Lake. There his boat was finally dismantled.<sup>3</sup> Many adventurers before and after Davis have dreamed of linking Winnipeg and New Orleans via the Red, Minnesota and Mississippi rivers, but no project has gone any farther than the Davis steamboat.

Majors Gouverneur K. Warren and Amos Stickney conducted the first survey of the Minnesota River in 1866, but their lengthy report was not published until 1875.<sup>4</sup> In 1867 Congress appropriated funds for the Corps to remove boulders, snags and sawyers in the river. The development of the Minnesota consequently became the oldest navigation project in the history of the St. Paul District. Between 1867 and 1881 the federal government spent \$117,441 on snagging operations between Mankato and St. Paul.<sup>5</sup> This was only a holding action. The Corps was waiting for Congress to approve an over-all plan for improving navigation on the river. In 1874 Major Francis M. Farquhar examined the Minnesota and recommended that six locks and dams be constructed, including a major dam at Little Rapids, thirty-seven miles from the river's mouth. He estimated that this dam would cost \$127,463, and that the whole project needed \$733,686.<sup>6</sup> The Farquhar



The Minnesota River flows through a rich valley and many farming communities such as Granite Falls are located along its banks.



The closing dam at the mouth of the Minnesota River diverted traffic through the Fort Snelling channel until it was destroyed in 1908.

plan was delayed by two factors: geography and commerce. The Minnesota River has such a low profile that it does not readily lend itself to a series of locks and dams. While this problem was under study, railroads were extended up the valley, and steamboats ceased to ply the river above Shakopee.

Assistant Engineer Archibald O. Powell conducted a new survey of the Minnesota in 1886. His investigation revealed that land prices had increased considerably since Farquhar's examination in 1874. The cost of the six locks and dams had doubled. Increased cost was not the only problem. Powell wrote to Major Charles J. Allen that he feared the creation of large pools of stagnant water behind the large dams would have a "deleterious effect" on the health of adjacent river communities. Consequently, he recommended the construction of a number of small dams to provide a four-foot channel.<sup>7</sup> There was never enough local support for this plan. Congress instead appropriated only \$10,000 for the revetment of banks around Belle Plaine.<sup>8</sup> The appropriation was inadequate for that project and the money was transferred in 1893 to build a

closing dam at the mouth of the Minnesota River near the foot of Pike Island. This dam diverted the channel through the passage next to Fort Snelling and provided a route for small pleasure launches and occasional excursion boats.<sup>9</sup>

The Pike Island dam caused a number of problems. It backed up water to Chaska (28.6 miles) and provided a five-foot channel, but it also caused considerable flooding along the river in the spring. The Fort Snelling channel was not large enough for steamboats and the closing dam itself was in need of constant repair. Finally in 1909 the dam was permanently removed.<sup>10</sup>

Between 1893 and 1943 a main responsibility of the Corps was to keep the mouth of the Minnesota River open. A sandbar formed every spring, leaving only eighteen inches of water at the entrance, while above the mouth for twenty-four miles the channel was about six feet deep.<sup>11</sup> In 1932, as a part of the nine-foot channel project on the Mississippi River, the Minnesota River was dredged from St. Paul to Shakopee. In that twenty-four-mile stretch, 2,448 snags were removed by derrickboats 566 and 503.<sup>12</sup> Routine yearly dredging of the mouth of the Minnesota continued until 1943.

World War II changed the mouth of the Minnesota. Cargill, Incorporated, obtained a contract from the United States Navy to build ocean-going tankers and towboats. This firm, which was then the world's largest private grain exporter, picked a site on the Minnesota River near Savage to build the naval ships. The federal contract required the Corps of Engineers to maintain a nine-foot channel on the Minnesota to mile marker 13.0.<sup>13</sup> The project was completed in 1943. Two years later, Colonel Lynn C. Barnes held a public hearing to obtain information on extending the nine-foot channel to ten miles above New Ulm. At that time it was evident that only grain and canning companies were interested in using the river. Coal and oil companies were not interested at that time in using barges. The hearings concluded that a nine-foot channel to Chaska was justified, but not its extension to New Ulm.<sup>14</sup>

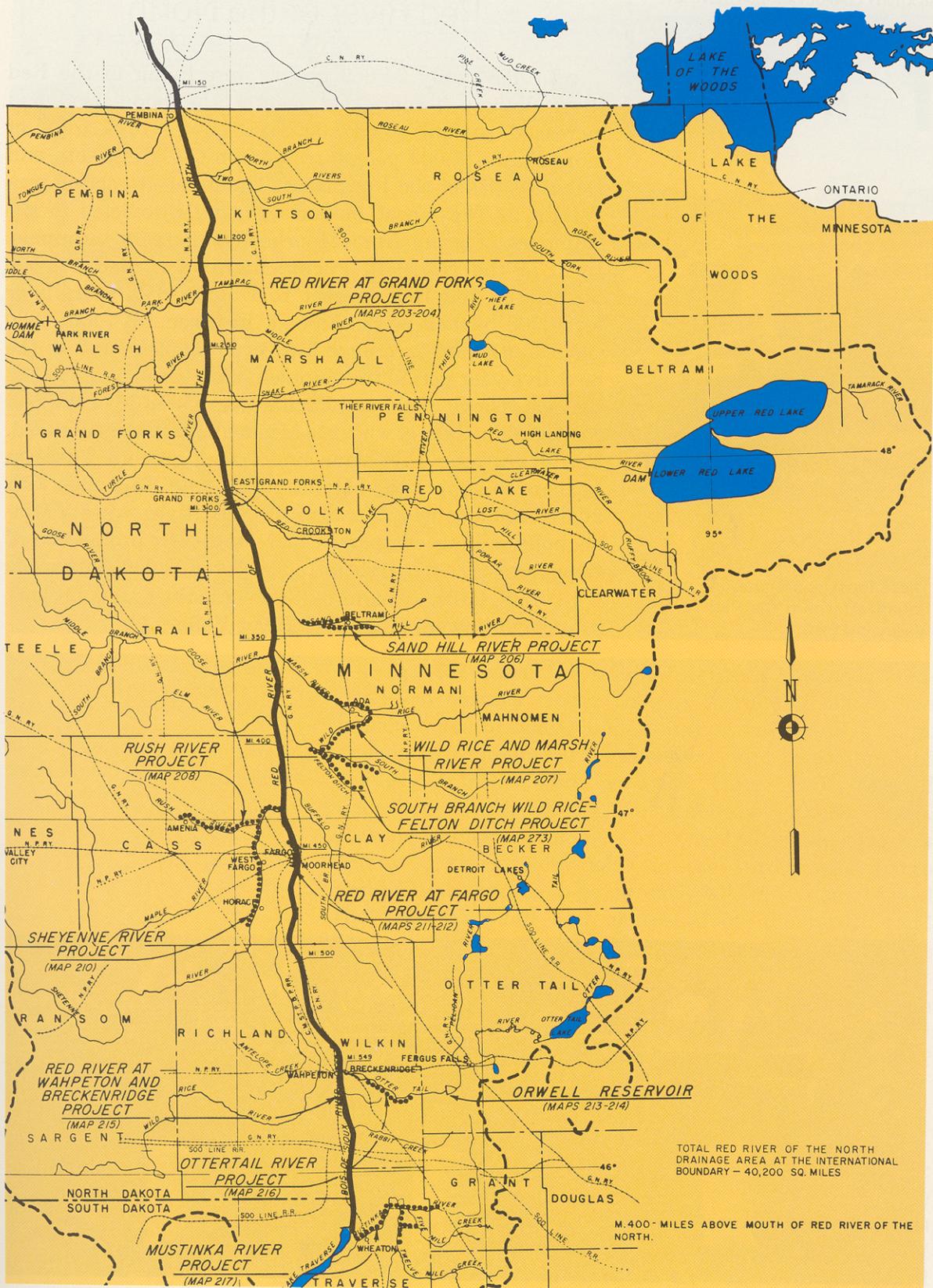
During the 1950s pressures for further use of the Minnesota River south of Minneapolis grew. The Northern States Power Company built a coal terminal at mile marker 9.0 for its new Black Dog generating plant.<sup>15</sup> In 1955 the

Richards Oil Company built a terminal in Savage at mile marker 14.5.<sup>16</sup> The nine-foot channel dredged by the Corps in 1943 had become filled with silt. The Corps was only authorized to maintain a four-foot channel to Shakopee (25.6 miles) under legislation passed in 1892.<sup>17</sup> In 1959 Congress appropriated funds for planning a nine-foot channel to mile marker 14.7.<sup>18</sup>

The nine-foot channel at the mouth of the Minnesota was delayed for the next ten years. The delay was caused, in part, by plans for a new interstate highway bridge over the river and the development of a Fort Snelling State Park. A major problem came from property owners who objected to the assessment of land values by the Lower Minnesota River Watershed District. This state authority was created in November, 1960, in order to provide a means for land condemnation to accommodate the nine-foot channel project. A legal fight through lower courts was appealed to both the State Supreme Court and the United States Supreme Court.<sup>19</sup> Because of numerous delays, the administrative costs on the project mounted. In the meantime Central Soya Company and Continental Grain established terminals at mile marker 14.7.<sup>20</sup> On November 19, 1965, the legal injunctions were cleared and the nine-foot channel was completed by private contractors in 1968 at a cost of \$1,916,746.<sup>21</sup> In 1959 it was estimated that 1,648,000 tons of freight would move through the improved channel. Within the next six years commercial terminals along the short fourteen mile stretch were handling over two and one-half million tons a year.<sup>22</sup> Except for this short section of the Minnesota, the river has retained its character as a long, placid, unexploited stream that drains rich Minnesota farmlands.



