The Palimpsest

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THE PURPOSE OF THIS MAGAZINE

THE PALIMPSEST, issued monthly by the State Historical Society of Iowa, is devoted to the dissemination of Iowa History. Supplementing the other publications of this Society, it aims to present the materials of Iowa History in a form that is attractive and a style that is popular in the best sense—to the end that the story of our Commonwealth may be more widely read and cherished.

BENJ. F. SHAMBAUGH

THE MEANING OF PALIMPSEST

In early times a palimpsest was a parchment or other material from which one or more writings had been erased to give room for later records. But the erasures were not always complete; and so it became the fascinating task of scholars not only to translate the later records but also to reconstruct the original writings by deciphering the dim fragments of letters partly erased and partly covered by subsequent texts.

The history of Iowa may be likened to a palimpsest which holds the records of successive generations. To decipher these records of the past, reconstruct them, and tell the stories which they contain is the task of those who write history.

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THE PALIMPSEST

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A Century of River Traffic

Churning her way over two treacherous rapids, past a blazing forest fire and across a storm-tossed lake, the first steamboat to navigate the Upper Mississippi above what is now Keokuk reached Fort Snelling on May 10, 1823. Built at Wheeling, now in West Virginia, in 1819, the *Virginia* was a small 109-ton sternwheeler. She had a cabin on deck but no pilot house, being guided by a tiller at the stern.

The *Virginia* required twenty days to make the 664-mile trip from Saint Louis to Fort Snelling. She grounded on a number of sandbars and spent about five days getting over the Des Moines and Rock Island rapids. Wood was burned for fuel and the boat lay over frequently while fresh supplies were cut. Major Lawrence Taliaferro, the Indian agent at Fort Snelling, Giacomo C. Beltrami, an Italian exile and adventurer, Great Eagle, a Sauk Indian chief, an unnamed woman missionary, and a Kentucky family bound for the

lead mines of Galena were the only passengers known to have been aboard the boat.

The voyage of the *Virginia* established the practicability of navigating the Upper Mississippi by steamboat. In the years that followed, the river became the main artery along which the great waves of immigration moved steadily into the Upper Mississippi Valley. Approximately twenty-seven hundred different vessels are known to have plied the Upper Mississippi since the epoch-making voyage of the *Virginia* in 1823. Hailing from Saint Louis, Louisville, and Cincinnati, from distant New Orleans and Pittsburgh, these steamboats performed yeoman service in developing a mighty inland empire.

A century and a half of waterways transportation had preceded the voyage of the *Virginia* in 1823. The era of the canoe is in many respects the most colorful period in Iowa history. On June 17, 1673, Jolliet and Marquette paddled out of the mouth of the Wisconsin into the broad expanse of the Mississippi and began their epoch-making voyage down the Father of Waters. By canoe in 1680 came the courageous Michel Aco, with Louis Hennepin and Antoine Auguel, to explore the Upper Mississippi. Jonathan Carver and Peter Pond, two Connecticut Yankees, both used the canoe to reach the Iowa country on the

eve of the American Revolution. Julien Dubuque skimmed back and forth in his canoe between his lead mines and Saint Louis.

The canoe served as the prime mode of transportation in Iowaland in both the Revolutionary War and the War of 1812. It was used in a variety of ways by the pioneers. The fur trader and the Indian, the explorer and the missionary, still used the canoe on the Mississippi and Missouri rivers and their tributaries for more than a generation following the voyage of the *Virginia* in 1823. In the fall of 1835 Lieut. Albert M. Lea explored the Des Moines River below the Raccoon Fork in a cottonwood canoe. Father Mazzuchelli crossed the Mississippi in a leaky dugout canoe to visit the lead miners in the vicinity of Dubuque.

A number of craft of the pre-steamboat era were closely related to the canoe. The bateau and the mackinaw boat were well known to the French fur traders and voyageurs who plied the Fox-Wisconsin route to the Upper Mississippi during the canoe period. The bullboat, a round tub-like craft made of buffalo skins stretched over a circular frame, was common on the Missouri. Such craft persisted on the Mississippi-Missouri system after the white tide broke into Iowaland, but they were not used very often by the land-

seekers who filtered into the Black Hawk Purchase or along the Missouri slope.

