

## Chapter Eight

### The 1930s—Depression and its Aftermath

#### Introduction

By 1930, population distribution in Iowa was more rural than urban, but the state had moved to a fairly even balance between the values of agricultural and manufacturing production. However, the depression hit hard on farming communities which had never really recovered from the distress of post World War I years. Depressed economic conditions and intense highway competition combined to force many of the railroads into receivership and subsequent reorganization. Federal emergency aid for both agriculture and the railroads was moderately successful and also instrumental in supporting the states in their continuing programs for highway development. Permanent federal legislation brought a portion of the motor and air carrier industries under regulation and eased some of the previous regulations on railroads. Pipelines made their appearance in Iowa in the early thirties, and inland water transportation was stimulated by the building of locks and dams on the Mississippi River for the purpose of standardizing channel depths and promoting a rebirth in waterborne commerce. Private, business and commercial aviation expanded, substantial increases in pilots were recorded and Iowa-based airlines began operations. There were pressures for new municipal airports, expansion of existing ones and construction of airport facilities.

#### National Economic Indicators and A Profile of Iowa in 1930

Evidence of a slowing of economic activity throughout the nation occurred in the construction industry during the late twenties, and by the summer of 1929, related industries such as steel, cement and lumber were reducing output. Even though ominous signs were beginning to appear, the automobile industry which had paced the prosperity of the 1920s produced 5.33 million cars in 1929. By 1932, output dropped to 1.33 million, idling thousands of workers. Nationally, unemployment increased from 1.5 million in 1929 to over 12 million or 25 percent of the work force in 1933. The gross national product fell from its 1929 high of \$103.4 billion to \$55.8 billion in 1933.

The population of Iowa was 2,470,939 people, approximately 67,000 more than in 1920, distributed

as 60 percent rural and 40 percent urban. The state had 213,993 farms averaging 160 acres each. Nineteen cities had 10,000 or more residents; between 5,000 and 10,000 people inhabited 16 cities; and 31 cities had populations ranging from 3,000 to 5,000. Steam and electric interurban railways operated 10,175 miles of track, and motor vehicles ran over 101,801 miles of roads and highways. The Iowa Bureau of Labor in 1928 listed 4,578 manufacturing plants located in 645 cities and towns. The number was greater than was found in the 1930 Census, which included only firms with an output of \$5,000 or more, while the Iowa Directory covered all plants fabricating products on a factory basis. The Iowa Census of 1925 gave total farm income of 10 major products as \$659.3 million; for manufacturers, \$757 million. However, at least five of the leading manufacturing industries were agriculturally related. There was a fairly even geographical distribution of cities and towns in the state, served by excellent railroad facilities and an increasing number of hard-surfaced roads and highways.

#### The Crisis in Agriculture

Agricultural shipments comprised a considerable amount of revenue traffic for the railroads and to a degree, for the fledgling trucking industry. Thus the economic conditions in the farming communities were more than a passing interest, especially to the "Granger Railroads" in the state. The devastation of financial catastrophe suffered through the excesses of World War I production and the deflated price levels of the 1920s showed clearly in the 1930s. Between 1926 and 1931, one farmer in every seven lost his land. In addition, 58 percent of the 111,333 farms operated by private owners were mortgaged. In 1930, each farmer paid an average of \$1.31 per acre in real estate taxes and carried a debt of \$9,626.

The index of farm prices dropped from 200 in 1920 to 55 in 1932 and reached an all-time low of 40 in January, 1933. Cash farm income fell from \$660 million in 1929 to \$277 million in 1932. During the period, interest and principal payments on mortgages remained constant; taxes were slightly lower while machinery costs and freight rates were relatively high. Drought accentuated financial problems in 1930, 1934, and 1936. Land values tended to stabilize by 1930 at 25 to 30 percent over prewar averages but in 1933 fell to 75 to 80 percent of previous levels. By 1932, 600 banks had suspended operations, 200 of the failures occurring in 1931. Corn, the largest money

crop, dropped from \$1.51 per bushel in 1919 to \$.70 in 1925 and \$.32 in 1931 and was still falling. The continuing depression with no immediate relief from the mounting burdens of debts and taxes "precipitated an agrarian uprising of a degree and persistence never before experienced in this state of conservative enterprise."<sup>1</sup> A "Cow War" resulted from a misunderstanding of tuberculin testing of cattle in southeastern counties. The "Milk War" in northwestern Iowa and a "Farm Holiday Movement" with demonstrations against the insensitivities of local and national authorities followed. There were buying, selling and taxpaying strikes, and picketing against farm foreclosures.

The national elections of 1932 turned around historical political traditions of the state with agricultural problems a major issue. For the first time since Iowa began to vote Republican in 1856, state and national Democratic candidates were swept into office. Six of nine Democratic congressmen were elected, one of the most notable being Guy M. Gillette of Cherokee, later elected to the Senate. Louis Murphy from Dubuque captured the Senate seat, and Republican Governor Dan Turner was replaced by Clyde Herring.

The farm emergency was recognized and dealt with rather promptly and with some effectiveness. Henry A. Wallace was appointed Secretary of Agriculture, and programs were introduced for crop control, preservation of bank deposits, extension of credit and delay in farm foreclosures. The Agricultural Adjustment Act was passed in 1933 with the avowed aim of raising purchasing power to that of the 1909-1913 period, the climax of the "golden years of agriculture." The legislation offered voluntary compliance by farmers to reduce acreage planted and litters of pigs farrowed. In return, they would receive payments for land idled and a flat rate per head for hog reduction. The act was declared unconstitutional by the U. S. Supreme Court in 1936 on grounds that it involved regulation and control of production that belonged exclusively to the states, and a tax on processing was considered an illegal use of taxing powers. New legislation in 1936 and 1938 brought together other programs for soil conservation, balanced output, crop loans, marketing agreements, crop insurance and rural security.

### Depression Hits the Railroads

During their history, railroads had faced and weathered severe economic depressions or "panics,"

particularly in 1873, 1903 and 1907. The industry had always been able to recover rather quickly because it was the only transportation mode available when national production revived. The 1930's were different. This time, railroads faced tough and resourceful competition, ready to move traffic quickly and cheaply. The 1921 truck of one-ton capacity offered little challenge to the freight car moving almost 40 tons. But freight rate increases in the twenties, federal and state expenditures on highway development, and advanced technology in manufacturing brought thousands of trucks with higher tonnage capabilities into the nation's transportation arena.

The first four years of the 1930s were a financial disaster for American railroads. Net income fell from \$809 million to a deficit of \$16.8 million between 1926 and 1934. Weekly carloadings, which had ranged from 800,000 to almost one million in 1930, fell to about 550,000 in 1932, a year when railroads representing 72 percent of the national mileage failed to earn their fixed charges. Such a record would have ordinarily required receivership pending revision of capital structures, but for most railroads this was avoided through loans from the Reconstruction Finance (RFC) and Railroad Credit Corporations. The first was a federal agency formed to extend credit to banks and industries; the second, a railroad corporation organized to grant loans to distressed carriers from funds generated by the emergency freight rate increases of 1931. Despite these efforts, by 1933, 38 of 147 Class I roads had petitioned for receivership or bankruptcy, representing 31 percent of the mileage and 24 percent of the industry's capital investment.

### Economic Problems of Iowa Railroads

By 1931, it was obvious that Iowa railroads were going to bear their share of the national depression. Between 1930 and 1939, mileage operated by steam railroads declined by 650 miles, net earnings by approximately \$10 million, and earnings per mile by over \$900. Revenue freight of agricultural products fell by 21 percent; animals and products, 27 percent;

<sup>1</sup> Earle D. Ross, *Iowa Agriculture, An Historical Survey*, Iowa City: State Historical Society of Iowa, 1951, p. 164.

products of mines, 47 percent; forest products increased .07 percent; manufactures and miscellaneous traffic declined by 14 percent and less-than-carloadings were off 57 percent. Operational trends of railroads system-wide and in Iowa are shown in Table 8-1.

Operating ratios were rather respectable throughout the decade as serious attempts were made to reduce operating expenses when revenues declined. However, deterioration in passenger service by 1939 resulted in operating ratios ranging from a high of 183 percent for the M&StL to a low of 118 percent for the IC. Wages and salaries amounted to a substantial part of operating expenses, normally constituting over 50 percent. About \$95 million was saved by system-wide furloughing of approximately 80,000 workers between 1930 and 1939, and those employed, voluntarily took a temporary cut of 10 percent in wages between 1932 and 1934.

Depression probably speeded abandonments although economic conditions were not the only reason. Others included disappearance of the traffic for which the lines were originally built, or relocation of economic

activity. For example, 81 miles were abandoned through exhaustion of coal mining, and the Tabor and Northern ceased operations when Tabor College closed. Far more important was the competition of motor vehicles. In 80 percent of the abandonments between 1920 and 1940, and for about one-third of the mileage abandoned between 1930 and 1940, this type of competition was cited as the sole cause of the lines' unprofitability. The highest percentage of mileage abandoned was in the eastern and central counties and averaged about 15 miles on branch lines.

The primary cause of the railroads' difficulties lay in the heavy load of fixed charges, consisting of interest on funded debt, taxes, rentals of equipment and leasing of lines. System-wide, unfunded debt was approximately \$2.8 billion in the 1930s, a substantial amount which was incurred in the road and equipment improvements of the 1920s. From 1936 to 1939, the CMStP&P, CNW, CRI&P, M&StL and Wabash showed deficits in income after payments of fixed charges. The CGW joined the group in 1938 and 1939.

**Table 8-1**  
**Comparison of System and Iowa Railroad Operating and Financial**  
**Conditions for Selected Years in the 1930s**

Account	1930		1933		1939	
	System	Iowa	System	Iowa	System	Iowa
Mileage <sup>1</sup>	61,193	9,668	61,013	9,531	71,239	9,078
Op. Rev. <sup>2</sup>	\$1,176.1	\$132.4	\$671.6	\$77.2	\$967.3	\$93.5
Op. Exp. <sup>2</sup>	\$ 863.6	\$104.8	\$496.0	\$61.6	\$744.4	\$76.0
Net. Rev. <sup>2</sup>	\$ 312.5	\$ 27.6	\$175.6	\$16.6	\$234.9	\$17.5
Op. Ratio %	73.4	79.2	73.9	79.3	75.8	81.3
Frt. Rev. <sup>2,3</sup>	\$ 925.6	\$107.4	\$549.5	\$66.3	\$792.5	\$78.8
Pass. Rev. <sup>2,3</sup>	\$ 139.8	\$ 13.6	\$ 60.1	\$ 5.2	\$ 89.5	\$ 7.7
Employees	321,369	N/A	201,445	N/A	240,925	N/A
Payroll <sup>2</sup>	\$ 544.6	N/A	\$303.7	N/A	\$459.7	N/A

(Source: Iowa Railroad Commission, *Annual Reports*, 1931, 1934.

Iowa Commerce Commission, *Annual Report*, 1940.)

<sup>1</sup> Miles of road owned, single track.

<sup>2</sup> In millions of dollars, rounded to nearest unit.

<sup>3</sup> Passenger and Freight revenues will not add to total Operating Revenues. Omitted from the Table are the "Other Revenue Accounts."

### Bankruptcies and Reorganizations

On June 28, 1935, CNW president Fred Sargent filed a petition for bankruptcy after defaulting on the payment of interest and principal on bonds maturing that year. The reorganization took nine years before being approved by the U. S. Supreme Court in 1944.<sup>2</sup> The dividend-happy CRI&P had a deficit after taxes and interest of over \$386,000 in 1931, having suffered the lowest gross revenues since 1917. Despite borrowing from the RFC in 1932 and 1933, which took all available collateral, the outlook was dismal. In 1934, the road faced maturities of more than \$144 million and with borrowing power ended, the CRI&P filed for reorganization on June 7. For the second time in 31 years, a cycle that began with the Reid-Moore syndicate completed the devastation and the "sprawling Rock Island was desperately ailing in weeds, dust and cinders."<sup>3</sup>

Here was a prime example of a situation that should have been crystal clear to the ICC and railroad managements—namely, that no railroad could survive Eastern investment strategy when management had little or no interest in operations except for the dividends and interest that could be obtained from their securities. The CMStP&P staved off bankruptcy until 1935 but then succumbed and requested reorganization for the second time in 10 years. The CGW went into bankruptcy in 1935 and was reorganized in 1941. Reorganization of the Wabash occurred in 1942.

Two of the railroads operating in Iowa managed to weather the economic storm, although it was touch and go for both in the early thirties. In 1931, when no one dared speculate on the immediate future of the railroads, Ralph Budd, born on a farm near Waterloo, was elected president of the CB&Q. Graduated from Highland Park College in Des Moines in 1899 with a degree in Civil Engineering, he worked through engineering and administrative positions on the CGW, CRI&P, Panama, and Spokane, Portland and Seattle roads to the presidency of the GN before taking over as chief administrative officer of the CB&Q. Budd was opposed to borrowing from the RFC. He concluded that wages, then 64 percent of operating expenses, were the important factor to be considered in recovery of earning power. The agreement with labor over the 10 percent reduction in wages was to expire in one year, but negotiations extended it to 1933, with stipulations that further changes in wage scales might be made. Through the compromise, wages were stabilized for a period sufficiently long enough to enable further

study toward solutions to the deepening crisis. Budd was also convinced that further expansion of freight service would prove difficult in view of truck competition. The only other source of revenue was through passenger service to which he turned in spite of the declining trend since the mid-1920s. Stating that the demand curve would be elastic if passenger trains offered fast, clean and cheap service, he experimented with stainless steel gas-electric powered cars and lightweight trains which were the prototypes of the famed Burlington Zephyrs.

During the fall of 1932, revenues on the CB&Q would not cover fixed charges, but by mid-1933, earnings were more than \$300,000 over these expenses. The interim period was marked by a partial recovery of freight traffic, increased passenger movements, and a further extension of the labor agreement to 1934. Overton states that: "In retrospect, then, the six weeks between late March and early May, 1933, marked the turning point in the company's fortunes . . . Not until business became stimulated by the threat of World War II did the revenues approach the 1931 level, and in the meantime some of the proposed remedies for the depression proved worse than the disease."<sup>4</sup> Except for 1935, net income from 1933 to 1940 ranged between \$3.6 and \$5.5 million, a far more impressive record than that of the CB&Q's competitors. The railroad stayed in the "black" but with little to spare.

The relatively stable and satisfactory financial condition of the IC during the 1920s, when earnings allowed a seven percent dividend on common and six percent on preferred stock, came to an abrupt end in 1931. Drastic economies were instituted, maintenance of road and equipment deferred, train operations curtailed, including discontinuance of the pride of the passenger fleet—the *Panama Limited*—and payrolls reduced. Net income dropped from \$9.3 million to a

<sup>2</sup> Reorganization proposals are found in *Traffic World*, November 16, 1935, September 16, 1936, and May 29, 1937. A merger proposal between the CNW and the CMSTP&P is discussed in *Railway Age*, August 21, 1938.