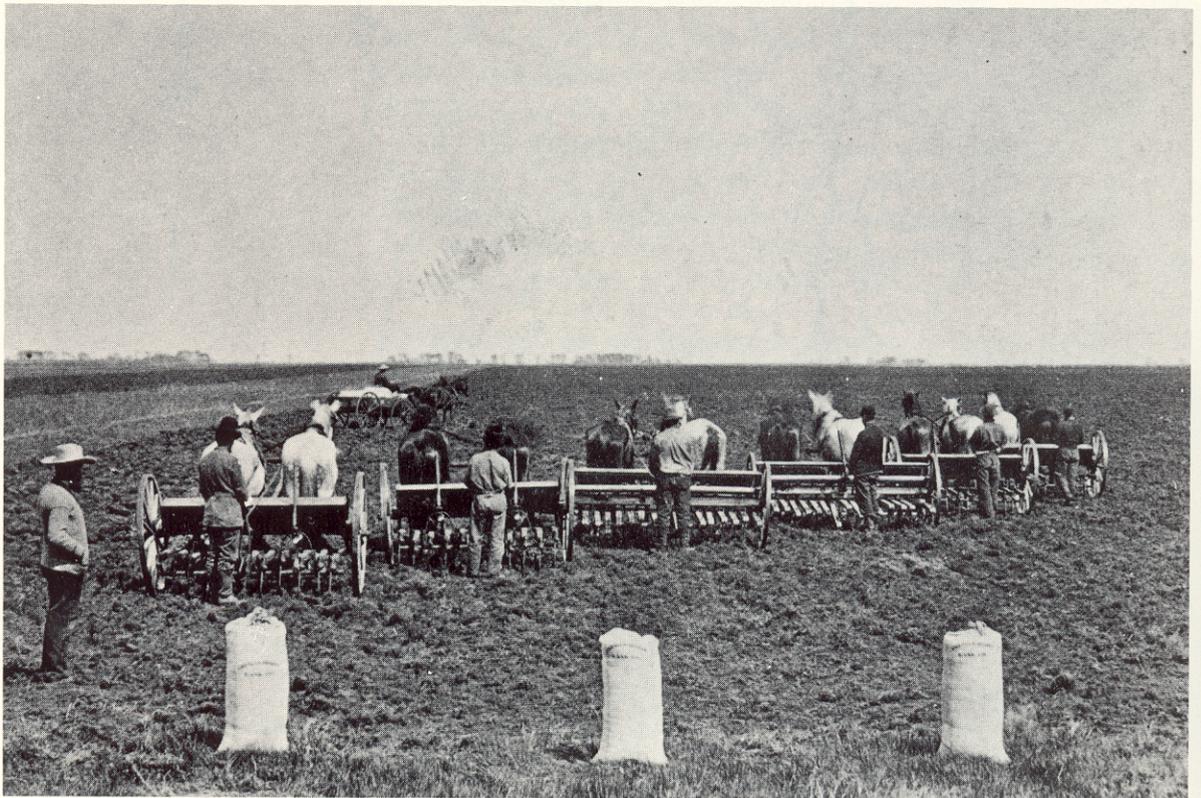
Floods are a common experience in the Red River Valley because the snow and ice melt at the river's source earlier than they do downstream. Moorhead, Minnesota, is pictured during a flood in 1881.



## Red River of the North

In 1880 only 34,869 people were living in the Red River Valley. Twenty years later the population had increased tenfold to 320,000, and by 1910 a total of more than 575,000 people resided on the Minnesota and Dakota sides of the Red River. The great attraction was WHEAT. The wheat bonanza can be chronicled in the shipment of grain from Moorhead to eastern terminals. In 1874 the Northern Pacific Railroad carried 144,000 bushels of Red River wheat to Duluth. Ten years later 5,777,000 bushels were shipped. Between 1876 and 1880 the Duluth port averaged 1,693,503 bushels, and in the next five-year period the shipments increased to 9,159,162 bushels. The St. Paul and Pacific Railroad in 1874 shipped 2,292,000 bushels of wheat to Minneapolis from Moorhead. Ten years later this same line loaded enough wheat in boxcars to supply the Minneapolis Grain Exchange with 20,677,000 bushels. Because of Red River wheat, Minneapolis milling companies increased their production of flour from 30,000 barrels in 1860 to over 20,000,000 barrels by 1915.<sup>23</sup> Railroads and milling companies thus became prominent powers in the Red River Valley.

These farmers are working on a bonanza farm in the Red River Valley in 1880.



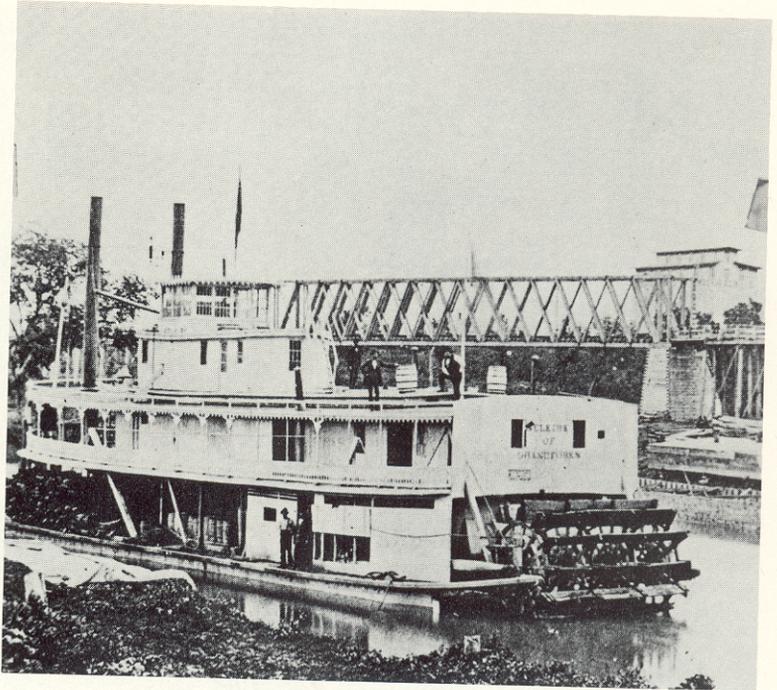


The enormous wheels of the Red River carts, such as this one at Fort Garry (Winnipeg) in 1870, allowed the transportation of huge quantities of freight over the makeshift trails to St. Paul.

In 1884 when the railroad network had been completed in eastern North Dakota there were about one million acres of wheat under cultivation. By 1910 eight and a quarter million acres were ready for harvest. Some of the wheat farms were immense. Oliver Dalrymple of Casselton, North Dakota, controlled over 100,000 acres. It was claimed by some that the Dalrymple brothers began to cross their fields in the spring with plows and planters and kept going until fall, when they turned the horses around and harvested on the return trip! The production in this rich soil was astounding. The rapid development of the land was reflected in the amount of freight shipped from Fargo. In 1877, twenty-five million pounds went out on the Northern Pacific. By 1892 Fargo exports had increased to two and a half billion pounds.<sup>24</sup>

Water did not play an important role in the transportation system in the Red River Valley. The Red River flowed north to Canada, the opposite direction from the American commercial markets centered in Minneapolis and St. Paul and the other natural water route out of this region, the Minnesota River, was never developed

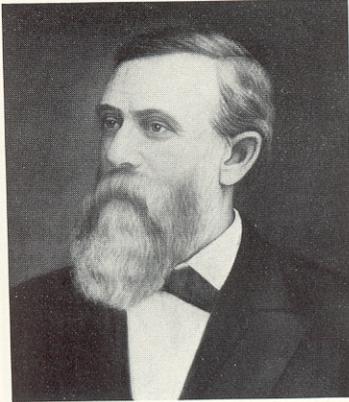
The "Selkirk," shown here at Moorhead in 1874, was owned by James J. Hill. He launched the steamer to compete with the "International," a steamboat put on the river to divert traffic north to Winnipeg three years before the "Selkirk" began to offer service.



for commercial traffic. In 1851 Norman W. Kittson pioneered in developing a unique form of surface transport. He sent sixty large wooden "Red River carts" overland from Pembina, North Dakota, to St. Paul. These carts had huge, squeaking, wooden wheels and would carry 800 pounds each. By 1854, 1,500 Red River carts were in operation and four years later there were 6,000. One caravan alone consisted of 800 carts and 1,300 people. Although this colorful and noisy means of transportation was temporarily profitable, it was slow and unreliable.<sup>25</sup>

In 1871 the Hudson's Bay Company, eager to promote Winnipeg as a trading center, put the 133-ton steamboat "International" on a regular run from Pembina to Winnipeg. That same year the Northern Pacific Railroad completed its line to Moorhead and the enterprising James J. Hill put a steamer, the "Selkirk," on the Red River to carry wheat south to its terminal. A year later Hill and Kittson organized the Red River Transportation Company, which bought the "International" and turned it around to travel between Pembina and Moorhead. By 1874 Hill had added to his Red River line the "Dakota," "Alpha," "Cheyenne," "Manitoba," and "Minnesota."<sup>26</sup>

The navigation season on the Red River was short, about five weeks from the spring breakup in early April



Norman Kittson was the major figure behind the growth of the Red River Transportation Company. He became a partner of James J. Hill in developing steamboating on the Red River.