The flatboat, the keelboat, and the barge were valuable to the early pioneers, but these were little used in Iowaland because the steamboat had already largely taken over river traffic by 1833 when settlement began in Iowa. The flatboat preceded the barge and the keelboat on the Ohio and Lower Mississippi, but it appears that the latter two craft preceded the flatboat on the Upper Mississippi. This was due to the fact that the flatboat was primarily for downstream traffic, while the barge and the keelboat, together with the steamboat, provided the best mode of upstream travel for settlers and their agricultural equipment.

Lewis and Clark and Zebulon M. Pike used keelboats in their expeditions. In 1823 Moses Meeker brought two score settlers to the Fever River settlement in the keelboat *Colonel Bomford,* a larger number than the steamboat *Virginia* transported the same year on her long upstream voyage. Keelboats were used on the Des Moines and the Iowa-Cedar, but never in large numbers. The advent of the steamboat soon eliminated keels and barges although they were frequently towed by steamboats in the lead trade.

Once the settlers were located on the minor streams of Iowa, such as the Turkey, the Ma-

quoketa, and the Wapsipinicon, they built flatboats to transport their produce downstream to market. "No better evidence of the prosperity of the Territory can be given", the Burlington *Hawkeye* declared on November 19, 1840, "than is seen in the numerous covered flatboats that are daily going down stream, laden with all kinds of produce, animal and vegetable. Upwards of one hundred boats of this description have already passed Burlington."

For forty years prior to the Civil War the steamboat was the emblem of transportation and communication in Iowaland. Although no hard and fast lines definitely divide the history of steamboating on the Upper Mississippi, six distinct periods stand out in fairly bold relief. The lead period embraces the quarter century following the successful trip of the *Virginia* in 1823. More than 472,000,000 pounds of lead valued at over $14,000,000 were shipped down the Mississippi by steamboat from the Galena-Dubuque mineral region between 1823 and 1848. For almost a decade thereafter lead continued to be an important downstream cargo. The Indian, the fur trader, and the soldier, as well as the immigrant and excursionist, provided important supplementary cargoes during the lead period.

Immigration is characteristic of the second

period which covers the years 1849–1870. Hundreds of settlers, both native and foreign born, jammed Upper Mississippi steamboats for a score of years — the French Icarians to occupy Nauvoo, the Swedes to found New Sweden, the Dutch to settle Pella, the Trappist monks to establish New Melleray, the Luxemburgers to find a new home at St. Donatus, the Germans to settle in Guttenberg and Davenport, and the Mecklenburgers to set up a socialist community at Elkader. The building of the railroads snuffed out a trade from which river captains had reaped their richest returns.

The third period witnessed the shipment of heavy cargoes of grain southward. It extended from 1870 until almost 1890, and is best identified with the old Diamond Jo Line which was founded expressly for the grain trade. East and west railroads, making Chicago and Milwaukee the grain markets instead of Saint Louis and New Orleans, were an important factor in the decline of the river grain trade.

A period of decline had set in by 1890 which culminated in 1910 with the sale of the Diamond Jo Line steamers for a paltry $175,000. During the next seventeen years the Streckfus Line excursion boats were the only real frequenters of the Upper Mississippi although a few short line pack-

ets managed to pick up a modicum of freight and passengers. The inauguration of the Federal Barge Line service on the Upper Mississippi in 1927, the building of modern terminal facilities at such cities as Burlington, Rock Island, and Dubuque, and the nine-foot channel that resulted from the completion of the twenty-six locks and dams combined to usher in the sixth period, or towboat era. By 1946 the tonnage towed on the Upper Mississippi far surpassed that transported during the heyday of steamboating before the Civil War.

The steamboat *Western Engineer* ascended the Missouri River to present-day Council Bluffs as early as 1819, but there was relatively little steamboating on the Big Muddy above Saint Joseph, Missouri, prior to 1846. The random trips made by such steamboats as the *Yellowstone* and the *Assiniboine* to Fort Union at the mouth of the Yellowstone during the 1830's were spectacular but of little importance when compared with the tonnage engaged in the Upper Mississippi lead traffic. In 1847, for example, the total value of lead mined was $1,654,077.60 — double the combined value of the Saint Louis fur trade and the commerce of the Sante Fè Trail.