<sup>3</sup> William Edward Hayes, *Iron Road to Empire, The History of 100 Years of the Progress and Achievements of the Rock Island Lines*, New York: Simmons-Boardman, 1953, p. 221.

<sup>4</sup> Richard C. Overton, *Burlington Route, A History of the Burlington Lines*, New York: Alfred H. Knopf, 1965, p. 382.

\$3.6 million deficit in 1931, and for the first time since 1859, management passed the common stock dividend. By 1933, total operating revenues had fallen 51 percent below the 1929 level, employment was cut by 50 percent, and indebtedness represented the heaviest burden in the railroad's history. The deficits brought the road to the brink of bankruptcy, so close that legal papers were ready for filing at an hour's notice. However, a strong and alert board of directors, efficient administrative officers and the cooperation of employees and stockholders pulled the railroad through the emergency.

The Chicago World's Fair of 1933-1934 was scheduled at an opportune time, materially increasing passenger revenues for all railroads serving the city. As in 1893, the IC provided the principal service, operating over 19,000 extra suburban trains which carried almost four million fairbound passengers over the two-year period. Loans obtained from the RFC and the Public Works Administration were paid in full by 1943. A resourceful management, headed by a new president, John L. Bevin, had prepared the railroad for the sharp upturn in traffic which came by 1939.

### Economic Problems for the Electric Interurbans

The experiences of the interurbans paralleled those of the steam railroads, except that they were more vulnerable to commercial motor carrier and automobile competition on relatively short line operations. Table 8-2 shows the trends:

Table 8-2

#### Operational Conditions of the Electric Interurbans During Selected Years in the 1930s

Account	1930	1933	1939
Mileage <sup>1</sup>	647	618	564
Op. Rev. <sup>2</sup>	\$3.93	\$ 2.04	\$3.46
Op. Exp. <sup>2</sup>	\$3.42	\$ 2.22	\$2.85
Net Rev. <sup>2</sup>	\$0.51	\$-0.18	\$0.39
Op. Ratio %	87.0	108.6	82.3
Frt. Rev. <sup>2</sup>	\$2.92	\$ 1.60	\$2.80
Pass. Rev. <sup>3</sup>	\$ 709	\$ 262	\$ 394
Funded Debt Unpaid	\$1.70	\$ 2.30	\$8.90

(Source: Iowa Railroad Commission, *Annual Reports*, 1931, 1934. Iowa Commerce Commission, *Annual Report*, 1940.)

<sup>1</sup> Mileage includes all tracks.

<sup>2</sup> In millions of dollars, rounded to the nearest unit.

<sup>3</sup> In thousands of dollars, rounded to the nearest unit.

There was a slight decline in mileage operated during the decade through abandonments. In the critical period, 1930-1933, operating revenues dropped by 48 percent, passenger revenues by 63 percent, and freight revenues by 45 percent. However, the decline in operating expenses did not equal that of revenues, resulting in an operating ratio of 108 percent in 1933. Except for the Crandic lines and the Tama and Toledo, every interurban suffered a deficit in income. Even with a modest recovery from 1933 to 1940, passenger revenues never returned to their previous levels, ending the decade approximately 45 percent below the 1930 figures. Freight revenues, however, showed a remarkable increase over the low of 1933, and by 1939 were only slightly below the volume in 1930. Net income from all operations fell into a deficit position in 1940. The key to financial distress, similar to that of steam railroads, was the amount of unfunded debt unpaid, increasing from \$1.7 million in 1930 to \$8.9 million in 1940.

Bus service on the FtD,DM&S was substituted for trains on branch lines as early as 1926 and through a subsidiary in 1927 which ran from Des Moines via Ames to Fort Dodge. The bus company was sold to Interstate Transit Lines, a subsidiary of CNW, in 1931. The interurban went into receivership and was operated under a trustee until 1943, when it was returned to private control and incorporated as an Iowa corporation, using the same company title. During the receivership period several operational changes were made. Parlor car service ended in the winter of 1931-1932. By 1935, only two daily round trips were scheduled between Des Moines and Fort Dodge, and operations over street trackage ended in Des Moines in 1938 and in Fort Dodge in 1940. In the World War II years, service expanded to four daily round trips but returned to former schedules by 1950.

On June 20, 1932, the Crandic road merged with the new Iowa Electric Light and Power Company. The service remained popular in the thirties with eight daily round trips between Cedar Rapids and Iowa City. In 1938, the railway moved 16,800 cars, representing a traffic density of 616 cars per mile, surpassing the record of many steam railroads. The bus and automobile slowed passenger traffic, which was to have a last reprieve during World War II. The well-managed road had the second lowest operating ratio (62 percent) of any of the interurbans in 1939.

The trend toward substitution of motor buses, reduction of passenger trains and abandonment of

service was common in the operation of other interurbans. A few examples will suffice. The Cedar Valley line had reduced service by 1936 to three round trips daily from Waterloo to Cedar Rapids, a substantial change from the dozen round trips when the line opened. The Clinton, Davenport and Muscatine, primarily a freight carrier in its last days, abandoned passenger and freight service on the Muscatine Division in 1938 and on the Clinton Division in 1940. The Des Moines and Central Iowa cut service on the Colfax Division to three daily round trips, but the road received a new lease on life when Camp Dodge was reactivated in the war years. Some trackage on the Mason City and Clear Lake was abandoned in 1931, and street railway franchises in both cities expired in 1935.

#### Pre- and Postwar Streamlined Passenger Trains.

Probably the most glamorous period of railroad passenger service in Iowa began in the 1930s and 1940s with the introduction of the dieselized lightweight streamlined passenger trains. It ended in the 1960s. Aluminum and its alloys replaced steel, reducing weight without sacrificing strength in car construction. By rounding at the end and at roof lines, the trains were given the appearance of sleek speed attractive to the public. Bright and distinctive colors were used in contrast to the dull and drab green of older cars. Air-conditioning, reclining seats and adjustable footrests in coaches, luxurious appointments and private accommodations in sleepers, vista domes, buffet, lounge and parlor cars, and improved dining arrangements made long distance travel a comfortable experience.<sup>5</sup>

#### The Burlington Zephyrs

In 1934 the CB&Q tested a three-car articulated streamlined train on a non-stop trial run from Denver to Chicago, covering roughly 1,000 miles in 14 hours. The regular steam schedule was 26 hours, and no locomotive had run non-stop for more than 775 miles up to this time. By averaging 2.77 miles per gallon of fuel priced at four cents, the fuel cost for the trip was \$14.64. Maximum speeds ranged up to 112 miles per hour. This pioneer train went into regular service to Kansas City, Omaha and Lincoln shortly thereafter and was followed by other *Zephyrs* on regional routes. The *Zephyr Rocket* was the first north-south streamliner between St. Louis and the Twin Cities, jointly operated by the CB&Q and CRI&P. But the most famous and popular streamliner was the

*California Zephyr*, a \$2 million, 12-car vista-domed train which started in 1949 on a daily schedule from Chicago to Oakland (San Francisco) over a scenic route through the Rocky Mountains and down the Feather River Canyon in California. The train was later selected to operate on the AMTRAK route across southern Iowa.

#### The Northwestern's Cities

Under joint arrangement with the UP, the CNW was the first to offer coach-pullman streamlined transcontinental service when on June 8, 1935, the *City of Portland* made its maiden trip from Chicago. It stopped at six stations in Iowa, covering the 347 miles across the state in five hours and 45 minutes as compared with the 13-hour schedule of local trains. The 13-car train was painted a brilliant yellow with red stripes and cost \$1.6 million to build. In 1937 three additional trains, the *San Francisco*, *Los Angeles*, and *Denver*, began operating on an every third day basis, expanding to daily schedules in the early 1940's. Into the mid-1950's one could stand at the CNW's mainline stations and watch the parade of giant diesels pulling the yellow cars, knowing that if one train were missed, another would be along in a relatively short time. There were seven of them, beginning with the *Denver* and ending with the steam-operated *Gold Coast*. By 1951, 14 CNW streamliners served Iowa.

#### The Rock Island Rockets

The CRI&P was the third road to initiate streamlined passenger trains in Iowa. The "Rockets," named after the first locomotive, started operations in 1937 from Chicago to Peoria and to Des Moines and were followed by the *Kansas City*, *Twin Cities*, and *Rocky Mountain Rockets* in 1939. The *Twin Star* and *Corn Belt* made their initial runs in 1946 and 1947. The former operated between Minnesota and Texas, which became known as the longest north-south route in the nation. East-west schedules were run by the *Golden State*, *Imperial*, and *Columbian*, allowing

<sup>5</sup> In 1923, Sam Felton of the CGW streamlined a Pacific-type locomotive which pulled the four-car *Red Bird* from the Twin Cities to Rochester, Minnesota. Six years later, the gasoline-electric *Blue Bird* was put into service with a rounded-end observation and club car. Frank P. Donovan, Jr., "The Chicago Great Western Railway," *Palimpsest* 34 No. 6 (June 1953); pp. 276-277.

passengers a wide selection of departure times and different accommodations. The *Columbian* was unique in that it furnished stewardess-nurses and featured “economy meals,” at 25 cents for breakfast, 30 cents for lunch and 35 cents for dinner. The CRI&P was the only Iowa railroad which had both north-south and east-west transcontinental service.

Donovan described the CRI&P as celebrated in “story, song, motion picture and drama until it became an institution in Iowa.” James Norman Hall of Colfax, co-author of *Mutiny on the Bounty*, loved railroads and recounted his experiences on the main line in his autobiography, *My Island Home*, and in

*Under a Thatched Roof*. “The Rock Island Line” was a popular song among work gangs. *Rock Island Trails*, a Republic motion picture in 1950, recorded the history of the lines’ westward movement. Still popular to stage and screen audiences is Meredith Willson’s, *The Music Man*, who came to River City (Mason City) on a CRI&P train to organize the town band. Excursion and special trains were scheduled for racing enthusiasts to watch the trotters and pacers at Rush Park in Independence. Football extras carried record crowds to Iowa City on Saturdays, a tradition that stretched over three generations of University of Iowa graduates and fans.



Burlington's *California Zephyr* coach.  
(Courtesy: Iowa State Historical Society)



CNW observation car of the *City of San Francisco*.  
(Courtesy: Iowa State Historical Society)

### The Milwaukee Hiawathas and Other Streamliners

The *Midwest Hiawatha* started in 1940 between Chicago and Omaha. At Manilla, in Crawford County, the train was divided into two sections, one moving northwest to Sioux City and Sioux Falls and the other to Omaha. Seven years later, the *Olympian* began regular service to Seattle and Tacoma, making the trip in 45 hours. The former transcontinental *Olympian* continued service under the name *Columbian*.

The *Land of Corn* on the IC was inaugurated in 1947 from Chicago to Waterloo. It was one of eight diesel-powered streamliners operated by the railroad; the others running on north-south routes. The AT&SF furnished streamlined service throughout the southwestern United States to Iowa residents via *Chief* and *Super-Chief* which entered the state northwest of Keokuk, angled northeast to Fort Madison and continued to Chicago (Fig. 8-1).



*Rock Island Rocket.*  
(Courtesy: Iowa State Historical Society)

### **Streamliners and Passenger Revenues**

How much difference did these trains make in passenger revenues? On the CNW, by 1937-1938 they produced an increase of 22 percent over revenues of 1935. From an all-time low of \$6.7 million in 1933, some 60 percent of the 1931 revenues, the CB&Q recorded an 18 percent increase in 1936 and in 1937, and revenues represented the highest earned in a decade. The "Rockets" returned \$46 million, or 734 percent of the \$6.6 million invested. The best paying train was the *Des Moines Rocket* which had expenses of \$.51 and net revenues of \$1.39 per mile in 1939. There seemed to be little question that the streamliners of the 1930s were a financial success.

### **Congress Acts to Meet the Railroad Emergency**

In 1933, new procedures for financial reorganization of the carriers were enacted through addition of Section 77 to the Bankruptcy Act of 1898, amended further in 1935. Its objective was to reduce delays in reorganization, provide for a more sound and realistic capital structure and to overcome objections to previous reorganization plans. The new Federal Administration had pledged to reduce enforcement of competition between railroads and support consolidations, somewhat reversing historic regulatory policy. This proposal was not new, having been incorporated into the Act of 1920, but the economic circumstances were significantly different

by 1933, and certain conditions written into the 1920 legislation suggesting consolidation were apparently to be eased.

A Transportation Commission created in the previous administration reported in February, 1933, that "parallel lines and systems" are wasteful and unnecessary; that regional consolidation should be hastened. Also, that railroads themselves should cooperate to reduce competitive expenses and that the rule of rate-making which established a "fair return" percentage in 1920 should be reversed. These recommendations and the influence of the work of earlier congressional committees formed the background of the Emergency Transportation Act of 1933, consisting of two parts. Title I included temporary provisions designed to assist the railroads in meeting depression conditions. Title II added permanent measures to the Interstate Commerce Act. The temporary provisions were not successful in bringing about the anticipated economies and expired

in 1935. The permanent provisions related to changes in the laws regarding mergers and liberalized the rule of rate-making.

The Office of Federal Coordinator of Transportation was established in 1933 for the purpose of studying methods of avoiding useless duplication of service, eliminating losses, promoting financial reorganization and improving transportation conditions in general. Numerous proposals for relief were considered, ranging from consolidation of the roads into a single national system, to the "Prince Plan" which would merge the roads into seven systems—two in the East, two in the South and three in the West—estimated to save about \$743 million on the basis of 1932 traffic. The estimates were challenged by opponents who pointed to the disastrous effects of eliminating competition. They countered by suggesting the joint use of terminals and pooling of equipment as a means of reducing expenses, objected to by both management and labor.