**TABLE 23 POUNDS OF FREIGHT SHIPPED ON RED RIVER, 1879-1890**

1879 . . . 35,718,731	1885 . . . 46,085,000
1880 . . . 43,301,000	1886 . . . 21,013,000
1881 . . . 53,114,000	1887 . . . 20,809,000
1882 . . . 63,303,000	1888 . . . 24,279,000
1883 . . . 50,827,000	1889 . . . 7,732,270
1884 . . . 58,091,000	1890 . . . (low water)

From: R. Davenport's Report to Major Charles J. Allen, October 31, 1889, in SPD, Letters sent, NARG77.

to low water in the middle of May. In that short period a surprising amount of freight was shipped (see Table I).

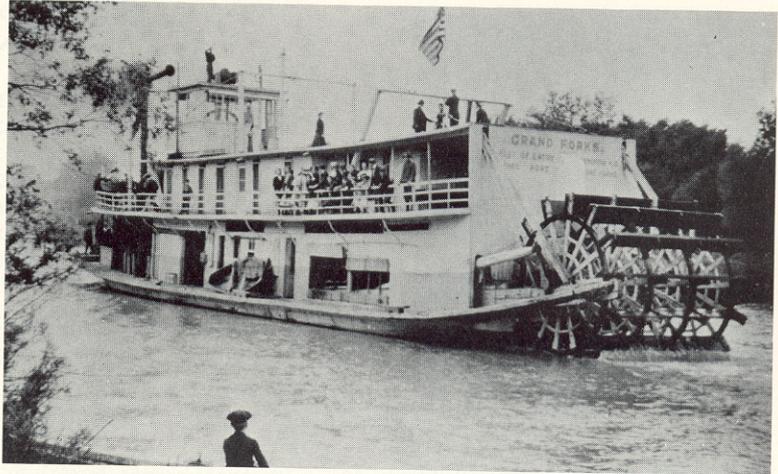
Shortly after the railroads arrived in the Red River Valley, Congress requested the Corps to survey the river for possible improvements of navigation. Congress authorized funds for snagging and dredging on August 11, 1876. The Red River was divided into three sections.<sup>27</sup> From Breckenridge to Moorhead (97 miles) dredging was authorized; from Moorhead to Grand Forks (155 miles) a sixty-by-three-foot channel was designated; from Grand Forks to the Canadian border (143.5 miles) the St. Paul District was ordered to establish a sixty-by-four-foot channel. Snagging was done by contract until 1878 when the first United States government dredge was built.<sup>28</sup> The following year the amount of wheat shipped on the river increased tenfold, and in 1881 it increased twenty times. In 1882, after a second dredge began operation, the wheat shipped by water increased thirty-fold.<sup>29</sup> However, during dry years in the late 1880s wheat farmers had to find alternative means for shipping their grain. In the 1890s river traffic only operated on a short stretch north and south of Grand Forks. Between 1900 and 1912 two steamboats, the "Grand Forks," and "Fram," along with eleven barges, continued to provide freight service to warehouses along the river (see Table II).

**TABLE 24 FREIGHT TONNAGE SHIPPED ON THE RED RIVER OF THE NORTH, 1891-1911**

Year	Tons	Year	Tons	Year	Tons
1891	12,137	1898	16,907	1905	22,352
1892	14,256	1899	30,405	1906	13,965
1893	5,723	1900	20,035	1907	8,158
1894	7,684	1901	22,660	1908	2,400
1895	9,413	1902	20,086	1909	4,300
1896	17,786	1903	28,353	1910	5,300
1897	13,840	1904	19,295	1911	2,800

From: Office of the Chief of Engineers Annual Report, 1921, p. 927.

The "Grand Forks" was the last steamboat to ply the waters of the Red River. It sank in 1912, ending a forty-year period of steamboating on the North Dakota-Minnesota border.



In 1912 the 100-ton "Grand Forks" broke in two and sank, the "Fram" was junked, and the eleven barges sold. This was the end of commercial traffic on the Red River.<sup>30</sup> The Corps continued dredging operations until October, 1914, and abandoned the project in 1921. It had spent \$378,852 on channel development over a forty-five year period.<sup>31</sup>

Corps involvement on the Red River paralleled its experience on the Minnesota River. The Corps recommended in 1877 that a dam and locks be built at Goose Rapids on the Red similar to the one they planned for Little Rapids on the Minnesota. The project would have cost \$190,000 in 1877, but as land prices rose the project doubled in cost.<sup>32</sup> Congress did not appropriate adequate funds to initiate construction. Instead, extensive dredging operations were authorized. By 1886 the Corps had built 63,500 feet of wing dams and removed 334,179 cubic yards of silt from the channel, as well as 8,878 trees, 604 snags, and 321 cubic yards of boulders.<sup>33</sup> The \$50,000 designated for the Goose Rapids dam was eventually transferred to the dredging operation.

Many people were saddened at the decline of steamboat traffic on the Red River around Fargo and Moorhead after 1890. At a public hearing, held in Fargo on March 18, 1908, Major Francis Shunk said that a number of unauthorized pile bridges upstream from Belmont restricted navigation on that section of the river. It was Shunk's opinion that the Red River could be used "as a highway of commerce" and "ought not to be obstructed by impassable obstacles." But no one had complained of the bridges and thus he had taken no steps to have them removed.<sup>34</sup>

The formal complaint was not long in coming. An enterprising steamboat man named Baker generated interest in Fargo and Grand Forks for a possible steamboat line.<sup>35</sup> Major Shunk arranged for a public hearing on the matter for April 29, 1909. Government testimony at the hearing compared rail and water transportation facilities in the area. Four railroads ran north and south along the river between Fargo and Breckenridge, five north-south railroads served Fargo and Grand Forks, and four served the lower stretch of the river from Grand Forks to Pembina. The Great Northern, the Northern Pacific, and the St. Paul and Sault Ste. Marie railroads connected with these lines to provide east-west service. There were no elevators for farmers along the river, and most grain shipments were made in the winter when prices were higher and the river was frozen. In addition, it was one to two cents per hundred pounds cheaper to take the grain directly to one of the many railroad terminals on either side of the river. The farmers who had built the unauthorized pile bridges across the Red River between Fargo and Belmont had done so in order to get their grain to nearby railroad terminals on the other side of the river. Shunk agreed that these structures should continue, for he felt that the potential of river commerce under the existing conditions was rather bleak.<sup>36</sup>

The greatest bridge problem for the Corps on the Red River occurred in downtown Grand Forks. In 1898 the Northern Pacific started construction of a new bridge over the river. Corps engineers warned railroad officials that the banks would never hold the berm approaches and massive embankments they were building. The heavy soil of the old

Lake Agassiz lake bed that covers the Red River Valley is very unstable and landslides are a frequent occurrence. In 1884, for example, 200,000 cubic yards of land slid into the river channel at various locations.<sup>37</sup> In the spring of 1898 the whole left bank of the Red River gave way between Hill Avenue and Cheyenne Avenue in Grand Forks. The landslide filled over fifty per cent of the river, reducing the normal 200-foot stream to a seventy-seven-foot narrows. The slide was over 1,200 feet long.<sup>38</sup> When the Northern Pacific Railway refused to restore the bank to its original condition, the district engineer obtained a court injunction against the railroad, stopping any further bridge construction. When the railroad continued to ignore the damage to navigation, Major Frederic V. Abbot proceeded to bring litigation against the railroad for damages.<sup>39</sup> The case continued for two years before it was finally settled. The great landslide affair was a good example of government agency attempts to regulate a nineteenth century corporation which had awesome power and flagrant disregard for the environment. One court case did not curtail railroad defiance of river traffic rights. In September, 1905, for example, the Corps obtained another court injunction against the Soo Line. That company was building a bridge at Oslo, Minnesota, which blocked steamboat traffic on the lower Red River.<sup>40</sup>

Landslides, railroad bridges and inadequate federal appropriations were some of the problems the Corps faced on the Red River. Another major concern was the flood situation. All rivers overflow, but the situation on the Red River of the North is unique because the river flows north. A river flowing south has warmer spring weather at its mouth; the Red River has the first snow melt at its source. Thus, in the spring ice downstream forms a huge dam holding back the upstream water which frequently spills over low banks, flooding thousands of acres of flat land. In 1897 a vast flood occurred. Between April 1 and April 10 the river at Grand Forks rose from six feet to 45.3 feet. Water covered about twenty million acres, affecting 500,000 people in 270 townships and 129 cities and villages. Over 1,800,000 acres of tilled land was ruined.<sup>41</sup> People of the Red River Valley asked the Corps to do something about such floods.