Permanent settlement in western Iowa began with the departure of the red man in 1846. When

Reverend John Todd came to Fremont County in 1848 he found steamboating on the Missouri "slow and dangerous". "Boats passed up at irregular intervals", one pioneer related, "and not infrequently remained for weeks upon sandbars and snags."

The heyday of steamboating along the Missouri slope embraced the twenty years between 1846 and 1866. During the fifties such boats as the *Chippewa,* the *Emigrant,* the *Emilie,* the *Florence,* the *Gus Linn,* the *Spread Eagle,* and the *West Wind,* not to mention the *Des Moine,* the *Omaha,* and the *Sioux City,* were household words along the Big Muddy. The straggling frontier town of Sioux City received its first real impetus in 1856 when the steamboat *Omaha* arrived with a sawmill, lumber, dry-goods, hardware, and other commodities. It cost $24,000 to bring this freight, valued at $70,000, upstream from Saint Louis. Thereafter steamboating became the primary means of transportation and communication between Sioux City and the outside world. Small wonder that the Nebraska City *Advertiser* should boast in 1857 that forty-six steamboats valued at $1,269,000 were running on the Missouri that year and a dozen new boats were under construction.

The outbreak of guerrilla warfare in Missouri

in 1861 brought steamboating on the Missouri to a standstill, but at the close of the Civil War it revived for a brief spell, playing an especially important rôle in the construction of the Union Pacific railroad west of Omaha. The completion of the railroad to Council Bluffs in 1867 and to Sioux City in 1870 brought to a close a colorful episode in steamboating along the western border of Iowa.

Subsequent efforts to revive traffic on the Missouri above Kansas City met with failure, but in 1939 the first tow of oil was brought to Omaha and in 1940 Sioux City rejoiced when the towboat *Kansas City Socony* brought 400,000 gallons of gasoline to that port. River enthusiasts are hopeful that a fairly permanent stage of water may be maintained in the Missouri when a sufficient supply is impounded behind the great Fort Peck Dam, but even the friends of the Missouri Valley Authority cannot agree on the place of transportation in their plan to harness the Big Muddy.

Transportation on the tributaries of the Upper Mississippi in Iowa, while loudly acclaimed at the time, was more novel than important. The Des Moines River was navigated by the *Hero* and the *Pavilion* in 1837. In the spring of 1843 the *Agatha* carried troops and supplies to the new military post at the Raccoon Fork on the Des

Moines. Approximately thirty steamboats are known to have plied the Des Moines to the Raccoon Fork prior to the Civil War, and one craft, the *Charles Rodgers*, actually squirmed her way to the present site of Fort Dodge, a feat almost comparable in its audacity to the ascent of the Missouri to Fort Benton. The low water of 1860, the use of many steamboats by the Union forces down South, and the arrival of the railroad at Des Moines, Boone, and Fort Dodge quickly snuffed out river traffic and turned the attention of these towns toward other market routes.

Navigation of the Iowa and the Cedar by steamboats was even less impressive, for it was possible only during seasons of high water. The *Ripple*, the *Rock River*, the *Agatha*, the *Maid of Iowa*, the *Emma*, the *Reveille*, and the *Badger State* are known to have ascended the Iowa River to Iowa City and a diminutive craft dubbed the *Iowa City* was actually launched at Iowa City in 1866.

A few more boats are known to have plied the Cedar River. The twenty-nine round trips of the *Black Hawk* between Cedar Rapids and Waterloo during 1859 were, perhaps, outstanding among feats of inland waterways transportation. Although the freight involved was relatively small, the importance of such trips to the pioneers

should not be discounted. The arrival of the railroad at Cedar Rapids and Cedar Falls quickly diverted the attention of these towns to overland transportation.

In 1946 only the Upper Mississippi continues to serve as a highway of commerce. The transportation record of the Upper Mississippi during World War II is impressive, surpassing the fondest hopes and dreams of waterways advocates. Ocean-going war vessels, built at Quincy, at Dubuque, and at Savage on the Minnesota River, were sent downstream to New Orleans. The tonnage transported on the Upper Mississippi almost equalled that of the entire Mississippi system a century before. Moreover, it continued at unheard of levels despite the withdrawal of many Upper Mississippi craft to the Ohio and Lower Mississippi to aid in the movement of oil to the Atlantic seaboard.