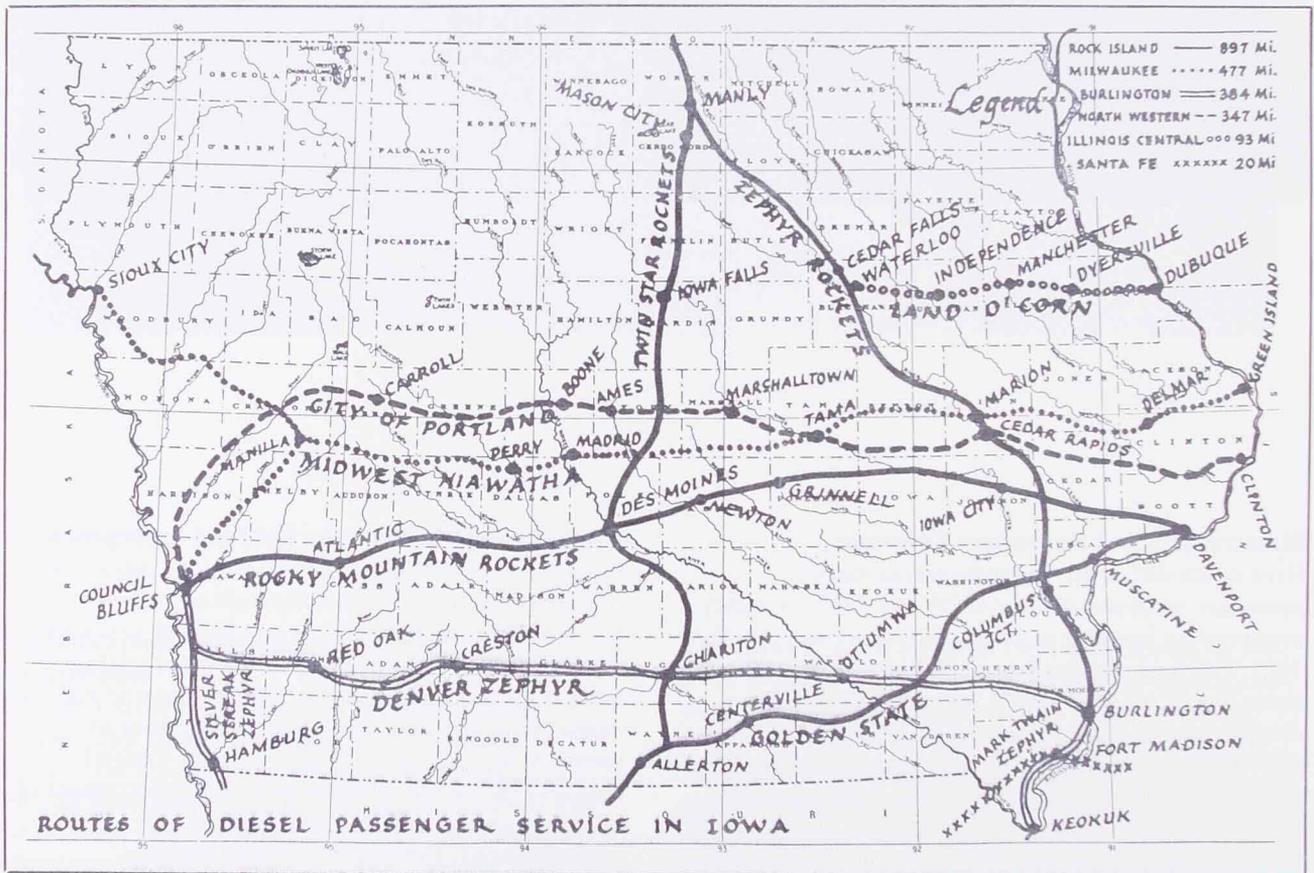


Figure 8-1  
Routes of diesel passenger service in Iowa  
(Courtesy: Iowa State Historical Society)

## Federal Regulation of Other Modes

### Interstate Motor Carriers

As early as the mid-twenties, it was recognized that motor carriers were going to offer more than token competition to railroads. Actually, until 1925, states had exercised some regulation over interstate as well as intrastate truck movements, for it had become a well-established fact that interstate carriers had to have state authority for intrastate operations. Authority for state control rested on the doctrine of *Gibbons v. Ogden* which stated that in the absence of federal legislation, states might prescribe reasonable provisions to meet local needs for those aspects of interstate commerce not demanding general or uniform regulation. In 1925, the U. S. Supreme Court declared that states could regulate interstate commerce where highway safety or conservation was the objective or where the indirect burden on interstate commerce was reasonable but could not where prevention of competition was at issue—a violation of the commerce clause of the Constitution. By 1920, 42 states had placed restrictions on vehicle width, 29 on height, 30 on length and 45 on gross weights. The diversity in weight and size limitations among states was controversial even in the 1930s and became subject to more heated arguments over the next 50 years.<sup>6</sup>

Following the Supreme Court cases, Senator Cummins of Iowa filed one of the first bills to regulate interstate motor carriers. Others followed in 1928, 1930, and 1932, without enactment. In addition to the legislative interest, extensive investigations of the industry were underway by the ICC. After a decade of discussion and debate, Congress finally passed the Motor Carrier Act of 1935, as Part II of the Interstate Commerce Act. It was the intense competition between railroads and motor carriers more than any other factor that was responsible. Expansion of the trucking industry in the early 1930s resulted in rate wars and evasion of state regulations, and it generated a feeling of unequal and unfair national regulatory policies.

The act produced sharp differences in regulatory philosophy between railroads and motor carriers, accentuated by differences in the structures of each industry. With few exceptions, railroads had been legally considered in the broad category of “common carriers.” Contrarywise, motor carriers were placed into four general classifications: “common,” “contract,” “exempt” and “private.” The distinctions, particularly in the “exempt” category, were a constant

irritation to railroads as motor traffic expanded, and in many instances the ICC and courts were required to define the carrier operating authority and status within each one.<sup>7</sup>

### Commercial Motor Carrier Passenger and Freight Traffic

In Iowa, approximately 1.8 million passengers rode the buses in 1931, increasing to over five million in 1939. Ten Class I carriers, including five affiliated with steam and interurban railways, had annual net operating revenues of \$30,000 or over. There were 17 Class II passenger carriers with revenues under \$30,000, and both classifications operated at a deficit in 1931 but showed profit positions by 1939. Of the 149 freight carriers reporting to the railroad commission in 1931, 107 had annual revenues of less than \$5,000, indicating the relatively small operations of individuals or firms in the industry. By 1939, 40 freight “unclassified” motor trucking firms were in favorable financial condition.

### Commercial Airlines

Many of the provisions of previous legislation (Air Commerce Act of 1926 and Air Mail Act of 1934) were incorporated into the Civil Aeronautics Act of 1938. A five-member Civil Aeronautics Authority (CAA) was created as an independent body comparable to the ICC. Within the CAA, an administrator was responsible for promotional and

<sup>6</sup> Interstate Commerce Commission, *Federal Regulation of the Size and Weights of Motor Vehicles*, House Doc. 354, 77th Cong., 1st sess., 1941. Difficulties encountered by truck operators are discussed in hearings before the Committee on Interstate and Foreign Commerce, *Regulation of Interstate-Motor Busses and Trucks on Public Highways*, 1934, H.R. 6836, pp. 404-407.

<sup>7</sup> To control entry, common carriers were required to operate under a certificate of public convenience and necessity; contract carriers under a permit to serve specific shippers. Private carriers were considered as an adjunct mode to extend the commercial activity of the firm owning them and were not on a for-hire basis. Exempt carriers were not subject to economic regulation, depending upon the commodity hauled or particular services offered. The most publicized and discussed were the motor carrier agricultural exemptions. Descriptions of the exemptions are found in Sections 203 (b) 4, 5, and 6 of the Motor Carrier Act. In Iowa, entry restrictions are found in Section 3257, and route restrictions in Section 3256, 327.1 and 327.6 of the Code of Iowa.

developmental functions and an Air Safety Board was to investigate accidents and make recommendations concerning preventative measures. Two Presidential Executive Orders in 1940 changed the CAA to the Civil Aeronautics Board (CAB), abolished the Air Safety Board and transferred their responsibilities to the CAB, which together with the administrator were placed in the Department of Commerce.

Title IV of the act pertained to economic regulation. It covered only common carriers and carriers of airmail as contrasted to safety regulations which extended to all aircraft. Entry into the industry required certificates of public convenience and necessity; rates and fares were to be published and all tariffs opened to public inspection. Abandonments, mergers and consolidations had to be approved but the carriers could be exempt from economic regulation under certain conditions. The principle of state regulation of intrastate carriers was recognized and upheld, not legalized away as was done in the Motor Carrier Act where the ICC had no control over abandonments or intrastate rates, even to prevent discrimination against interstate transportation. The state, therefore, could regulate intrastate airline rates and fares and issue certificates provided that the intrastate operations did not interfere with the Federal Act.

The first Iowa laws regulating aviation, aircraft licensing, and establishing air traffic rules and provisions were enacted by the 43rd General Assembly in 1929. In June, 1934, a special session passed an Act creating a Commission on Aeronautics to act under the advice and assistance of the State Adjutant General. It was "to regulate all flying activities in Iowa and to assist and advise in the promotion of aeronautics." No licensing powers were granted. The part-time members were Charles Gatschet of Des Moines, Ralph Cram of Davenport, and W. B. Swaney of Fort Dodge. Brigadier General Charles H. Grahl was Secretary. Their initial actions involved educating pilots, aircraft owners, airport managers and enforcement agencies concerning the air laws of the state and campaigning against "imprudent" flying which resulted in accidents. Formal rules and regulations were adopted in 1934, including establishment of minimum safe altitudes over open and congested spaces.

#### **The Demise of the Railroad Commission**

The Iowa Board of Railroad Commissioners was created in 1878 for the purpose of regulating

railroads, the only major transportation system in Iowa at that time. But actions of the General Assembly over the years expanded their jurisdiction and control into other industries such as passenger and freight motor carriers, truck operators, pipelines, transmission lines, airports and bonded warehouses. The title was a misnomer—covering a conglomerate of activities relating to transportation, communication, storage, engineering, etc., for the protection of carriers, shippers and the traveling public. To better recognize the widening scope of assigned responsibilities, the name was changed to the "Iowa State Commerce Commission," on May 1, 1937. At the time of transition there were seven major departments. The largest in terms of employees (53 of 72) was the Motor Carrier Division. The chairman of the new commission was George A. Hoffman. Commissioners were Harry P. Dunlop and Mike P. Conway, and the executive secretary was J. J. Lynch.

#### **Federal Aid for Highway Construction**

##### **The National Level**

During the 1920s, road building capability of the states reached a point where they could obligate \$100 million of federal aid each year. The amount exceeded congressional authorizations but was made possible through surplus funds built up in the program during earlier years. By 1928, the surplus had been expended and states reduced their highway programs to fit the \$75 million yearly authorization. In fiscal year 1929, federal-aid mileage built fell to 9,386 miles, from 10,194 miles in 1928, and further reductions were carried over into 1930. To assist the sagging economy, President Hoover requested appropriations for public works, including highways, and Congress authorized an increase of \$50 million in the federal-aid program for 1930, making a total of \$125 million to be distributed also in 1932 and 1933. The new funds were apportioned to the states immediately by the Secretary of Agriculture, who also made the 1932 appropriations available in September, 1930. This decision raised the total available to \$175 million, more than many of the states could match since their legislatures were not in session.

Highway construction problems were also eased by an additional appropriation of \$80 million, divided among the states in the same manner as federal-aid funds, to be used for matching purposes. The appropriations were considered as loans rather than grants and were to be repaid through deductions from the regular federal-aid apportionments over a period

of five years. The emergency funds were to be obligated by September 1, 1931. The loans stimulated road building, completing the initial and stage construction of 11,033 miles in 1931, and 15,997 miles in 1932. Employment on these projects expanded from 30,944 in January to 155,466 in July of 1931, bringing the total of federal and state employment during that month to 385,345 workers. However, the increases were short-lived and dropped considerably during the next few years. Total disbursements of state highway departments, together with the ratio of federal-aid payments from 1928 to 1939, are shown in Figure 8-2.

Continued decline in the national economy brought another stimulus in the form of the Emergency Relief and Construction Act of 1932. Funds totaling \$120 million were authorized as temporary advances to the states for work to be performed before July 1, 1933,

specifically to promote employment. The grants were to be repaid by deductions from federal aid over a ten-year period. Further emergency allocations were included in the Hayden-Cartwright Act of 1934 which appropriated \$200 million of unmatched grants and made grants of the loans previously disbursed. Twenty-five percent was to be applied to secondary or feeder roads, including farm-to-market, rural free delivery roads and school bus routes. One and one-half percent could also be used for economic research.

The shortfall of revenues from income and property taxes caused state legislatures to look seriously at motor vehicle revenues, remarkably stable in the depression years, for support of other than highway functions. However, Congress limited federal extension of emergency grants only to states that used at least the amounts derived from motor vehicle taxes for highway construction, improvement and

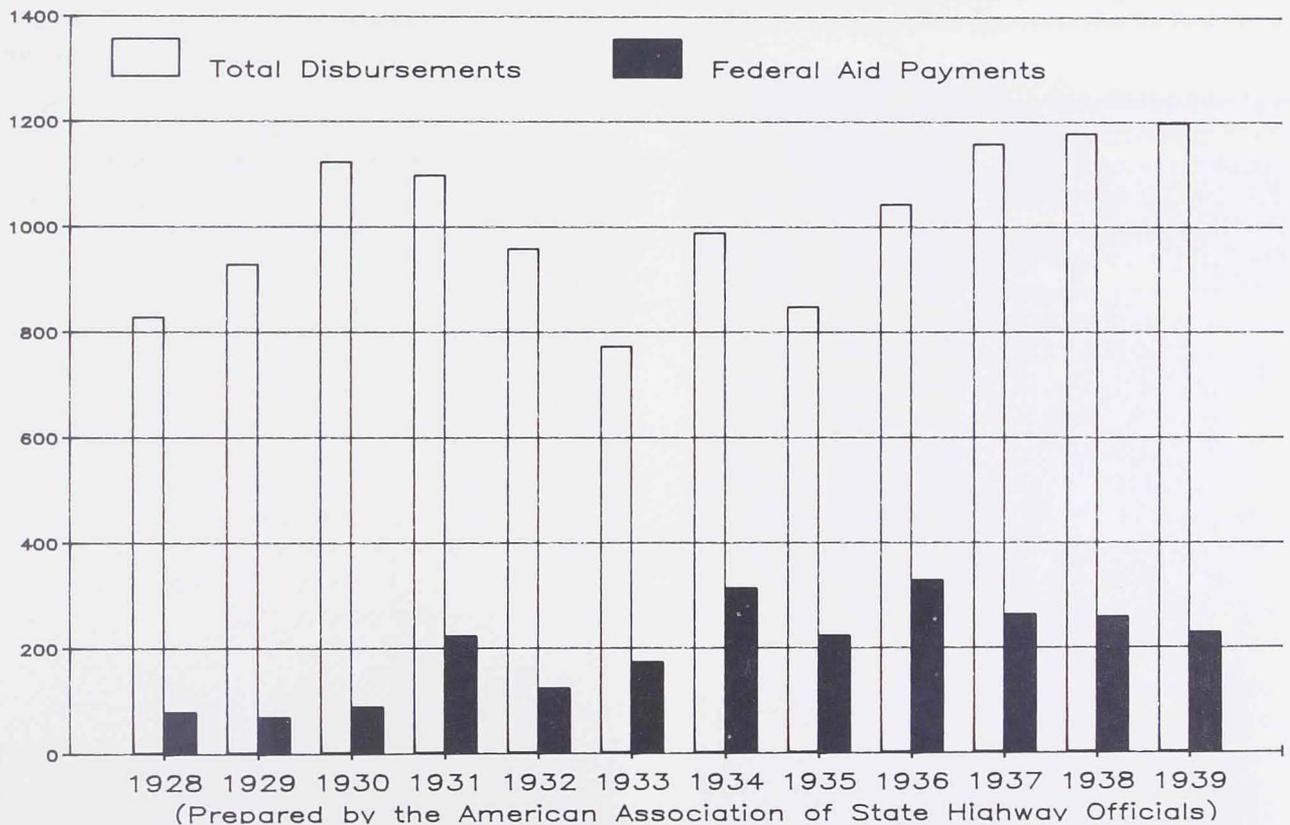


Figure 8-2  
Disbursements by state highway departments showing ratio of federal-aid payments.  
(Courtesy: American Association of State Highway Officials)

administration. In 1932, 16 states diverted over \$87.8 million of road user revenues to non-highway purposes, over half of this amount by New York State alone. In 1933, the total increased to \$143 million and to \$164 million in 1934.