The St. Paul District engineer, Major Abbot, reported to General Alexander Mackenzie, chief of engineers, that there were only two solutions to the flood problem: levees

East Grand Forks, Minnesota, has had a long history of fighting floods, as indicated by this picture of Main Street in 1897.



The flatness of the Red River Valley means that hundreds of square miles are inundated each spring. This photograph was taken at Oslo, Minnesota, north of Grand Forks, in 1950.



or reservoirs. Levees were out of the question because of the landslide problem. Assistant Engineer Davenport's survey of possible reservoir sites suggested three possible locations: on the Otter Tail River, at Lake Traverse and at Red Lake. These three reservoirs would regulate about 4,500 square miles of run-off; but the drainage system of the Red River totaled 34,000 square miles. Reservoirs at these sites would only lower the flood stage about one-half an inch. Consequently, the Corps found no solution worthy of recommendation for the prevention of floods.<sup>42</sup> This flood study is noteworthy, for the Corps of Engineers officially did not have authorization to study flood control, except under orders from the Mississippi River Commission.



Hundreds of drainage ditches have been built along both sides of the Red River to speed the spring run-off and thus lengthen the growing season.

Residents of the valley thought there should be other alternatives. One idea was to shorten the river. The Red River was 395 miles long to the border, but the direct distance from Breckenridge to Pembina was only 191 miles. Engineers found that the river could be shortened 160 miles by making cutoffs and removing about 113,528,800 cubic yards of material.<sup>43</sup> The project would be immense and costly, it would destroy all navigation, and it would probably cause an international conflict when millions of cubic feet of flood water were suddenly dumped on Canadian soil. Though such a project would allow water to move out of the valley faster, the actual velocity would not be increased more than twenty-eight percent. The area flooded at high water would still be about 1,650 square miles. The results of the study squelched any hope for shortening the course of the river.

Another alternative—drainage ditches—accepted flooding as inevitable, but offered plans for clearing the land of water as rapidly as possible after a flood had occurred. Adding a few days to the short growing season in this northern environment was extremely important to farmers. On May 10, 1900, farmers concerned with drainage ditches sent 1,567 delegates to a Tri-State Drainage and Canal Association meeting in Grand Forks. They heard the results of a three-year study of the river prepared to accompany a request to state and federal governments for funds to build drainage ditches along the whole length of the Red River.<sup>44</sup> Actually, many ditches had already been built, and had proved to be a valuable aid

to agriculture. Such ditches were not entirely appreciated by the Corps of Engineers, however, for they did not solve flooding problems and caused larger amounts of sediment in the river channel.<sup>45</sup> The rapid drainoff through canals was responsible for a greater number of flash floods which helped to cause landslides. Canal drainoff also lowered the water table resulting in longer stages of low water in the main river channel.

The St. Paul District's position on the drainage question was that if artificial ditches were going to be dug then reservoirs should be created for storing drained-off water.<sup>46</sup> These reservoirs could be existing lakes such as Lake of the Woods and Red Lake, where drainage ditches were considered beneficial in maintaining adequate lake levels. Reservoirs could also be created by constructing dams on the tributaries of the Red and Minnesota rivers. Such reservoirs would help maintain the water tables and provide the main channel with a source of water during dry periods.

In a 1911 report to the chief of engineers Lieutenant Colonel Francis Shunk argued that the United States, under the Rivers and Harbors Act of March 3, 1899, had authority to take over all drainage regulation. However, he did not feel that it would be wise to do so. He noted that a newly appointed waterways commission in the state of Minnesota was considering the non-navigational uses of rivers for power generation, irrigation, drainage and flood control. Shunk strongly advocated the position that neither the federal nor state governments should have exclusive control over any one aspect of river regulation. Instead, a comprehensive plan for each river system should be developed with the co-operation of all agencies and organizations concerned. It was an interesting statement of policy coming some fifty years before its implementation was finally attempted.<sup>47</sup>

Since the major cause of the Red River's flooding was the fact that it flowed north, residents such as J. L. Cashel of Grafton asked why the Corps did not consider reversing the flow of the river, making it empty south into the Minnesota River.<sup>48</sup> Thus, in 1907 a survey for a canal between Lake Traverse and Big Stone Lake was ordered. The project was a bigger one than it appeared to be. To convert Lake Traverse into a reservoir meant the building of a dam at the outlet to the Bois de Sioux River near White

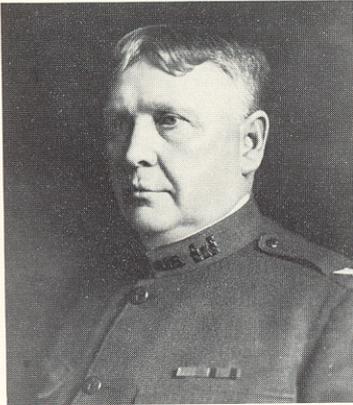
Rock. To obtain enough water to fill the reservoir, a twenty-four-mile canal would have to be built from the Otter Tail River to the Mustinka River, which would extend the Lake's drainage area from 1,200 to 3,200 square miles. To create such a large reservoir would mean acquiring many square miles of prime farmland. The cost would be considerable, but not as great as the cost of the resultant flooding of farms and villages downriver on the Minnesota. Those owning summer cabins and resorts on Lake Traverse would also have been adversely affected.<sup>49</sup>

The project was favored in a modified form by the district engineer, but was vetoed by the Board of Engineers because it did not improve navigation.<sup>50</sup> The situation changed in the following year, however, after the Diamond Boat Line began a launch, tugboat and barge service on Lake Traverse. In the first year of operation the line hauled 225,000 bushels of grain, 600 tons of coal, 75 cords of wood, 400,000 board feet of lumber and 135,000 pounds of flour. In addition, passengers were transported 8,500 miles, a total which did not include Sunday excursions.<sup>51</sup>

Lake Traverse is about twenty-five miles long; it is divided into two sections by a delta formed at the mouth of the Mustinka River, which flows in from the east at a right angle to the lake. Over this delta the town of Wheaton,

This panoramic view was snapped at the Ortonville, Minnesota, pier on Big Stone Lake about 1910, while wheat barges were being unloaded. The author's grandfather was one of the draymen on the dock.





Lieutenant Colonel Charles L. Potter was responsible for terminating many questionable projects in the district in 1914.



T. B. Walker, a Minnesota lumberman, moved his logging operations from the Falls of St. Anthony to the Northwest Slope in 1880.

Minnesota, built a low pile bridge. The Corps proposed to provide a fifty-foot-wide by four-foot-deep canal about a mile long for navigation between the two parts of the lake. On July 25, 1912, Congress appropriated the estimated cost of the canal, \$7,510.<sup>52</sup> But complications developed. Wheaton did not want to lose the pile bridge which connected the town's merchants with a market hinterland in South Dakota. They appealed for a revision of the project, and the district was told that if a canal was built a drawbridge would also have to be provided. This structure would increase the cost of the project to \$23,000.<sup>53</sup> The district engineer, Lieutenant Colonel Charles Potter, told the large Duluth-based wheat firm which was pushing the project that it was the duty of the Corps "to do the work, but not to get the appropriation."<sup>54</sup> He suggested that the firm begin to lobby in Congress for the additional money. However, Potter had reason to believe that the company was not reporting accurate tonnage figures (see Table III), and thus in 1915 he made some detailed cost analyses of the ton-mile capacities of the existing transportation systems, terminals, and elevators, of the grain production, and of the transfer costs, and concluded that the yearly maintenance cost for the channel would be \$3,400 while the actual savings for the area farmers would only amount to \$2,400.<sup>55</sup> Potter recommended that the project be abandoned. Ten years later Congress agreed.<sup>56</sup>

## Red Lake

In 1870 Minnesota had 207 lumber mills with a total capital investment of \$3,311,140. Twenty years later lumbermen had increased their capital holdings to 317 mills worth \$28,321,062.<sup>57</sup> By that time lumberjacks had logged over much of the prime pine forestland along the upper Mississippi River's tributaries, and lumbermen were looking for additional forests. One unexploited area was the Northwest Slope around Red Lake. The rivers of this region flowed into the Red River Valley. In 1880 T. B. Walker began to move his lumbering operations from the Falls of St. Anthony to the Red Lake River of the Northwest Slope. He and his son Gilbert established a mill in Crookston in 1883. The new enterprise, the Red River Lumber Company, was processing forty-five million feet of lumber by 1889 and Crookston became known as "sawdust city."<sup>58</sup>

**TABLE 25**  
**TONNAGE ON**  
**LAKE TRAVERSE**

1908 . . . 11,677	1916 . . . 7,640
1909 . . . 15,000	1917 . . . 4,260
1912 . . . 6,450	1918 . . . 5,133
1913 . . . 7,600	1919 . . . 1,489
1914 . . . 7,914	1920 . . . 1,233
1915 . . . 10,000*	1921 . . . 1,885

\*Figure questioned by Lieutenant Colonel Potter

From: Major Charles F. Williams' Report, November 9, 1925, "Miscellaneous" File, Misc. Circulars, NARG77.