Granting federal aid to secondary roads became a permanent feature of national policy when the Federal Aid Act of 1938 established a federal-aid system of secondary roads to be designated by the states and to include not more than 10 percent of rural road mileage. In 1939, the General Assembly passed the first comprehensive farm-to-market road law in order to receive and match the annual allotment of \$660,000 from the federal government. The matching funds were to be taken from the primary road fund, a move opposed by the highway commission without success. In addition, the law required that all funds in excess of \$16 million in the primary road fund be transferred to the farm-to-market fund on or before June 30, 1941, exclusive of amounts received from primary road bond sales. In 1941, the ceiling of the primary road fund was raised to \$17 million and remained at that level until 1949.

### Highway Construction—The State Level

The increased funds from county bond sales accelerated primary road paving in the late 1920s. During 1930, the peak year of construction, 1,029 miles were paved at an expenditure of \$42.6 million. This brought the total paved to 3,272 miles, whereas 2,863 miles were graveled, 513 miles built to grade but not surfaced and 593 miles not built. Added to the primary system were 429 miles, primarily stub roads to towns with populations of 400 or more, based on the 1930 Census. In three years, the number of completely surfaced roads spanning the state had increased to nine; seven east-west and two on north-south routes, and by the close of 1931, four more north-south roads were added. The 1931 road map proudly proclaimed in large, bold letters: "Motorist, Get This Once And For All, Iowa Is No Longer A Mud Road State."

Exhaustion of county bond funds and the effects of the depression sharply reduced primary road building after 1931, but by 1934, the state was within 600 miles of the goal set in the defunct state bond proposal. An additional 324 miles had been blacktopped, a method of surfacing introduced in 1932 that is inexpensive to put in place but expensive to maintain. Although construction costs dropped by 26 percent, highway revenues fell twice as fast in 1932 compared to 1931.

For the first time, license fees and gasoline taxes declined after increasing every year prior to 1932. The depression played havoc with commission employment, wages and salaries. Between August 1, 1931, and March 1, 1932, 688 persons had been cut from the commission payroll, and for those remaining employed, salary reductions averaged 7.5 percent. The low point was reached in 1933, when the staff consisted of 531 people, and although the numbers increased later, employment during the thirties never reached the 1930 level.

Bank closings in 1933 tied up about \$4.6 million of primary road funds, making payments difficult on interest and principal of the bonds. Had it not been for \$10 million allotted by the federal government, there would have been few contracts awarded for primary road building in 1931. Bond payments continued to be a major problem, and refinancing was authorized effective January, 1934, to reduce interest and readjust maturity dates. The average interest rate on old bonds was reduced from 4.77 to 3.61 percent; on new bonds to 1.19 percent in 1939. Between 1934 and 1937, \$72 million in bonds had been refinanced, premiums amounted to \$657,000, and interest savings were \$1.5 million.

### Formation of the Highway Patrol

Vehicle accidents, highway injuries and deaths were a serious problem in the early 1930s, and efforts were made by the legislature to establish a highway safety patrol. Bills were defeated in 1933 through opposition of farmers and labor. Farmers were blockading highways to prevent trucks from reaching markets in an attempt to raise prices for their products, and labor feared that a patrol would be used as a strike-breaking force. But Mrs. Alex Miller, a popular Secretary of State, decided to do what she had no authority to do—create a highway patrol. In 1934 she converted 15 motor vehicle inspectors on her payroll into an organization needed to combat the "Four Horsemen of the Highways;" namely, "Road Hogs, Drunken Drivers, Excessive Speeders and Unsafe Cars." Since there were no funds available, officers furnished their own uniforms.<sup>8</sup>

<sup>8</sup> George Mills, "The Patrol's 50th Anniversary," *Des Moines Register*, July 31, 1984. Motor vehicle inspectors were used for enforcement of laws pertaining to highway safety requirements among other duties.



Highway Safety Patrol, officer and early automobile.  
(Courtesy: Iowa State Patrol)



Mrs. Alex Miller, Secretary of State  
(Courtesy: Iowa State Patrol)



John Hattery, first patrol chief.  
(Courtesy: Iowa State Patrol)

Armed with data showing the influence of the patrol on motorists and knowing that the makeshift group was inadequate to cover highways in 99 counties, Mrs. Miller requested the legislature to consider approval of a larger and legal organization. Deaths had dropped 21 percent during the last five months of 1934 compared to a similar period in 1933, and there were 2,000 fewer injuries for the full year. The record could not be ignored and the legislature responded by creating a force of 50 men and three officers in 1935. Salaries were fixed at \$100 per month for the initial appointment and could rise to \$125 after five years. The work week was 72 hours. John Hattery of Nevada, the first patrol chief, was paid \$200 per month and his assistants E. A. Conley of Marshalltown and Harry Nestle of Carroll each received \$165. Despite the relatively low pay scales and long hours, 3,000 applicants sought the positions. A majority selected held college degrees, some had attended college and none were chosen without high school diplomas. Forty-nine vehicles were purchased by the state for the work, consisting of 37 automobiles and 12 motorcycles. The latter were soon abandoned because of operational difficulties in the harsh winters.

One of the first controversies raged over the jurisdiction of the patrol, especially in the field of criminal enforcement. Critics did not want a state police force which would usurp responsibilities of

county sheriffs and local police. However, in 1939 the legislature transferred the patrol from the control of the Secretary of State to a new Public Safety Department, gave it full legal police power and appropriated funds for an expansion to 125 officers. Since then, the highway patrol has been involved in criminal apprehension, has organized tactical teams for riot control and public disorders, and has been engaged in educational programs concerning highway safety—these in addition to the regular patrol responsibilities.

By 1984, the patrol had a compliment of 410 troopers and officers, 80 of whom operated 15 district offices with the remainder assigned to highway and law enforcement work. The 330 troopers on the road were nearly seven times greater than the 50 in 1935. However, the reduced work week (from 72 to 43½ hours) and the heavy increase in traffic meant that the patrol was nearly as thin proportionately as it was in 1935. Seven airplanes have been added to their vehicle inventory, to be used by air-ground teams to spot speeding motorists on primary highways. Coverage totaled 11 million miles in 1983, somewhat higher than the two million miles in 1935. Over the 50 years of its existence, the patrol has gained widespread recognition, respect and commendations for high standards of performance and the professional approach to its responsibilities and duties.

**Table 8-3**  
**State Highway Receipts and Distribution of Funds, 1930-1939**

Year	No. of Autos <sup>1</sup>	No. of Trucks <sup>1</sup>	Receipts <sup>2</sup>	Distribution to	
				Primary	Secondary
1930	711,927	73,417	\$22.3	\$17.1	\$5.2
1931	673,360	81,936	22.8	17.3	5.5
1932	611,003	76,936	20.1	15.5	4.6
1933	562,802	69,490	18.9	14.4	4.5
1934	592,350	75,536	19.4	14.7	4.7
1935	619,658	83,836	20.8	15.4	5.4
1936	645,759	87,535	22.1	16.4	5.7
1937	659,004	91,991	23.6	17.6	6.0
1938	651,843	94,234	24.1	17.8	6.3
1939	673,136	99,931	21.5	13.9	7.6

(Source: Office of Economic Analysis, Iowa Department of Transportation.

All data are on a calendar year basis.)

<sup>1</sup> Automobiles and trucks registered.

<sup>2</sup> Includes motor fuel taxes, registration fees and miscellaneous receipts. Figures are in millions of dollars rounded to the nearest unit.

**Table 8-4**  
**Iowa's Primary Road System, 1920-1940**

Year	Total Miles	Paved	Bitumi- nous	Gravel	Dirt Graded	Dirt Ungraded
1920	6,619	67	---	792	1,021	4,739
1921	6,616	236	---	1,157	1,448	3,776
1922	6,615	334	---	1,558	1,761	2,962
1923	6,641	419	---	1,889	2,001	2,338
1924	6,660	502	---	2,164	1,934	2,059
1925	6,674	569	---	2,461	1,796	1,849
1926	6,654	650	---	2,818	1,732	1,452
1927	6,665	940	---	3,226	1,417	1,083
1928	6,761	1,625	---	3,221	1,114	801
1929	6,770	2,317	---	3,137	715	602
1930	7,274	3,272	---	2,863	513	594
1931	7,789	3,804	---	3,070	281	635
1932	7,845	4,086	137	3,067	117	438
1933	7,834	4,202	139	3,083	52	358
1934	7,909	4,313	324	2,933	175	165
1935	8,278	4,374	323	3,297	92	192
1936	8,318	4,546	469	3,030	63	109
1937	8,433	4,818	569	2,890	50	106
1938	8,498	5,090	587	2,690	52	78
1939	8,541	5,135	614	2,661	51	80
1940	8,559	5,208	671	2,592	22	62

(Source: Iowa State Highway Commission, *Annual Reports*.)

Fractions of miles have been reduced to the nearest whole number.

### Highway Concerns at the Close of the Decade

There were 400,000 motor vehicles in Iowa when primary road improvements began about 1920. The legal speed limit was 30 miles per hour and no buses or freight-hauling trucks were on the roads. By 1930 the number of vehicles and average mileages had doubled, speeds had increased, and bus and truck traffic made up a considerable portion of highway usage. The concern of the commission lay in the fact that improvement of primary roads started far behind vehicle needs and never really caught up with the demand. They also emphasized the abandonment trends on railroad branch lines, rendering small towns wholly dependent upon highway transportation.

In 1940, the commission recommended that every town should be provided with a dependable year-round road and every primary highway with a

dustless surface. Narrow bridges should be widened to not less than 24 feet. Continued attention should be given to elimination or protection of highway/railroad crossings. The cost of these proposals was estimated at \$116 million at 1940 prices, and at the level of current revenues would require 16 years to complete. Even at this estimate, it was suggested that the program would not meet traffic demands, expected to double again during the period. Concerns notwithstanding, the record of highway construction throughout the depression years showed steady progress as indicated in Tables 8-3 and 8-4. The first table covers the number of motor vehicles registered in the state, receipts from taxes, and distribution of funds to primary and secondary roads from 1930 to 1939. The second table shows the progress in surfacing the primary road system between 1920 and 1940.

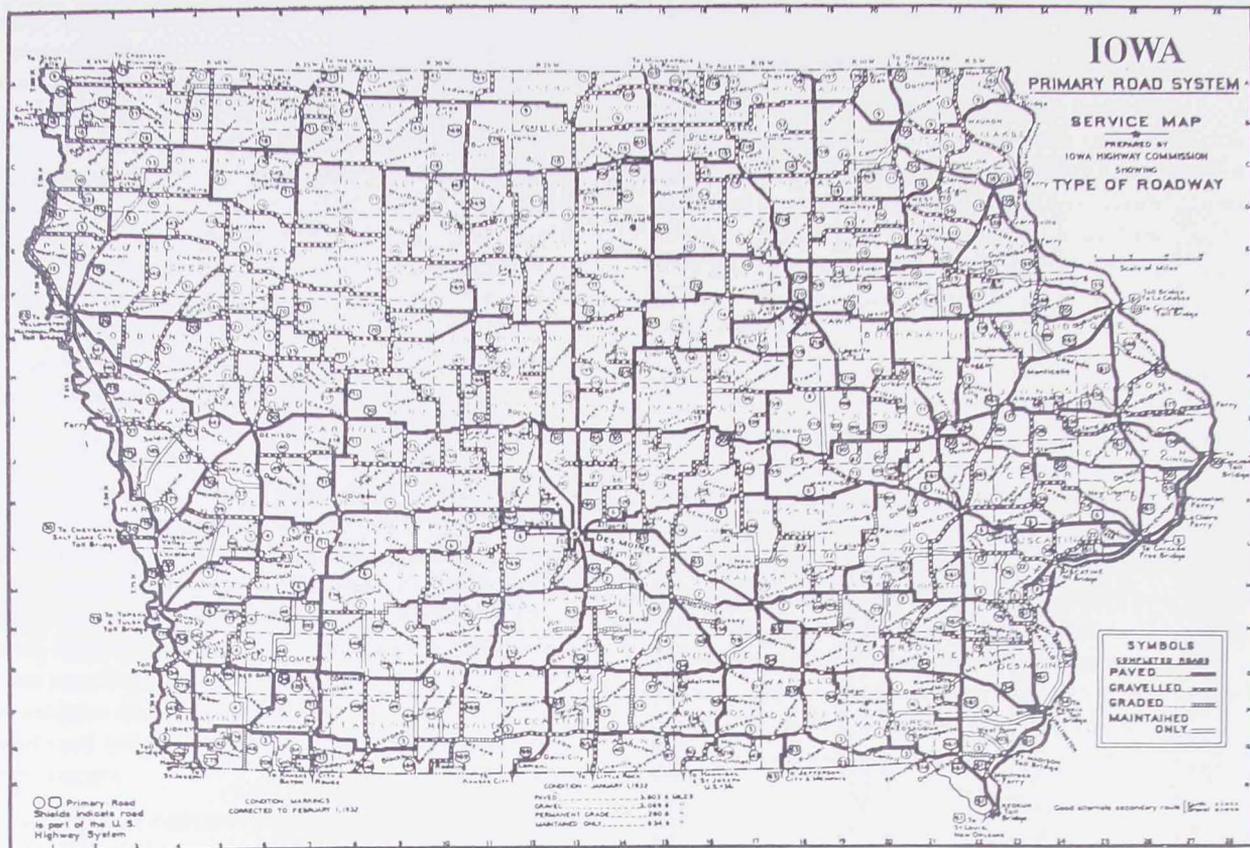


Figure 8-3  
Iowa primary road system service map.  
(Courtesy: Iowa State Highway Commission)

### Pipelines Come to Iowa

Pipelines, often referred to as the “hidden industry,” constitute a specialized transportation system used for moving crude oil, gasoline and other petroleum products, liquid propane, anhydrous ammonia and natural gas. Bulk commodities such as coal slurry have also been proven suitable for pipeline movement. Maps showing pipelines in Iowa during the 1930’s and 1940’s include both liquid lines and natural gas, but the subject of this discussion is the development of the liquid lines. Natural gas pipelines are considered as a part of the energy industries of the nation whereas liquid lines have been viewed as one of the five major transportation modes. Once the initial investment is made, the advantage of the pipeline lies in the operating cost. An ICC study in 1942 reported that the cost of transporting crude oil

by pipeline was 1.98 mills per ton-mile as contrasted to 10.62 mills by railroad and 0.63 mills by tank vessels. Refined petroleum products cost 4.39 mills by pipeline, 11.19 mills by rail and 0.6 mills by tank vessels.

### A Brief History

The first oil well in the nation was “brought in” by Colonel Drake in western Pennsylvania in 1859, and the oil was transported on streams tributary to the Alleghany River, thence to Pittsburgh. But as the oil fields developed away from the rivers, horse and wagon teams were used to haul the oil to shipping points. The charges varied with distance, road conditions and the season of the year, usually averaging \$1.50 per barrel. Both teamster and water transportation were expensive and often hazardous,

creating the need for a new alternative. After experimenting, the first successful crude oil pipeline was built in 1865, consisting of two-inch pipe with a capacity of 81 barrels per hour for a distance of five miles.

The success of the line led to construction of connections to railroad terminals and/or refineries. Railroads favored pipeline development to feed their tank cars for movement to refineries on the East

Coast. By 1880, over 1,200 miles of pipelines served these regional fields; in 1900, 18,000 miles were in operation in the United States and shortly thereafter, pipelines were built from mid-continent locations and joined the eastern systems. Since the early days of the 20th century, extensions to new fields, “looping” of lines along existing routes for increased capacity, and the addition of gasoline and petroleum products resulted in systems of 120,000 miles by 1940.<sup>9</sup>

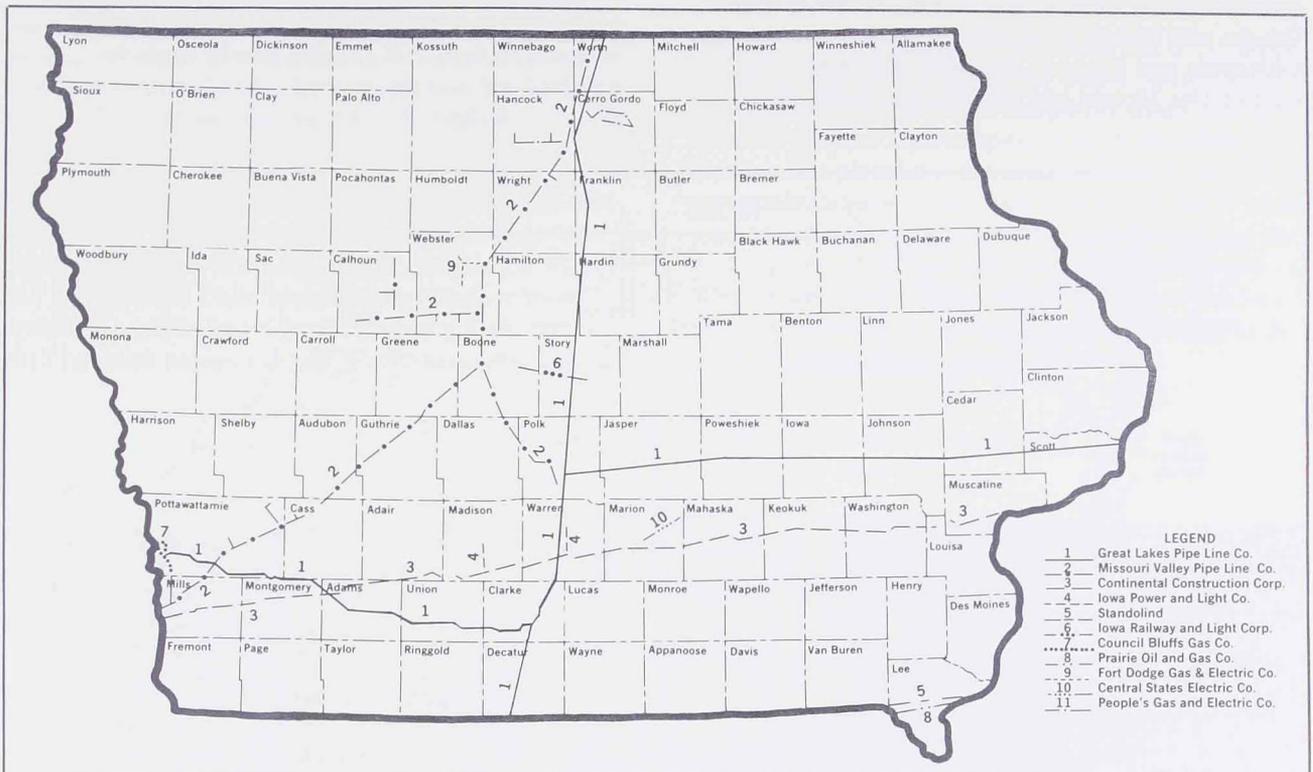


Figure 8-4  
Natural gas, manufactured gas, and gasoline pipelines in Iowa, 1931.  
(Courtesy: Iowa Development Commission)

<sup>9</sup> H. J. Struth, ed., *The Petroleum Data Book: Official Source Book of Information for the World's Oil and Gas Industry*, Dallas, Tex.: Petroleum Engineer Pub. Co., 1947. Pipelines are generally divided into three categories: gathering lines, crude trunk lines and gasoline or products lines. Gathering lines are usually two to four inches in diameter and “gather” the oil from leased tanks which have received the oil from producing wells through “lead” lines. Trunk lines are the main lines of the system, normally ranging from six to 16 inches in diameter. During World War II, a crude line of 24 inches was built from Longview, Texas to Phoenixville, Pennsylvania, and a products line of 20 inches from Beaumont, Texas to Linden, New Jersey. Pipe of 42 inches was used in the 1960's, and 48-inch pipe was proposed for the Trans-Alaska pipeline.

The ICC was given regulatory control over interstate pipeline transportation of property other than gas or water in the Hepburn Act of 1906. In Iowa, the General Assembly conferred on the railroad commission jurisdiction over pipeline companies in order that they may be of "safe and proper construction, operation and maintenance in the state"<sup>10</sup> but gave no control over rates. The Great Lakes Pipeline System (now the Williams Pipe Line Company) was the first "products" line approved for construction in 1931, with terminals at Des Moines, Omaha and later at Coralville. From Barnsdall, Oklahoma and Kansas City, eight-inch lines were built to Des Moines and six-inch lines from Des

Moines to Minneapolis and Chicago. At Mason City, the first terminal to serve trucks rather than rail cars was opened in 1944. Other lines were built in the state in the 1930's and 1940's (Fig. 8-4, 8-5).

**River Developments Affecting Iowa Locks, Dams, and the Nine Foot Channel on the Mississippi**

Despite the fact that river transportation had been declining for many years, the inland waterways were considered to have tremendous potential as an inexpensive facility if channel depths could be standardized and maintained. The champion of this idea was Herbert Hoover, who as Secretary of

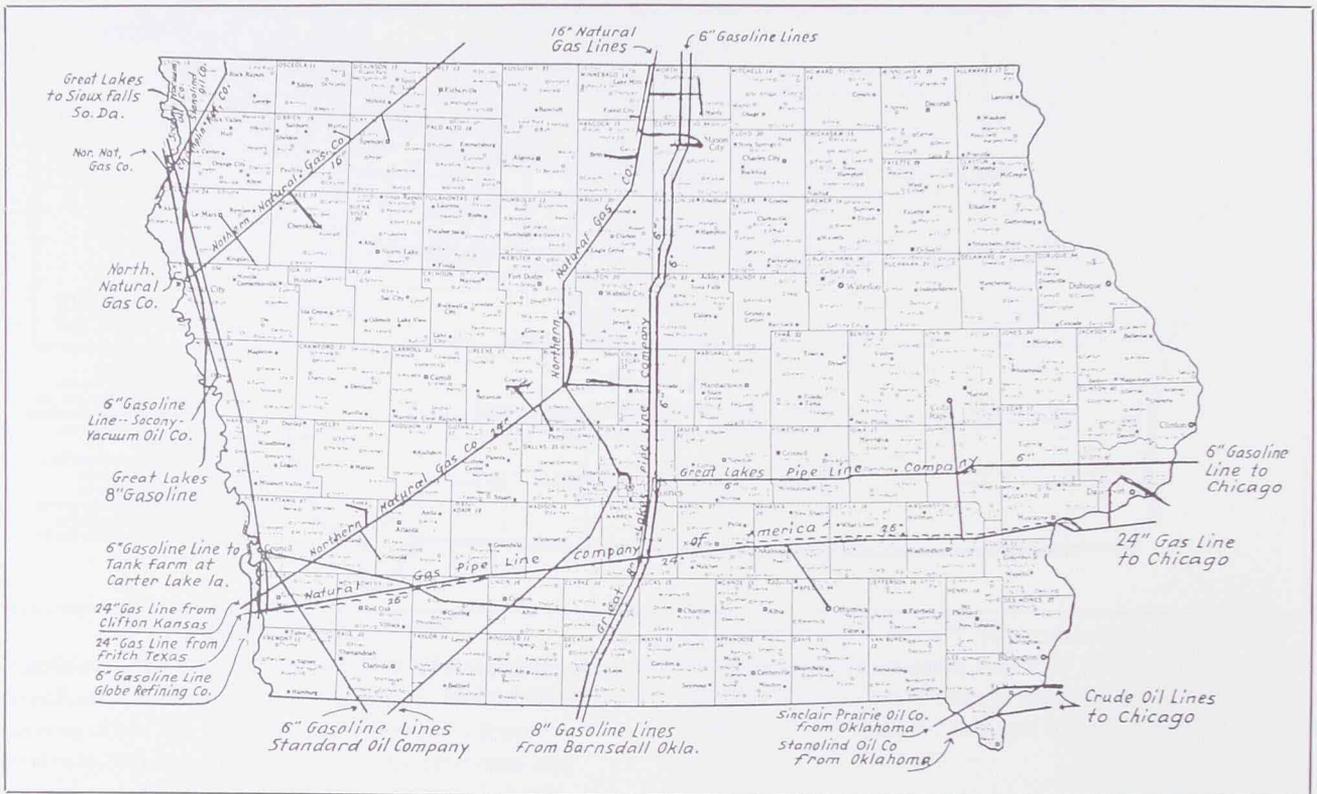


Figure 8-5  
Natural gas and gasoline pipelines.  
(Courtesy: Iowa Development Commission)

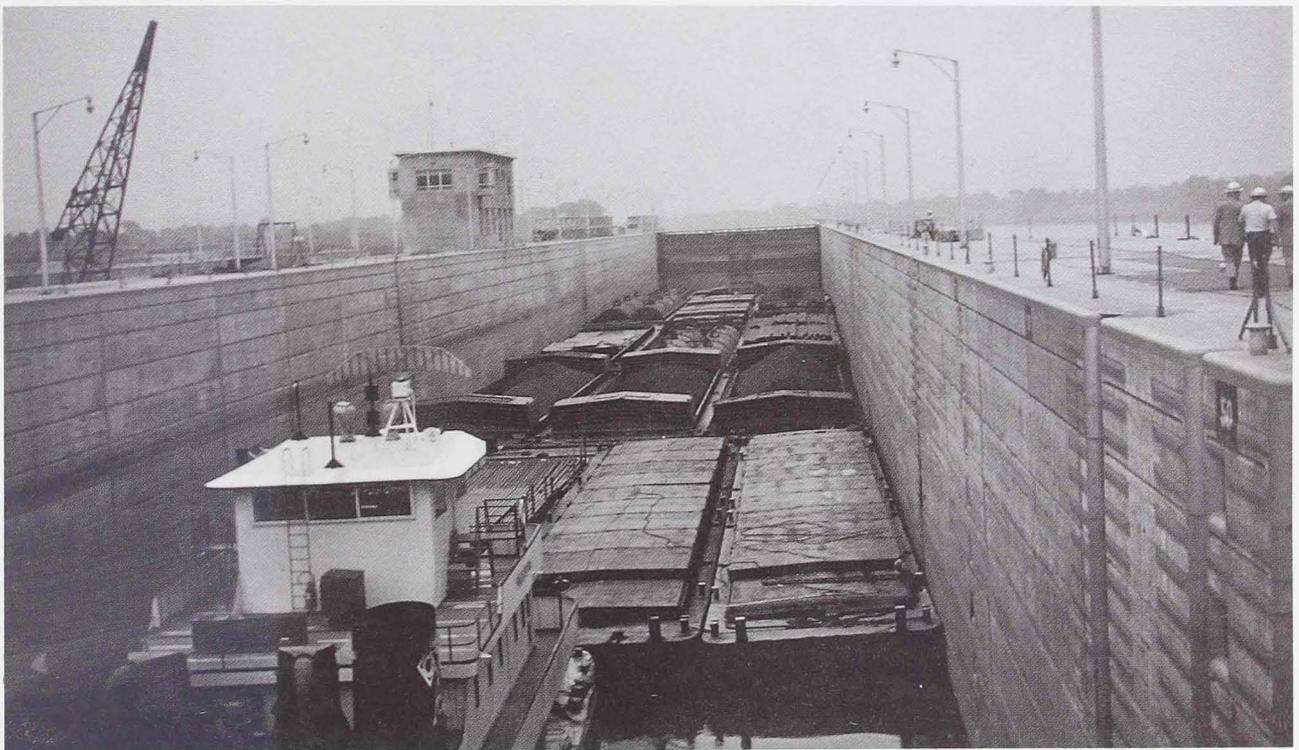
<sup>10</sup> 1931 Laws of Iowa, Chapter 383. Declared unconstitutional by the Iowa Supreme Court in State of Iowa Ex. Rel. Board of Railroad Commissioners of the State of Iowa v. Stanoland Pipeline Company, 249 N.W. 366 (1933). Another law, Chapter 10, Acts of the 45th General Assembly, became effective March 24, 1934.

Commerce visualized an inter-connected river system of 9,000 miles. It would consist of a north-south trunk line of 1,900 miles from New Orleans to Chicago, there to link with the Great Lakes; an east-west trunk line of 1,000 miles from Pittsburgh through Cairo, Illinois to Kansas City, and feeder lines on the Upper and Lower Mississippi tributaries, the Ohio and Missouri Rivers. A nine-foot canalization of the Ohio River had been completed in 1929, but the deep draft barges and tows were unable to navigate the Upper Mississippi. As a result, commercial interests along the route, led by the Chambers of Commerce in Minneapolis and St. Paul and firms producing and marketing bulk commodities, brought pressures on Congress to create a standard channel depth throughout the entire Mississippi River system.

There were two sections of the Upper Mississippi that could not be improved by construction of wing dams. One was a stretch of shallow water between St. Paul and St. Anthony Falls where a lock and dam were opened for traffic in 1907, replaced by a high dam in 1917 for both navigation and power to the Twin

Cities industries. Another section was at Rock Island where the rapids were still obstructing traffic up river. A lock and dam was completed in 1907 which allowed the Moline farm equipment industry better access to water transportation and was used extensively for a few years. A second lock and dam was built by the Keokuk and Hamilton Water Power Company and opened in 1913. It replaced three locks in the Des Moines River Canal, deepened the river channel for 50 miles upstream and created a pool which covered the entire rapids.