Carts such as the one pictured here were used to transport logs from deep in the forest to the river. This photograph was taken in 1904; logging operations continued for another ten years in the Red Lake River area.



The Chippewa Indians, who at one time owned over one-half of the state of Minnesota, were by the 1880s largely confined to three and one-half million acres of reservation land surrounding Red Lake. On February 8, 1887, the infamous Dawes Severalty Act was passed by Congress, allowing the breakdown of community-owned tribal lands into 160-acre parcels controlled by individual family units. Lumbermen had lobbied for this bill, as it would give them an opportunity to purchase vast pinelands owned by the Indians. Land totaling more than 700,000 acres on the Red Lake Reservation was released for sale, much of it at public auction in July, 1896. Pine forests estimated at 226 million feet were sold at \$3.13 per thousand feet. These figures may be misleading, however, for later investigations showed that many lots were greatly underestimated. One parcel, for example, supposed to have had 11,000 feet of pine, actually contained over 220,000. There is no doubt that the Indians were grossly underpaid.<sup>59</sup>

Soon after lumbering corporations began operations on the Red Lake River, Congress asked the Corps of Engineers to examine the stream for possible improvements between Red Lake and Grand Forks. In 1892 Major William A. Jones surveyed this segment of the river for possible locks and dams at the Red Lake River's outlet and at Crookston and Thief River Falls. Nothing came of the survey, but the district office did recommend that a fifty-five-mile canal be built linking Red Lake with the Rainy Lake River. This canal project was turned down by the division engineer, Colonel Orlando M. Poe.<sup>60</sup> In 1896 lumbermen succeeded in obtaining congressional

**TABLE 26**  
**RED LAKE AND RED**  
**LAKE RIVER LOGGING**

	board feet
1897.....	22,000,000
1898.....	29,000,000
1899.....	93,000,000
1900.....	60,000,000
1901.....	74,000,000
1902.....	82,000,000
1903.....	82,000,000
1904.....	115,000,000
1905.....	70,000,000
1906.....	55,000,000
1907.....	62,000,000
1908.....	60,000,000
1909.....	40,000,000
1910.....	27,000,000
1911.....	31,000,000
1912.....	29,000,000
1913.....	27,000,000
1914.....	10,338,000

From: Office of the Chief of Engineers  
*Annual Report, 1897-1914.*

approval for maintaining the channel on the Red Lake River from Thief River Falls to Red Lake. The authorization was not for a separate project, but was included in the total appropriation for the Red River of the North.<sup>61</sup> In 1897 the Corps built a dredge to work on the Red Lake River. After the channel was cleared, the number of logs going downriver was doubled.

By 1898 three steamboats were working on Red Lake. Five firms (Thief River Falls Lumber Company, St. Hillaire Lumber Company, Meehan Brothers, Red Lake Falls Lumber Company and Grand Forks Lumber Company) had operations on the lake. In seventeen years (see Table IV) these companies harvested nearly one billion feet of logs.

Corps dredging aided the lumber industry for only four years during this era. In the view of District Engineer Abbot maintenance of this river was not a clear-cut project based on sound engineering data and Corps recommendations. Congress had not appropriated funds for a preliminary survey and feasibility study. Abbot challenged the political engineering of the lumbermen.<sup>62</sup> When his position was criticized by Congressman Frank M. Eddy, Abbot replied that he had "no authority to expend any money upon that part of the Red Lake River."<sup>63</sup> Congressman Page Morris prevailed upon Abbot to act anyway, because that was the "intent of Congress."<sup>64</sup> The debate continued until a new district engineer came to St. Paul in 1902. Lieutenant Colonel Richard L. Hoxie would not be pressured; dredging was halted and the floating plant sold in 1905, though snagging continued for a time after that. Later surveys proved Abbot and Hoxie correct, and in 1909 the Corps reported to Congress that neither Thief River nor Red Lake River was worthy of improvement.<sup>65</sup>

Major Abbot's attitude toward commercial activities on the Red Lake River may have been influenced, in part, by his investigation of lumbering activities on that river in 1898. At that time he found that lumber companies had monopolized the river with their log booms and had installed piling which hindered and at times completely halted steamboat navigation.<sup>66</sup> Despite the investigation, the lumber firms continued to treat the river and lake as their own private thoroughfare. This attitude led to the issuance of logging regulations for the Red Lake River by the secretary of war in February, 1905.<sup>67</sup>

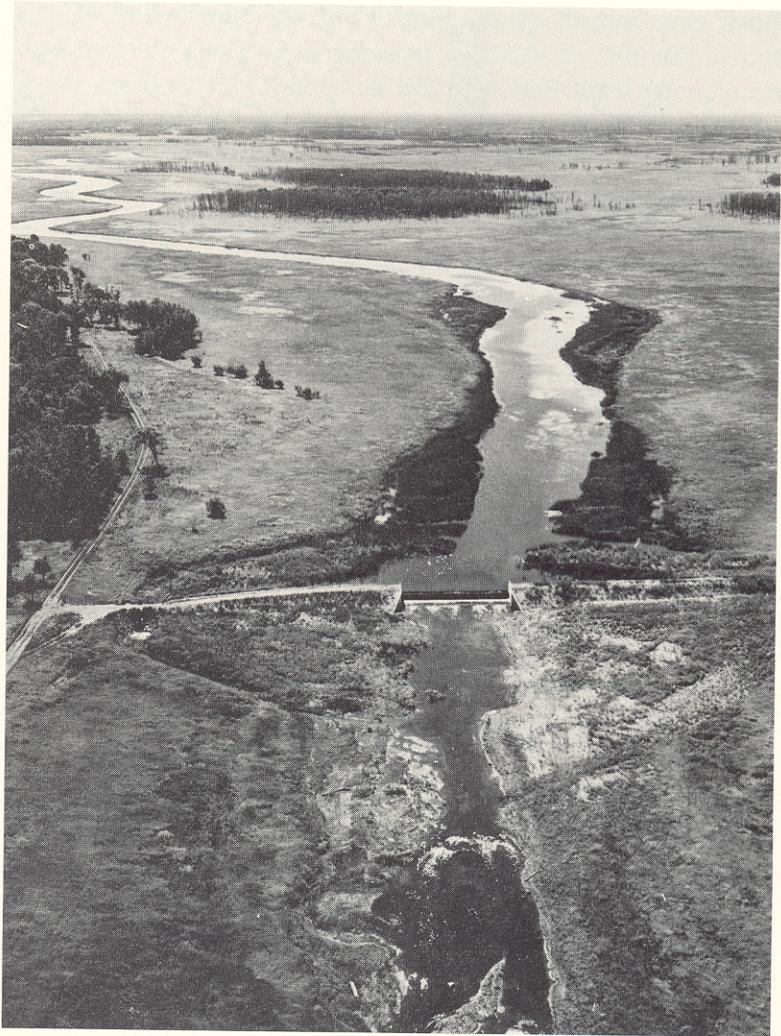
The regulations stated that the lumber companies must provide government-approved log booms at the head of the river, and that no company could release more than one million feet of logs in a twenty-four-hour period. Only one lumber firm ever bothered to submit plans for boom construction to the Corps for approval. A formal complaint against the lumber companies was sent to the chief of engineers in 1901 by A. D. Brown who owned a home on the Red Lake River. When Major Francis Shunk began an official investigation, he ran into the strong corporate power of the lumbering interests.<sup>68</sup> Businessmen in Thief River Falls held "an indignation meeting" and openly threatened Brown or anyone else who might testify against the lumber companies. No one, including Brown, was willing to go to court. Farmers, steamboat operators, laborers and most other residents of the Northwest Slope owed their living to the lumbering industry. No one wished to risk a livelihood or a family's welfare by testifying against his employer.<sup>69</sup>

Here was another example of the limited power of the Corps of Engineers. It could only rely upon the courts to enforce water usage regulations and lacked an investigative staff to observe and record violations. The district engineer depended on local residents to substantiate any charges presented to the attorney general. The alternative to prosecution was "jawboning," which usually had only a temporary effect.