On July 3, 1930, Congress authorized the U. S. Army Corps of Engineers to make the Upper Mississippi a commercial waterway, a development which was to have a profound impact upon Iowa. A nine-foot channel was planned without surveys or recommendations of the Engineers or one based upon economic feasibility studies. The legislation called for construction of 26 new locks and dams from Minneapolis to St. Louis, one of the largest public works projects up to that time and unprecedented in water resource development. The dams at

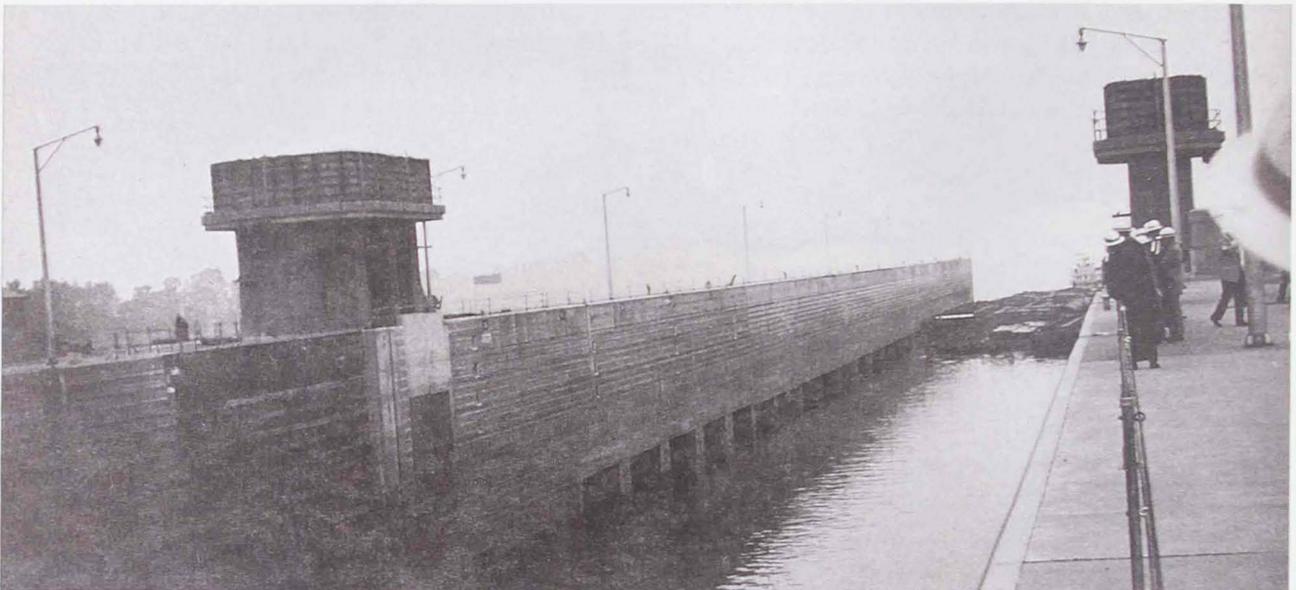


Locking through on the Mississippi.  
(Courtesy: Author)

Minneapolis (No. 1) and at Keokuk (No. 19) were already in place, and the lock and dam at Hastings (No. 2) was opened in 1930. All locks in the Rock Island District were a uniform 110 x 600 feet except for Lock 19 at Keokuk which was 110 x 358 feet until replaced with a new lock in 1957. The dams were to be spaced at intervals of 9.6 to 43.3 miles, equipped with gates to provide for series of lakes (slack pools) to insure adequate depths for navigation in low water. The channel was to be maintained to minimum widths of 300 feet up to Hastings, 200 feet to St. Anthony Falls and 100 feet for the remainder of the waterway.

Opposition to deepening the channel came from environmental, recreation and sportsmen's groups who claimed that "a succession of stagnant or

sluggish pools fed by sewage disposal plants would cause oxidation and diminish fish and wildlife populations."<sup>11</sup> But the Engineers worked closely with these organizations to ensure the continued maintenance and further development of recreational areas. Roller and Tainter gates were installed to permit migration of fish, to allow passage of silt and sewage, to help aerate the water for adequate oxygen levels and to stabilize water levels in the pools. In addition to the gates, dikes and spillways were provided wherever necessary. Because shorelines changed most above the dams and least below them, the dams were located above river towns to control changes in water fronts. The cooperation of the Engineers brought support from organizations who had originally opposed the nine-foot channel.<sup>12</sup>



Locking through on the Mississippi.  
(Courtesy: Author)

<sup>11</sup> Raymond Merritt, "The Development of the Lock and Dam System on the Upper Mississippi River." Paper given at the National Waterways Round Table, Norfolk, Virginia, April 22-24, 1980, p. 15.

<sup>12</sup> Roald D. Tweet, *A History of the Rock Island District U.S. Army Corps of Engineers, 1866-1983*, Rock Island, Ill.: U.S. Army District, Rock Island, 1984, pp. 263-265. Roller gates developed in Germany were still under patent when the dams were built; and Tainter gates of French design could be moved vertically to control the level of water passing underneath. Tainter gates were used wherever possible as they were cheaper to construct and did not require royalty payments.

Within ten years, 1930-1940, 24 low-level dams were built and the nine-foot channel was completed. Construction was planned in the order of the seriousness of problems with the first at No. 15, located at the foot of the Rock Island Rapids where navigation was still impeded in 1930, completed in 1934. No. 14 at Le Claire was among the last. Of the others, one had been built in 1930, two in 1935, three in 1936, six in 1937, six in 1938, four in 1939 and one in 1940. Those along the Iowa and Illinois shores were at or near Guttenberg (No. 10), Dubuque (No. 11), Bellevue (No. 12), Clinton (No. 13), Le Claire (No. 14), Rock Island (No. 15) Muscatine (No. 16), New Boston (No. 17), Burlington (No. 18), and Keokuk (No. 19) (Fig. 8-6, 8-7).

Construction costs for the lock and dam system and nine-foot channel were funded through regular River and Harbor appropriations. Additional funds came from the National Industrial Recovery Act and the Federal Emergency Administration of Public Works. In 1935, the River and Harbor bill of August 20, authorized appropriation of sufficient funds to complete the project, and by 1940, more than \$170 million had been spent (Fig. 8-8, Table 8-5). Even before the new channel was completed, traffic on the Upper Mississippi began to increase. In 1935, commercial movements between Minneapolis and the mouth of the Missouri were 804,490 tons up river and 739,505 tons down river. Comparable tonnage in 1940 was 2.23 million tons up river and 1.27 million tons down river.

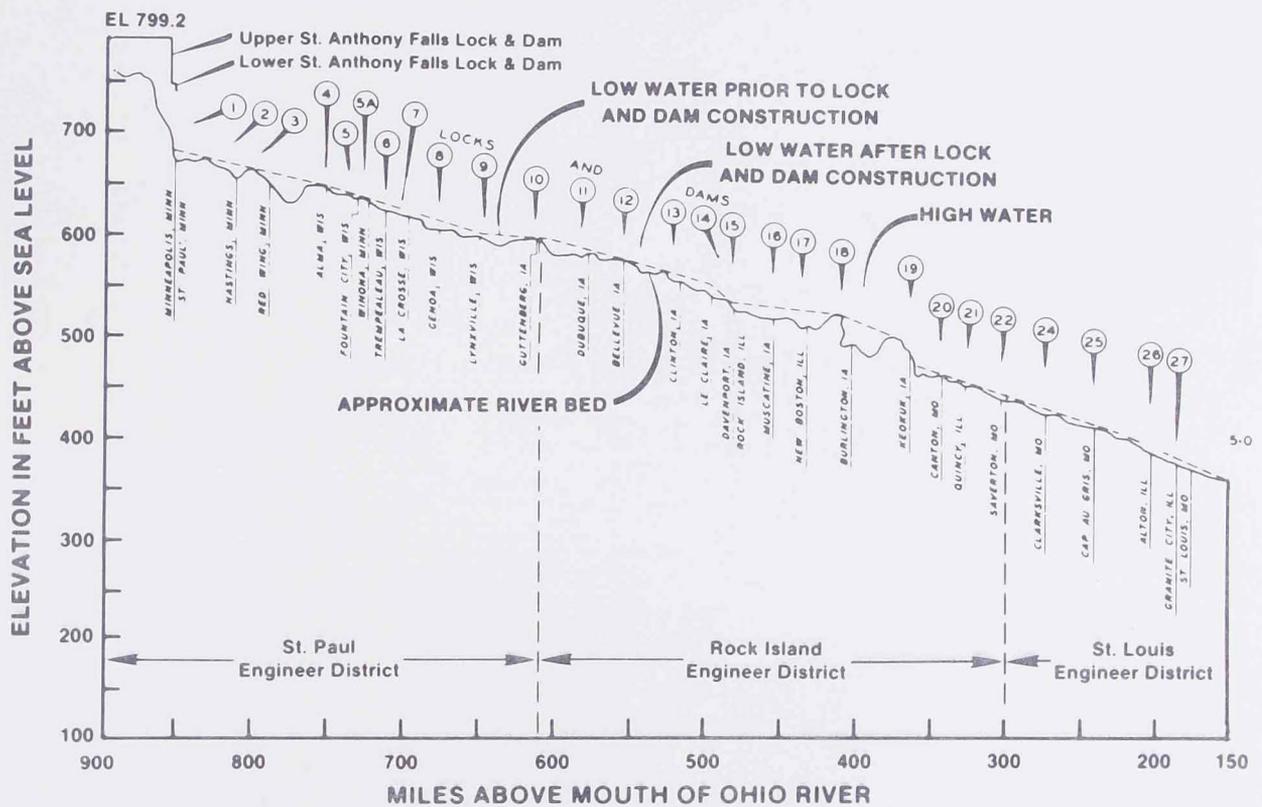


Figure 8-8  
Mississippi stairway of water.  
(Courtesy: U.S. Army Corps of Engineers, Rock Island District)



Figure 8-6

River chronology.

(Courtesy: U.S. Army Corps of Engineers as published in Quimby's Harbor Guide, 1984.)



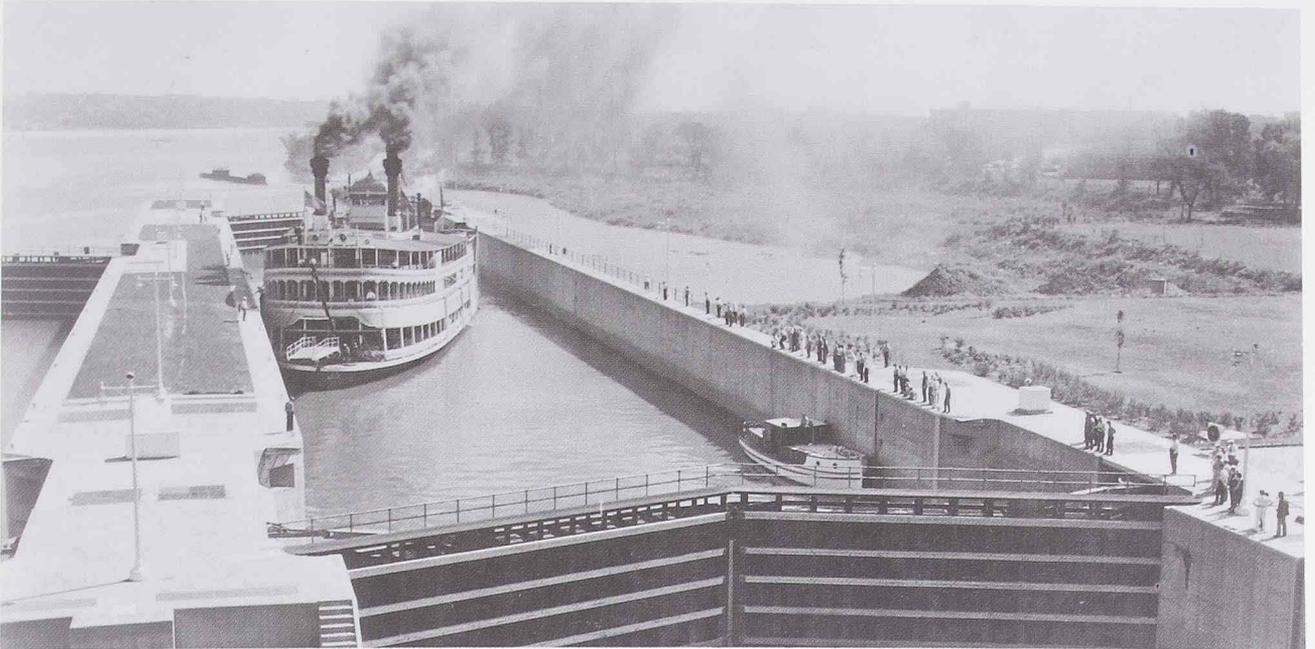
## LOCKS AND DAMS - UPPER MISSISSIPPI RIVER

Lock and Dam	Miles Above Ohio River	Miles from Nearest Town	Lock Dimensions					Year Opened to Navigation	Estimated Cost (Millions) of Each Lock and Dam Including Work in Pool	1977 Tonnage (millions)
			Width of Chamber (feet)	Length of Chamber (feet)	Lift (feet)	Upper (feet)	Lower (feet)			
USAF	853.9	In city of Minneapolis, Minn.	56	400	49.2	15.7	13.7	1963	18.2	2.1
LSAF	853.3	In city of Minneapolis, Minn.	56	400	26.9	13.7	10.3	1963	12.4	2.8
No. 1	847.6	Minneapolis-St. Paul	56 56	400 400	35.9 35.9	13.5 12.5	10.1 7.6	1917	2.4	2.9
No. 2	815.2	1.3 above Hastings, Minn.	110 110	500 600	12.2 12.2	16.0 22.2	15.1 13.0	1930 1948	6.5	11.0
No. 3	796.9	6.1 above Red Wing, Minn.	110	600	8.0	17.0	14.0	1938	7.5	10.5
No. 4	752.8	Alma, Wis.	110	600	7.0	17.0	13.0	1935	4.9	11.0
No. 5	738.1	Minneiska, Minn.	110	600	9.0	18.0	12.0	1935	5.1	11.0
No. 5A	728.5	3 above Winona, Minn.	110	600	5.5	18.0	12.5	1936	7.0	11.0
No. 6	714.3	Trempealeau, Wis.	110	600	6.5	17.0	12.5	1936	4.9	11.6
No. 7	702.5	Dresbach, Minn.	110	600	8.0	18.0	12.0	1937	5.6	11.6
No. 8	679.2	Genoa, Wis.	110	600	11.0	22.0	14.0	1937	6.1	11.9
No. 9	647.9	3.3 below Lynxville, Wis.	110	600	9.0	16.0	13.0	1938	6.5	13.0
No. 10	615.1	Guttenberg, Iowa	110	600	8.0	15.0	12.0	1937	4.8	13.7
No. 11	583.0	3.7 above Dubuque, Iowa	110	600	11.0	18.5	12.5	1937	7.4	14.7
No. 12	556.7	Bellevue, Iowa	110	600	9.0	17.0	13.0	1938	5.6	15.1
No. 13	522.5	4.3 above Clinton, Iowa	110	600	11.0	19.0	13.0	1939	7.5	15.2
No. 14	493.3	3.7 below Le Claire, Iowa	110	600	11.0	20.5	13.5	1939	6.3	17.4
Le Claire lock (Canal)	493.1	3.9 below Le Claire, Iowa	80	320	11.0	17.6	10.9	1922		
No. 15	482.9	Foot of Arsenal Island, Rock Island, Ill.	110 110	600 360	16.0 16.0	24.0 17.0	11.0 11.0	1934 1934	10.5	18.0
No. 16	457.2	1.8 above Muscatine, Iowa	110	600	9.0	17.0	12.0	1937	9.8	19.8
No. 17	437.1	4.2 above New Boston, Ill.	110	600	8.0	16.0	13.0	1939	5.8	20.2
No. 18	410.5	6.5 above Burlington, Iowa	110	600	9.8	16.5	13.7	1937	10.3	20.8
No. 19	364.2	Keokuk, Iowa	110 110	358 1,200	38.2 38.2	14.0 15.0	9.2 13.0	1913 1957	14.8	21.0
No. 20	343.2	0.9 above Canton, Mo.	110	600	10.0	15.0	12.0	1936	6.3	23.0
No. 21	324.9	2.1 below Quincy, Ill.	110	600	10.5	16.5	12.0	1938	8.1	23.9
No. 22	301.2	1.5 below Saverton, Mo.	110	600	10.2	18.0	13.8	1938	5.3	24.3
No. 24	273.4	Clarksville, Mo.	110	600	15.0	19.0	12.0	1940	8.3	25.1
No. 25	241.4	Cap Au Gris, Mo.	110	600	15.0	19.0	12.0	1939	10.9	25.1
No. 26	202.9	Alton, Ill.	110 110	600 360	24.0 24.0	19.0 16.0	10.0 10.0	1938 1038	12.8	58.4
No. 27	185.4	Granite City Ill.	110 110	1,200 600	10.5 10.5	15.0 15.0	16.0 16.0	1953 1953	63.9	64.3

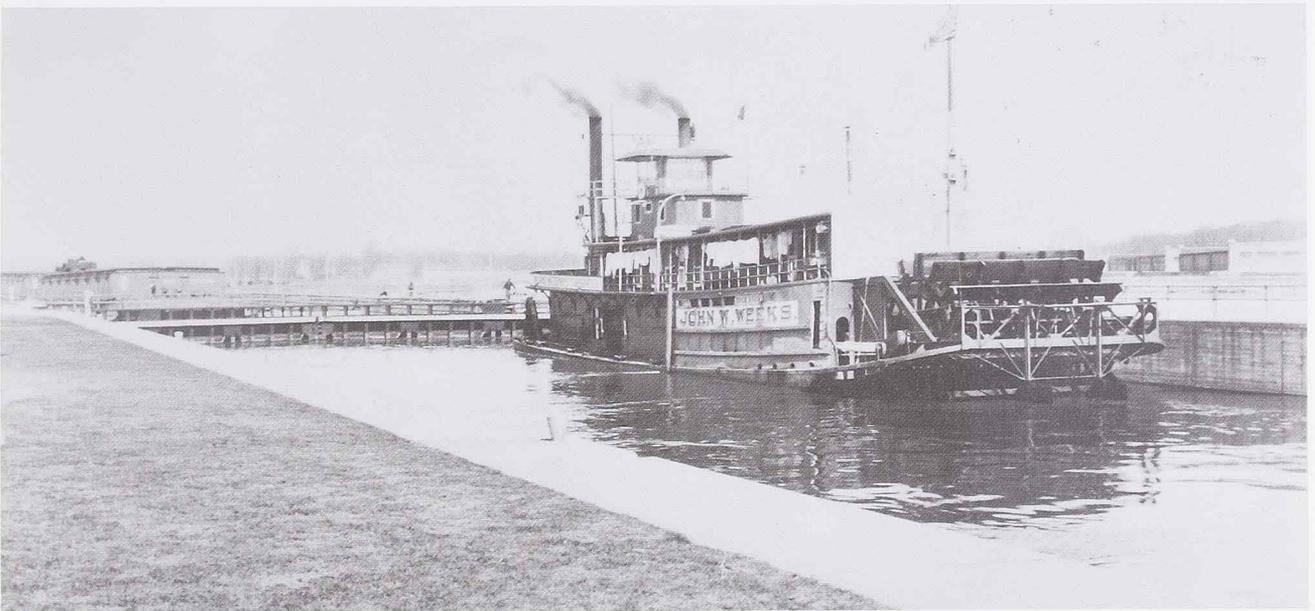
\*Inoperable

Source: U.S. Army Corps of Engineers

Table 8-5



Mississippi River Lock & Dam No. 15. Naval Reserves boat and Str. J.S. locking through, 1933.  
(Courtesy: U.S. Army Corps of Engineers, Rock Island District)



Mississippi River Lock No. 15. *John W. Weeks* with tow above, 1936.  
(Courtesy: U.S. Army Corps of Engineers, Rock Island District)



Mississippi River Lock No. 15. Federal Barge Line steamer *Mark Twain* with tow entering main lock, 1936.  
(Courtesy: U.S. Army Corps of Engineers, Rock Island District)

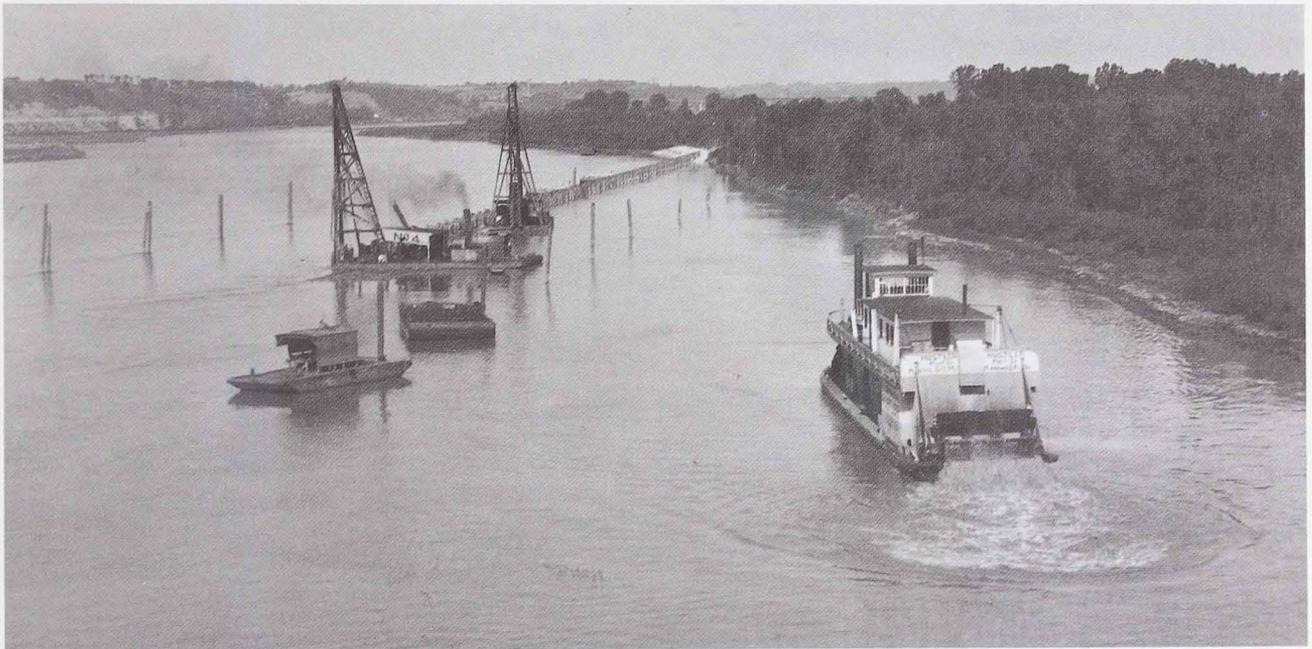


Mississippi River Lock No. 15. Looking downstream at tow of freight leaving Lock No. 15, 1937.  
(Courtesy: U.S. Army Corps of Engineers, Rock Island District)

### Multi-Purpose River Planning—The Missouri

For many years, debates raged over river basin resource management. River development was considered broadly associated with water resource issues such as flood control, water supply, irrigation, recreation, land reclamation and hydro-electric power generation in addition to navigation. To be determined were policies relating to the full development of the rivers for possible regional or national advantage as against proposals to limit development for a primary and specific use. The major purpose of the lock and dam improvement on the Upper Mississippi was to further the economic

welfare of shippers and urban communities. “The vision of the supporters was improvement of navigation and restoration of the golden years of waterborne commerce that historically had made the cities and towns along the River the cultural and economic crossroads of the Mississippi Valley Basin. The means was controlled by political power, not technological knowledge or environmental priorities.”<sup>13</sup> However, in the case of the Missouri River, there were major concerns over reserving the water for upstream irrigation, downstream navigation, and flood control over considerable lengths of the river.



Towboat *Hustler*, 1934.

(Courtesy: U.S. Army Corps of Engineers, Omaha District)

<sup>13</sup> Merritt, p. 21. Tweet quoted Merritt who suggested that success in obtaining the nine-foot channel on the Upper Mississippi was a victory “in which glory was shared by President Hoover, his Secretary of War, the Mississippi Valley Association, the Minneapolis Improvement Commission and Congressional representatives from Minnesota.” Tweet, p. 82.

The Roosevelt Administration sought to promote widespread development of several river basins, including the Missouri. The Tennessee Valley Authority, created in 1933, became the best known national example of multi-purpose river planning. In 1936, under provisions of the Flood Control Act, the primary but not sole responsibility for river development was given the Corps of Engineers and included the concept of river basin organization and management for the complete use of all water resources. The legislation promised relief from perennial problems in the Missouri River Basin, provided that comprehensive engineering plans were approved and appropriate construction programs authorized.

Economic conditions in the Missouri Valley prompted the federal government to move quickly with river development plans. Agricultural income had declined as had wages and employment in the industrial sector. Farmers left the land, causing a migration from the Basin. The eastern area with fertile soil, adequate rainfall and large cities was relatively stable, but the western area was subject to

periodic droughts and the necessity to irrigate crops, and much of the soil was adequate only for pasture. Industrial production centered on oil, copper, coal and phosphates, but not to the extent that the unemployed workers could be absorbed. Levees built along the river's edge to control the continuous flooding proved inadequate, soil and crop losses mounted, and urban communities suffered in the middle and lower river valley. Reservoirs were thought to be more effective and had the additional potential to provide hydroelectric power and water for irrigation. The possibility of water resource use to reverse the worsening economic conditions led to the creation of the Mississippi Valley Committee in 1934. Morris L. Cooke, Chairman, was a strong advocate of multi-purpose planning, and his report recommended full development of the Mississippi and its tributaries for all phases of river use. Centralized planning and coordinated development were basic to his proposals which did not achieve immediate success. Not until severe floods occurred on the Missouri in 1943 were serious efforts made for river improvements in the Missouri Valley.



Dredge *Meriwether Lewis*, 1938.  
(Courtesy: U.S. Army Corps of Engineers, Omaha District)

### Aviation Activity

Organization of flying and glider clubs and schools, supported by the National Aeronautics Association (NAA), offered individuals an opportunity to pursue aeronautical interests. In the late twenties, there were nine chapters of the NAA in Iowa whose major objectives were promotion of aviation, sponsorship of air meets and furnishing speakers to civic groups. Notable among these were the clubs in Ames, Dubuque, Waterloo, Cedar Rapids, Hampton and Orient. Others were the Aero Club of Des Moines, the Iowa Chapter of Ninety-Niners, the Southwest Pilots Association and the Iowa Airport Managers Association. Aircraft used in private and corporate businesses became an important phase of air traffic in the 1930s. Among firms involved were the Des Moines Register, the Automatic Washing Machine Company of Newton, the Morrell Company of

Ottumwa and radio station WMT at Waterloo.

### Airports and Pilots

In 1934, the state had nine municipal, 16 commercial and 36 private airports or landing fields of which 18 were partly or fully lighted. Four years later, 18 municipal and 14 commercial airports gave Iowa a ranking of 24th in the nation. Airport expansion resulted in an increase in the number of pilots and from 191 registered in 1937, the total rose to 471 in 1939. In that year, Sheldon had more registered pilots per 1,000 population than any city in the nation. The numbers continued to climb in the early forties when 1,882 were registered in 1941, nine of which had limited commercial licenses and five had transport licenses. World War II virtually stopped civilian flying.