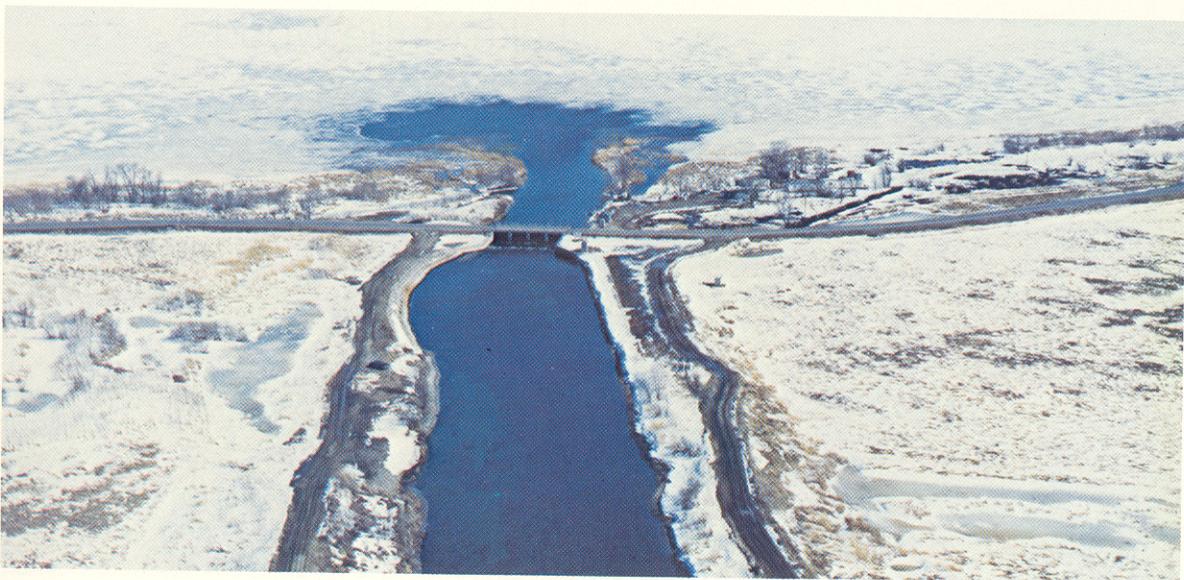
Of course, not all citizens submitted reasonable complaints. In 1911 when the Red Lake River was abnormally low, W. G. Hunt of Sunbeam complained of reduced navigation and poor fishing. He blamed the numerous log jams at the outlet of Red Lake for the condition of the river. The recently promoted Lieutenant Colonel Shunk found such a "queer idea" rather amusing and explained to Hunt, in great detail, that although the regulations governing the Red Lake River were "unduly favorable to loggers," lumbermen could do nothing about rainfall or the lack of it which was the real cause of the low water.<sup>70</sup>

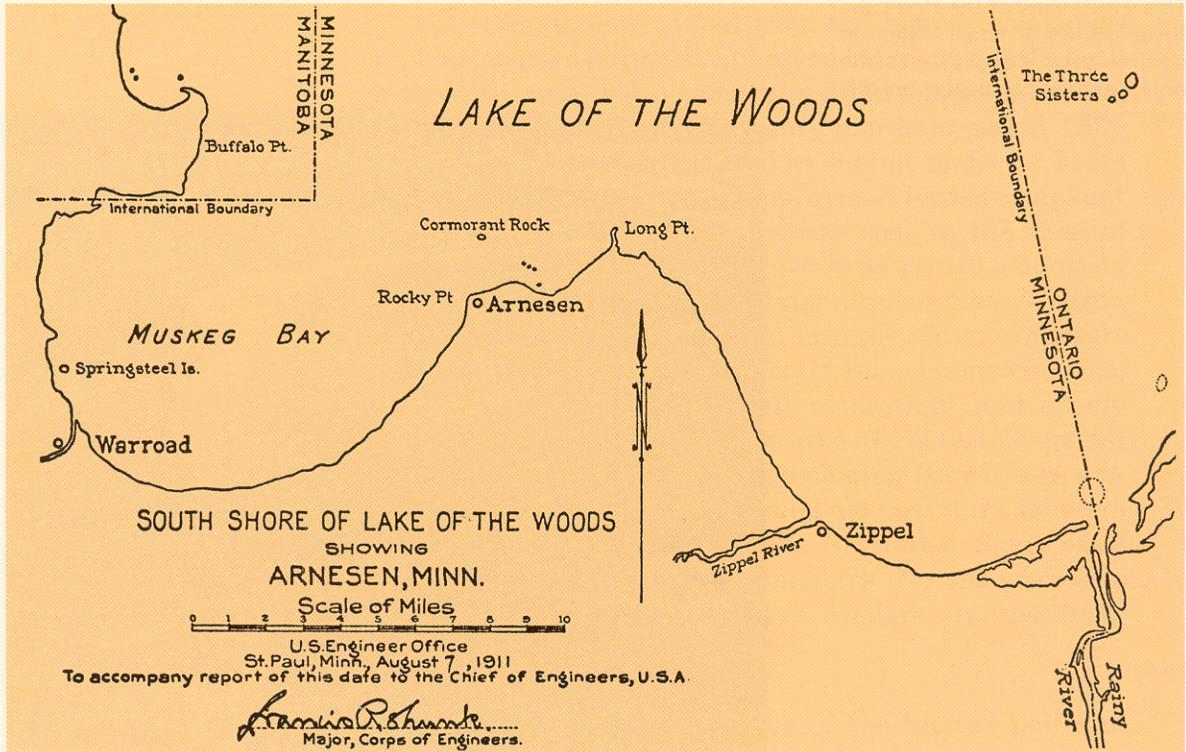
In September, 1922, it appeared that the Corps might enter into a unique arrangement for a large, multi-purpose improvement of Red Lake. The district engineer was asked to supervise the activities of the Red Lake Drainage and Conservatory District of the state of Minnesota, which planned to build a hydroelectric dam at the lake's outlet,

This 1960 view of the Red Lake River shows a small concrete control dam. Logging was the only commercial traffic on this waterway.



The St. Paul District control dam at the outlet of Red Lake, pictured here in 1970, is located within the Red Lake Indian Reservation.





This Corps of Engineers map of 1911 shows the location of the two new communities of Warroad and Zippel which came into being largely because of the harbor development by the Corps at the mouths of the Warroad and Zippel rivers.

construct drainage canals, provide municipal water supplies, and improve the channel of the Red Lake River through dredging and jetties. The total project would have cost \$779,300, with the Corps contributing only \$15,000 plus an annual appropriation for maintenance.<sup>71</sup> After a public hearing on the project a Minnesota court denied permission for its construction.<sup>72</sup>

## Lake of the Woods

About fifty miles north of Red Lake is Lake of the Woods. The largest part of the 1,500 square mile area of this body of water lies in Canada. Our northern neighbors began logging activities on the lake in the nineteenth century and by 1900 twenty-five steamboats were towing logs into Kenora. This town was an important milling and lumbering center located on the outlet of the lake where the Winnipeg River starts its way northwest to Lake Winnipeg. The American shore did not have a good harbor until after the Corps of Engineers surveyed the Warroad River in 1899. The following year the town of Warroad, Minnesota, was founded at the mouth of the river and the Corps followed through on plans to build a dredge and develop a harbor there.<sup>73</sup>

A self-propelled centrifugal pump dredge was built and in 1905 the Corps dredged a 4,000- by 100- by 7-foot inner harbor. By 1908 over \$81,000 had been spent on a turning channel and outer harbor that was 5,400 by 200 by 12 feet deep.<sup>74</sup> Freight amounting to 2,732 tons came into the harbor in 1910 and over 8,000 passengers arrived on the four American sailing vessels and two gas boats that used the harbor. In 1911 low water on the lake caused shipping problems. The question of what caused the low water was put before International Waterways Commission which had been formed in 1903 to investigate the conditions of all boundary waters between Canada and Minnesota. The International Lake of the Woods Control Board was formed with three members, one of whom was the St. Paul District engineer.<sup>75</sup> In the meantime, the Corps made a survey of Zippel Bay where the Rainy River enters the lake and recommended that dredging be done and a jetty and breakwater be built.<sup>76</sup>

The hydraulic dredge "Depoe Bay" still operates occasionally in the harbors on Lake of the Woods to clear the channels at Baudette, Warroad, and Zippel Bay. This picture was taken at Eagle River, Michigan, in 1959.

The period of logging on the American side of Lake of the Woods was rather short, in large part because of low water caused by Canadian industry. Corps records show that lake logging lasted only two years. In 1912 about four million feet of logs were shipped into the ports



**TABLE 27**  
**COMPARATIVE**  
**PASSENGER TRAFFIC**  
**ON LAKE OF THE WOODS**  
**IN THE 1930's**

Warroad Passengers	Year	Baudette Passengers
3,550	1931	15,816
2,459	1932	14,116
3,660	1933	32,500
7,391	1934	11,181
6,808	1935	19,251
5,032	1936	29,277
6,954	1937	22,939
1,236	1938	23,775
4,232	1939	25,325
2,215	1940	11,817

From: Office of the Chief of Engineers  
*Annual Report, 1941, pp. 918-919.*

at Warroad and Zippel Bay and a year later about twenty-two million feet. After that time fish products and passenger traffic were the major activity of the harbors.<sup>77</sup> In 1919, dredging removed 196,000 cubic yards of material from the Rainy River to improve navigation to Baudette, a village on the border stream.<sup>78</sup> Improvement of this area by the St. Paul District was not resumed until 1953 when the Baudette Harbor was again dredged. In 1957 the hydraulic dredge "Depoe Bay" took 77,000 cubic yards out of the Warroad harbor. Since then the Corps has provided periodic dredging in the two harbors. Dredging is necessary not only because of river silt, but because the movement of wind and water in huge storms that cross Lake of the Woods clogs the harbors with muskeg, or floating bogs of tightly matted moss, roots and grass.<sup>79</sup>

East of Lake of the Woods is another large body of water, Rainy Lake. In 1908 five American steamboats were operating on the lake. The largest of them was the "Moose," a sixty-eight- by fourteen-foot steamer used primarily for passenger traffic.<sup>80</sup> Most of this lake is also in Canadian territory, and only one important American city, International Falls, serves the area. In 1908 the Minnesota and Ontario Power Company built a dam in International Falls at the outlet of Rainy Lake. During its construction the district office received a number of complaints that the Rainy River outlet was being obstructed, that the level of the lake was affected, and that Corps officials had been bought out by corporate interests.<sup>81</sup> More trouble came during the next seven years when large lumber companies blocked the channel with floating logs. The International Lumber Company jammed the Big Fork River, a tributary of Rainy River, for a whole

The lumber yards and mills along the Rainy Lake River were dependent upon the railroads for shipping processed lumber, as this photograph taken in 1910 at Roosevelt, Minnesota, indicates.



season and thus smaller operators like James Reid were not able to float their logs to the mills.<sup>82</sup> Lumber company log jams also caused flooding and damaged riparian property. In each of these cases the district engineer used the "jawboning" tactic to force the lumber firms into temporary compliance with federal regulations.

## Missouri And Yellowstone Rivers

The territories of Dakota and Montana west of Minnesota were not admitted to the union as states until 1889. The military performed an important function in the early development of this extensive area. Military posts such as Fort Randall, Fort Pierre, Fort Lincoln, Fort Berthold, Fort Clark, Fort Rice, Fort Buford, Fort Thompson, Fort Peck, and Fort Benton were built along the Missouri River above Sioux City. The Missouri was the key transportation link to these western lands before railroads crossed the area.<sup>83</sup> The St. Paul Corps office was in charge of river improvements from 1866 to 1884, when the Missouri River Commission came into existence.

Engineers dispatched from St. Paul conducted periodic examinations of the Missouri. In 1867 Captain Charles W. Howell made a survey of the river. Other surveys followed: that of Thomas P. Roberts in 1872 and Major Charles R. Sutter's survey in 1875. In 1876 Congress appropriated \$20,000 for improvements and a year later Lieutenant Edward Maguire and Assistant Engineer H. E. Stevens left St. Paul with twenty-five laborers to begin dredging, rock blasting and wing dam construction on the Missouri River above Fort Buford on the North Dakota-Montana border. Their orders were to improve navigation on the upper 500 miles of the river, between Fort Benton and Fort Buford.<sup>84</sup>

After the first year of work, transportation was improved considerably. In 1877, twenty-one steamboats reached Fort Benton with 3,091 tons of freight worth \$927,300. The following year forty-six steamboats arrived in the heart of Montana with 8,764 tons of freight worth \$2,631,300.<sup>85</sup> This total did not include over 261,000 pounds of government supplies shipped to western forts. Boats going downstream carried wool and cattle.

Over \$300,000 was spent improving the Missouri River in South Dakota and Montana by Corps engineers

attached to the St. Paul office before the Missouri River Commission took over jurisdiction of river improvements in 1884.<sup>86</sup> Captains James B. Quinn and Clinton B. Sears, who served on the "Big Muddy," both became district engineers Quinn in the St. Paul and Sears in Duluth.

The Yellowstone River, which cuts across southeastern Montana, was also found worthy of improvement. The Corps spent \$106,000 between 1879 and 1884 clearing the channel before railroads made navigation on the river obsolete.

## Yellowstone Park

Much of the early history of Yellowstone Park is connected with St. Paul, Minnesota. It was in St. Paul that Nathaniel Pitt Langford in 1870 first asked General Winfield S. Hancock about providing a military escort for an exploratory expedition to the Yellowstone area. It was in St. Paul that Langford, who became the first superintendent of the first national park, wrote an account of the discovery of the Yellowstone area.<sup>87</sup> It was also in St. Paul that orders were given in 1883 for the Corps of Engineers to take over the development of the park's roads and bridges.

As a result of the expedition, an area of more than two million acres at the headwaters of the Yellowstone River was designated a national park by Congress in 1872. The next ten years proved to be a troublesome period for the park's first superintendent as he attempted in vain to control the wanton encroachments of vandals and poachers, and the threats of unscrupulous businessmen who wished to lease the natural attractions and charge admission for tourists. Captain William Ludlow's "Reconnaissance from Carroll, Montana, to the Yellowstone National Park, in the summer of 1875," written from St. Paul, passionately called for a halt to the "wholesale wasteful butchery" of wildlife in the park.<sup>88</sup> As a result the United States cavalry was asked to maintain order and enforce park regulations. The army remained an adjunct to the park administration until 1918, two years after the National Park Service was created.

In 1883 the St. Paul District sent Captain Dan C. Kingman to Yellowstone Park. It was a wise choice, for Kingman, a public-minded engineer as well as an environmentalist, was concerned about preserving the natural

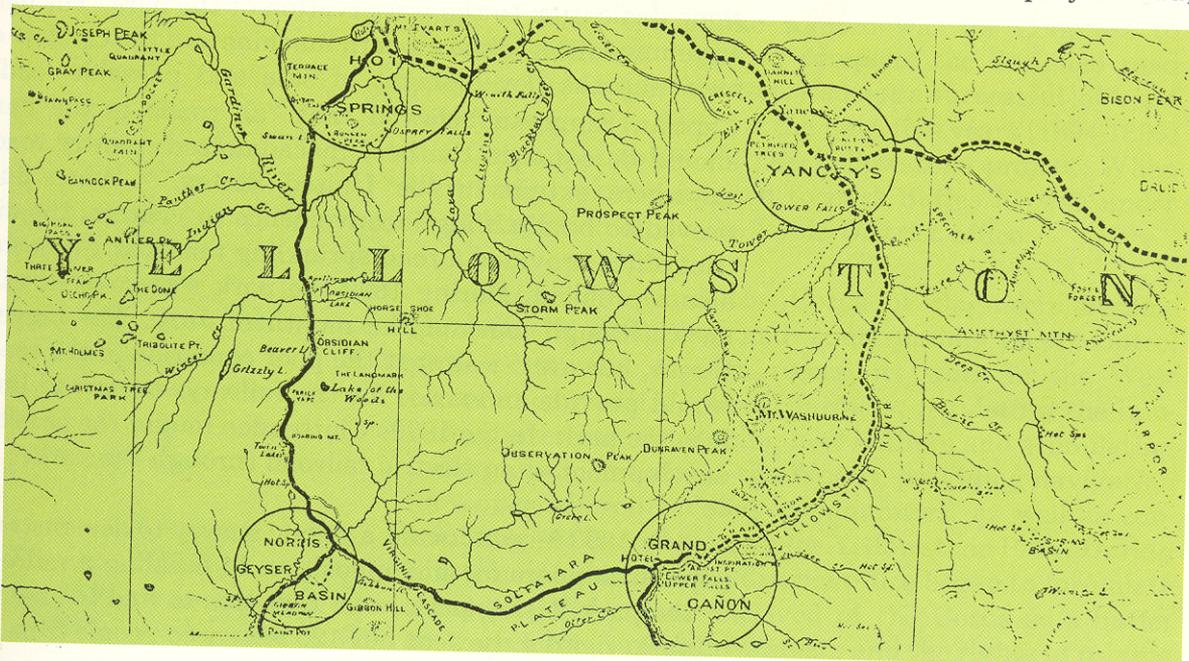


Captain Dan C. Kingman was responsible for laying out the road design of Yellowstone Park which best preserves the natural beauty of the area and yet allows tourists to view the major natural attractions of the park.

characteristics of the park. When he arrived at Yellowstone, there were in the park about 160 miles of one-lane wagon roads and numerous horse trails. The roads were in poor condition even during good weather. Drainage profiles had been completely ignored. Kingman's task was formidable. He noted that Yellowstone provided combinations of almost every natural obstacle to the construction of roads. Road crews confronted steep mountains, dense forests, rocks, streams, canyons, marshes, heavy rains, deep snows, hot spring formations and the worst kinds of road material found anywhere in the United States. The St. Paul engineer estimated road improvement costs would run from \$25 to \$175 per mile.<sup>89</sup> That was a gross underestimate. Twelve years later, with only two-thirds of the project complete, the cost had averaged \$3,282 per mile.<sup>90</sup> Kingman did not foresee that Congress would ever appropriate large enough sums to begin new construction. The annual appropriations were used largely to keep existing roads and bridges in repair.

Captain H. M. Chittenden's map of Yellowstone Park in 1899 shows two alternative tours: the short route taking in four attractions, and the longer trail including all seven major wonders of the nation's first national park.

When Captain Kingman arrived at Yellowstone Park in 1883 he made a list of the possible major tourist attractions: The Mammoth Hot Springs, the Norris Geysers, the Upper Geysers, the Lower Geysers, Yellowstone Lake and Falls, and the Grand Canyon of the Yellowstone River. Then he planned a belt-line road of 145 miles which connected these natural formations. The main approach was to be from the north to connect the park with a project road,



the Park Branch Railroad, and finally the Northern Pacific Railroad at Livingston, Montana. In 1892 Congress ordered the Corps to develop a southern entrance to the park at Moran, Wyoming, along the Snake River. By the time east and west entrances were planned, 300 miles of roads had been designated.