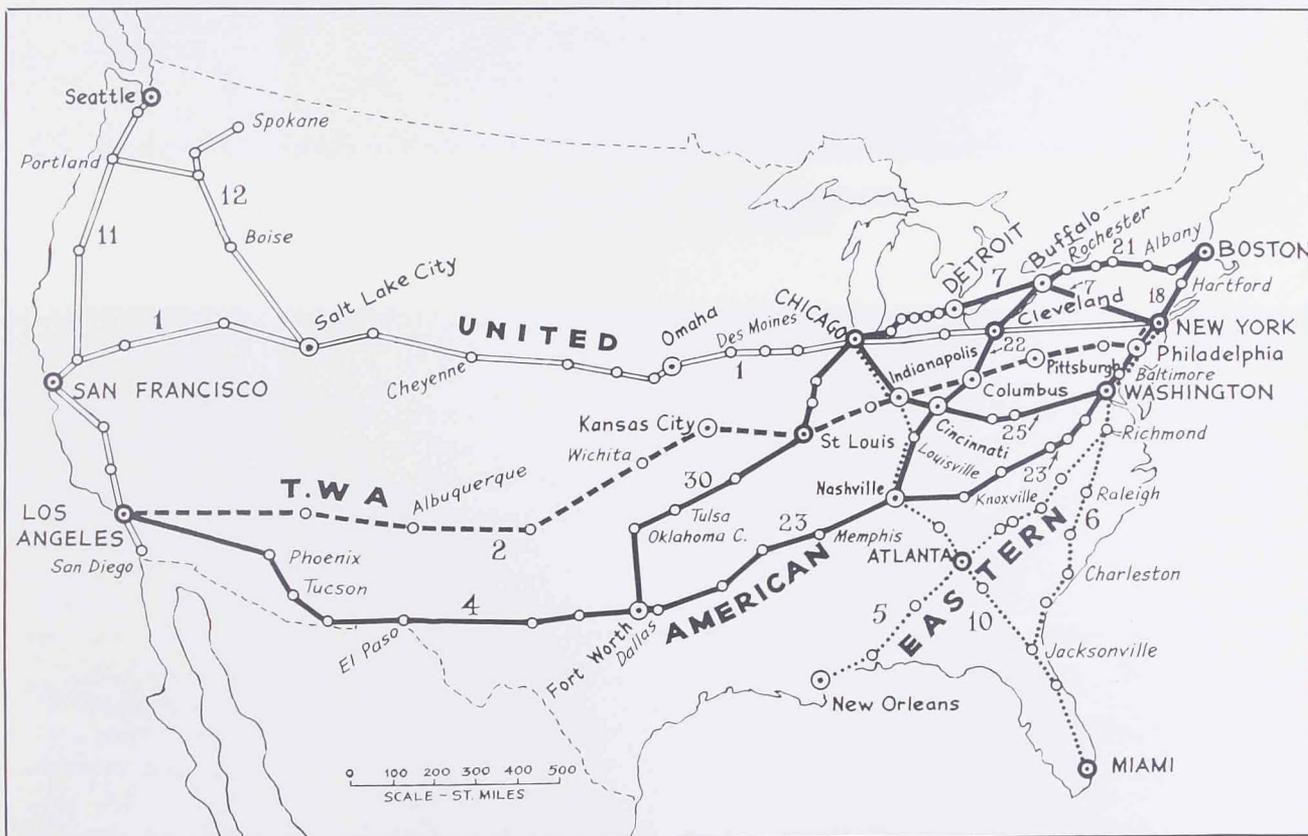


Figure 8-9  
Trunk airline mail routes, 1934 (the Big Four).  
(Courtesy: R. E. G. Davies Collection)

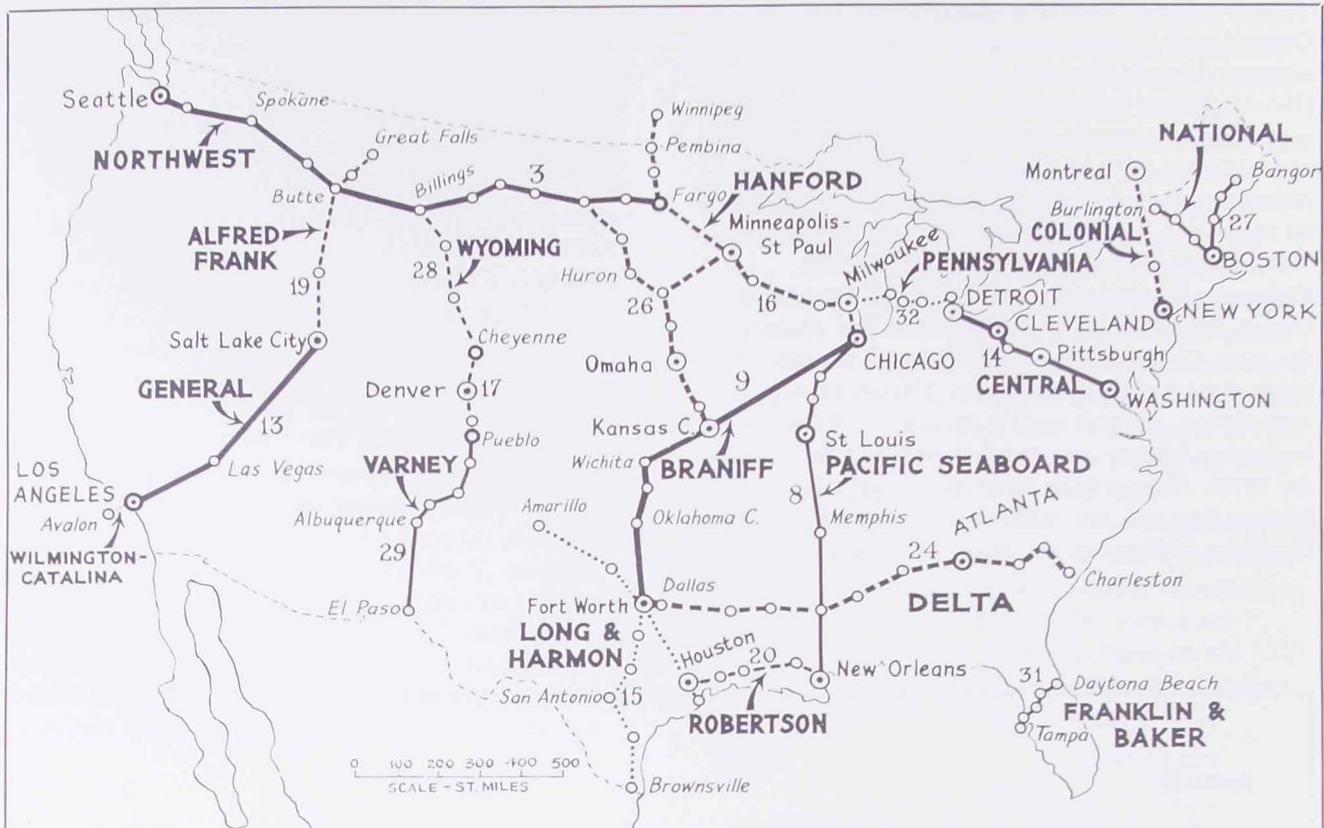


Figure 8-10

Trunk airline mail routes, 1934 (excluding the Big Four).  
(Courtesy: R. E. G. Davies Collection)

### Iowa-Based Airlines and Commercial Service

Except for one airline initiated by Iowans or serving Iowa cities, scheduled intrastate and regional service was not a successful venture. Mid West Airlines, owned by John Livingston, operated the first scheduled airline in Iowa, flying between Waterloo and Des Moines. The daily-except-Sunday service began in 1928, charging one-way fares of \$10 and \$18 for the round trip. Yellow Cab Airways, owned by Russell Reel of Des Moines, president of Yellow Cab Company and Aviation School, started scheduled flights between Kansas City, Des Moines and Minneapolis in May, 1929, and ceased operations in September. Eagle Airlines, based in Kansas City, operated through Des Moines to Minneapolis from August to November, 1930.

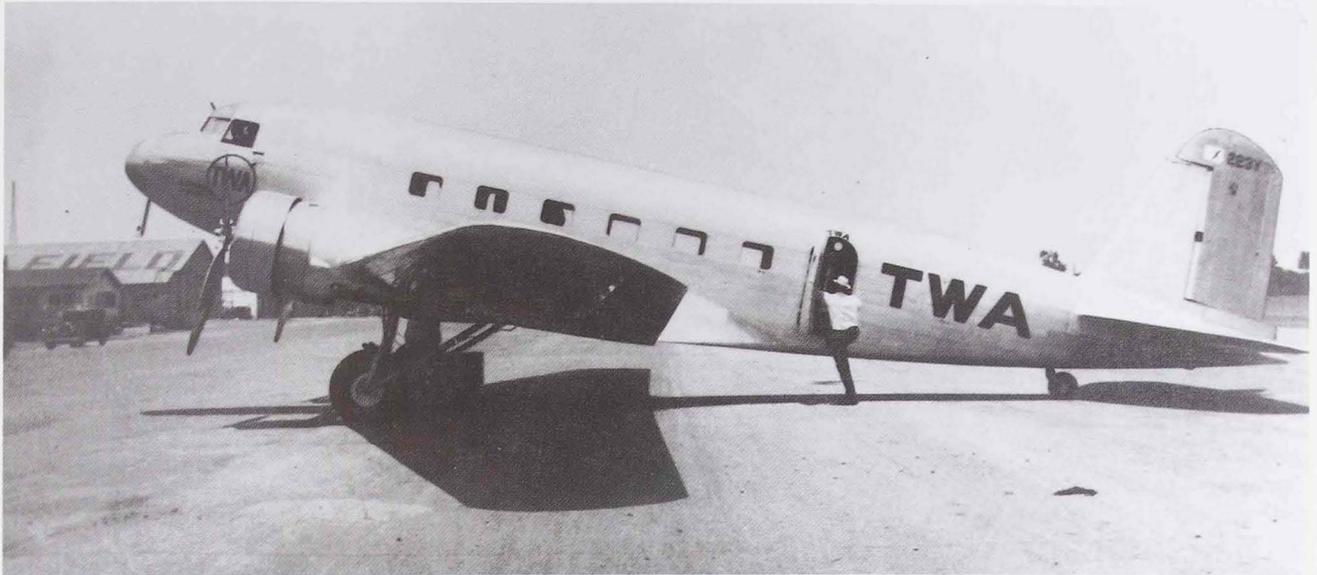
More successful was Tri-States Airline, owned by Arthur S. Hanford of Sioux City, who began charter

service between Omaha, Sioux City, Bismark and St. Paul in 1928 and was certified for daily service between Sioux City and Omaha in 1933. Following a merger and reorganization, the airline emerged as Mid Continent in 1938, the name more appropriately describing the route structure, part of which had been purchased by Northwest Airlines in 1934. One year later, Braniff, Northwest and Mid Continent sought approval for the north-south route through Des Moines, awarded by the CAA to Mid Continent in 1940. Their schedule included regular service to Mason City, and at Des Moines one route went to Kansas City and another to St. Louis with an intermediate stop at Ottumwa. The airline flew Lockheed Lodestars which could carry 14 passengers in addition to mail and express. The airline was sold to Braniff in 1952 (Fig. 8-9, 8-10).

Airline passenger travel from Des Moines and Iowa

City increased substantially in the 1930s. In June, 1935, United Airlines had two daily eastbound planes stopping at Des Moines, and in 1936 the city was included on a new international route via United to the West Coast and Pan American to Hawaii and Manila, in the Philippines. Three daily eastbound and

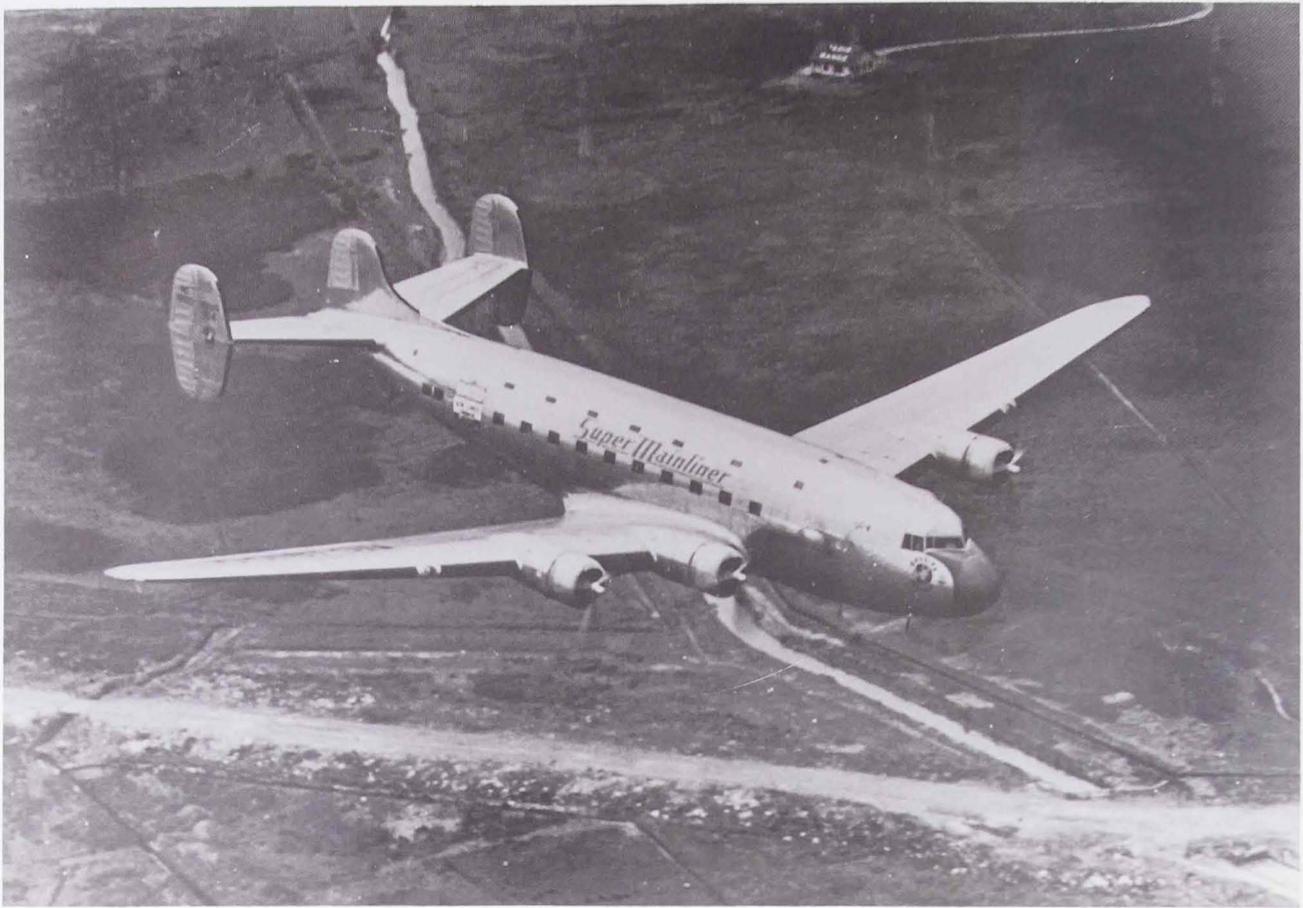
two daily westbound flights were initiated in 1940, using Douglas DC-3's. Requisitions for planes and pilots during the war and priorities for government and military personnel seriously restricted civilian accommodations.



The Douglas DC-1, ancestor of all Douglas airliners.  
(Courtesy: R. E. G. Davies Collection)



United Airlines Twin Wasp powered Douglas DC-3.  
(Courtesy: R. E. G. Davies Collection)



United Airlines Douglas DC-4E, 1939.  
(Courtesy: R. E. G. Davies Collection)

### Summary

Economic activity in Iowa at the onset of the depression was almost equally divided between agriculture and manufacturing. Railroads operated over 10,000 miles of track, and private and commercial motor carriers served communities located on over 100,000 miles of roads and highways. The agricultural crisis of the early 1930s, precipitated by the depression and lack of recovery from post-World War I years, influenced operations of both major carriers. Despite emergency legislation by the federal government, the majority of railroads operating in Iowa were forced into receivership, and the pace of highway construction was slowed materially. Intense intermodal competition brought motor carriers under federal regulation in 1935, followed by regulation of commercial airlines in 1938.

Pipelines moving liquid products began service in the early 1930s, and inland waterway improvements in the form of lock and dam construction standardized channel depths of the Mississippi River and commercialized the Upper Mississippi section. Multi-purpose use of water resources was studied as a means of relieving critical economic conditions in the Missouri Valley. Aviation development consisted of increased civilian and business flying, expansion of airports and commercial airline schedules. The impact of the depression on transportation modes, as evidenced by federal, state and private concerns, appeared to indicate a growing awareness of the need for development of additional facilities, a more favorable balance in traffic potential and increased opportunities for public and private selection and use of the various transportation systems.

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