Captain Kingman's vision of the potential of Yellowstone Park showed great respect for the environment. He wished to discourage large hotels, tourist traps, destruction of the natural forests, commercialization of the geysers, falls and canyons, and the wanton extermination of wild animals. He wrote that the park should not be just a place for the curious to be awed by nature, but a place for "rest, recreation and health." He hoped Yellowstone would never become a "resort of fashion" for "if its forests are stripped to rear mammoth hotels; if the race-course, the drinking saloon, and the gambling-table invade it; if its valleys are scarred by railroads and its hills pierced by tunnels, if its purity and quiet are destroyed and broken by the noise and smoke of the locomotive; if, in short, a sort of Coney Island is established there, then it will cease to belong to the whole people and will be unworthy of the care and protection of the National Government."<sup>91</sup>

The engineers who followed Captain Kingman, Lieutenant Colonel William E. Craighill (1887-1891) and Lieutenant Hiram M. Chittenden (1891-1893), shared the same dedication to the preservation of the park. The only accommodation to the modern machine and the comfort of man was the development of safe and passable roads. Captain Kingman believed that "all roads in the Park should be equal to the best macadamized country roads anywhere extant in the United States."<sup>92</sup> When dust proved to be a stifling inconvenience to visitors, the district office provided a road-sprinkling machine. Snow was also a problem. During 1899 the park was covered with snow through most of the month of June. The biggest threat, however, was that the poor condition of the roads would provide an excuse for the railways to extend lines into the park. In the 1890s Chittenden fought the possible development of an electric railroad through the park.

In 1893 he conducted a public survey to demonstrate popular support for his opposition to building a railroad in the park. Using park hotel registers to find the names of park visitors, he sent out 120 letters to people from all



Captain H. M. Chittenden fought to keep large-scale entrepreneurs and railway corporations from obtaining franchises to exploit the natural tourist attractions in Yellowstone Park.

parts of the United States. He received 100 replies (expressing the opinions of 176 persons) to these three questions:

- “1) What was the principal drawback to the enjoyment of your tour of the Park?
- 2) From the experience of your own tour would you advise your friends to visit the Park?
- 3) Assuming that there were a complete system of thoroughly macadamized or graveled roads in the Park, so constructed as largely to eliminate the mud and dust nuisance, and in which there should be no hills so steep that teams could not ascend them at a trot; and assuming also that there were a well-equipped electric railway covering substantially the same route; by which method would you prefer to make a tour of the Park; by coach or by car?”<sup>93</sup>

Chittenden's surveys showed that the principal drawback to enjoyment was the condition of the roads (97) with the hotels coming in a far distant second (26). Only two out of 141 people said they would not recommend that their friends visit the park. The third question, however, received the most attention. Roads were favored over an electric railway by a margin of 147 to 29. Thus, Chittenden concluded that even though the condition of the existing roads was the worst feature of the park, the American public did not want the “corporate encroachment of anything, especially the introduction of any form of railroad.”<sup>94</sup> What the public wanted was for Congress to provide sufficient funds to complete the designed road project. The Corps, however, was not a successful lobbyist with Congress. In fact, for the next five years (1894-1899) the Corps was taken off the Yellowstone project. When Chittenden was reassigned to park duties he was under the jurisdiction of the St. Louis District office.

Until 1936 when the Corps of Engineers became involved in designing and constructing flood control projects on the western rivers, its work in the West centered on assisting wheat farmers, regulating the lumbering interests, developing new harbors and stimulating town growth on Lake of the Woods, providing navigation for upper Missouri Valley communities, as well as constructing roads and bridges for Yellowstone Park. During this time, the staff of the district office began to formulate a public policy that conceived of the Corps as a buffer between huge corporate interests and the rights of private

citizens. Two areas of the private sector, namely railroads and lumbering, were critically examined. The Corps did not carry a "big stick," but the Populist and Progressive ideals that were popular nationally during this period were also present in its leadership. Corps officers were strong supporters of democratic traditions, highly critical of the power of huge corporations, interested in the preservation of natural resources and concerned with the growing alliance between politicians and big business. No large nor dramatic projects other than Yellowstone Park were planned in the West during this era. Typical of the Progressive leadership in the administration of Theodore Roosevelt, Corps officers were also very conservative in terms of national planning and federal spending. They foresaw the need for greater co-ordination and co-operation in the utilization of water resources and became critics of the excesses of exploitation that were the trademark of that period.

# Notes

1. Evan Jones, *The Minnesota: Forgotten River* (New York: 1962), pp. 106-09; Thomas F. Waters, *The Streams and Rivers of Minnesota* (Minneapolis: 1977), p. 319.
2. *Annual Report, 1882*, p. 239, mentioned that there was no commerce worth reporting. In 1888 one steamboat worked the river; there were two in 1889 and three in 1890, the last year of commerce until the development of the Cargill terminal in 1942. See also *Annual Report, 1895*, p. 2197.
3. Jones, *The Minnesota*, pp. 110-12.
4. Warren's preliminary report was 39 Congress, 2 session, *Senate Executive Documents*, no. 58; the final report was *House Executive Documents*, no. 75; see also *Annual Report, 1875*, pp. 381-451.
5. *Annual Report, 1881*, p. 243.
6. *Annual Report, 1875*, pp. 62-63; *Annual Report, 1876*, p. 85.
7. *Annual Report, 1886*, pp. 260-61; 50 Congress, 1 session, *House Executive Documents*, no. 158.
8. *Annual Report, 1889*, p. 239.
9. *Annual Report, 1894*, pp. 267-68, Appendix 25.
10. *Annual Report, 1894*, p. 1726-27; 1897, p. 2157; 1905, p. 437; 1909, p. 568; 1915, p. 1890.
11. *Annual Report, 1915*, p. 1043.
12. *Annual Report, 1932*, p. 1145.
13. *Annual Report, 1943*, p. 969.
14. See SPD, Minnesota River project file, correspondence for 1945, St. Paul; also R. W. Leonard to G. E. Lyon, August 9, 1948, SPD, Minnesota River project file, St. Paul.
15. *Annual Report, 1952*, p. 1207.
16. *Annual Report, 1955*, p. 1031.
17. *Annual Report, 1891*, p. 2209; 1915, p. 1043.
18. Act of July 3, 1958, 85 Congress, 2 session, *Senate Documents*, No. 144.
19. *St. Paul Dispatch*, February 11, 1964; Raymond A. Haik to Thomas Foster, June 4, 1965, SPD, Minnesota River project file, St. Paul.
20. *Annual Report, 1962*, p. 1269.
21. *Annual Report, 1969*, p. 817.
22. L. A. Hauser, Jr., SPD, "Memo for the Record," August 31, 1964, Minnesota River project file, St. Paul.
23. Hiram M. Drache, *The Day of the Bonanza* (Fargo: 1964), pp. 1-29.
24. Drache, *Bonanza*, p. 29.
25. Clarence W. Rife, "Norman W. Kittson, A Fur-Trader at Pembina," *Minnesota History*, VI (1925), pp. 225-52; Mildred L. Hartsough, *The Development of the Twin Cities*, pp. 23-25.
26. Marion H. Herriot, "Steamboat Transportation on the Red River," *Minnesota History*, XXI (1940), pp. 245-71; Drache, *Bonanza*, p. 19; *Annual Report, 1874*, p. 298.
27. *Annual Report, 1896*, p. 258.
28. *Annual Report, 1879*, pp. 135-36.
29. See "Condensed Statistics," *Annual Report, 1888*, p. 1555.
30. *Annual Report, 1914*, p. 949.
31. Major Charles F. Williams to OCE, November 9, 1925, SPD, "Miscellaneous" File, misc. circulars, NARG 77.
32. *Annual Report, 1881*, pp. 244-45, Appendix W-8.
33. *Annual Report, 1886*, p. 261.
34. Major Francis Shunk to OCE, April 2, 1908, SPD, Letters Sent (press copies) NARG 77.
35. Major Francis Shunk to OCE, December 11, 1909, SPD, Letters Sent (press copies) NARG 77.
36. Report of Major Francis Shunk to OCE, March 1, 1909, SPD, Letters Sent (press copies) NARG 77.
37. Report of Major Frederic V. Abbot to OCE, May 2, 1899, SPD, Letters Received and Sent, NARG 77; 56 Congress, 1 session, *House Executive Documents*, no. 67; *Annual Report, 1900*, Appendix BB-15.
38. *Annual Report, 1898*, p. 1831.
39. Major Frederic V. Abbot to Brigadier General John M. Wilson, July 18, 1898; Abbot to C. S. Mellen, President of Northern Pacific Railway Company, June 9 and June 12, 1900; Abbot to OCE, July 19, 1899; Abbot sent a map of the landslide to District Attorney P. H. Rourke on April 14, 1899; all in SPD, Letters Received and Sent, NARG 77.
40. Unidentified clipping, September 8, 1905, from SPD, Rock Island, scrapbook of newspaper clippings relating to River Improvement, 1877-94 (hereafter cited, Scrapbook, 1877-94) NARG 77.
41. Report of Major Frederic V. Abbot to OCE, May 2, 1899, SPD, Letters Received and Sent, NARG 77.

42. 56 Congress, 1 session, *House Executive Documents*, no. 67.
43. Major Francis Shunk to J. L. Cashel, November 13, 1907, SPD, Letters Sent (press copies) NARG 77.
44. *Grand Forks Herald*, May 10, 1900.
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