The changes that a century has made in river navigation are tremendous. In 1846 there were no costly river terminals, such as one can see at Burlington and Dubuque today. There were no aids to navigation for pilots, no 9-foot channel, no 3000-ton steel barges, no 2200-horsepower craft, no twin and triple screw propeller vessels, no diesel boats, no ice-breakers to hasten the opening of navigation. The side and stern wheel craft of

yesteryears were fast but small and rarely averaged over 200 to 300 tons cargo. A few examples will suffice.

Between 1823 and 1848 approximately 365 different steamboats made about 7,645 trips to the Galena-Dubuque lead mines and carried downstream 236,000 tons of lead. Today the Dubuque-built *Herbert Hoover* can easily transport this entire cargo downstream in a single season, figuring 23 trips with 10,000 tons to a trip. In the five years ending with 1945 a single Dubuque firm, the Interstate Power Company, received 292,000 tons of coal, more than all the lead shipped downstream by steamboat in the thirty-eight years preceding the Civil War. In 1946 three towboats could push as much freight upstream in single trips as the four boats of the Diamond Jo Line averaged annually during the period from 1900 to 1910.

Although some Iowans may lament the "good old days" of steamboating, the towboat era stands in a class by itself when measured in tonnage moved. The second century may witness new developments in inland waterways transportation.

WILLIAM J. PETERSEN

Transportation by Land

The dramatic migration known as the westward movement reached the Iowa country several years before the outbreak of the Black Hawk War. By 1824 a spray of settlers from the crest of the first immigrant wave to cross the Mississippi fell into the Half-breed Tract, the only portion of Iowa-land then open to the pioneer. At the time the Black Hawk Purchase was first occupied by white settlers, the lands on the east and south were still almost uninhabited by white men. The population of Illinois in 1830, for example, was only 157,445, most of which clung to the rivers that formed its southern borders. With the exception of a small island of settlement in the mineral region, the northern half of Illinois contained less than two people per square mile. Galena was the county seat of Jo Daviess County, which sprawled eastward from the Mississippi to Lake Michigan and as far south as Rock Island.

It was through such a wilderness tract that many an Iowa pioneer traveled overland on foot or on horseback, by covered wagon or by stage-coach. Settlers traveled along dim, dreary trails from Lake Michigan across the vast prairies of

Illinois "rarely broken by cultivation" and without any possibility of shelter.

The same lack of roads characterized early Iowa. In 1839 John Plumbe reported that the "natural surface of the ground is the only road yet to be found in Iowa District; (Territory,) and such is the nature of the soil, that in dry weather we need no other. The country being so very open and free from mountains, artificial roads are little required. A few trees taken out of the way, where the routes much traveled traverse the narrow woods, and a few bridges thrown over the deeper creeks, is all the work necessary to give good roads in any direction." Plumbe had not, apparently, traveled over the Iowa prairie in the spring or after heavy rains. At such times the absence of public roads and bridges made travel very difficult. Although laws were passed for the surveying and laying out of roads, the same conditions prevailed for years after statehood was achieved.

The movement of settlers into and through Iowa was noted by many editors. During the first two weeks of October, 1846, a total of 582 wagons were ferried across the Mississippi at Burlington. In 1855 the Burlington *Telegraph* chronicled six or seven hundred immigrant teams crossing daily at that point. "About one team in a hundred

is labelled 'Nebraska'; all the rest are marked 'Iowa'."

That same year the Muscatine ferry puffed to and fro, carrying five immigrant wagons at every trip into Iowa. At Rock Island hundreds of muslin-covered wagons, bearing wives and children and household goods, and driven by stalwart men seeking a new home in the mighty West, crossed the Mississippi weekly into Iowa. "Daily — yes, hourly", the Dubuque *Tribune* exclaimed, "immigrants are arriving in this and neighboring counties from Ohio, Kentucky, Indiana, and Illinois." There were many records of this kind.

The onward march of the covered wagon pioneers was also chronicled in inland towns. The Oskaloosa *Times* declared that the town was "almost constantly thronged with movers' wagons and herds of cattle". Sometimes the progress of the prairie schooner was fairly rapid. In August of 1857 August Ridley and his wife took only twelve days to go from Dubuque to Estherville in their covered wagon.

Those who traveled in the spring were not so fortunate because of swollen streams and boggy, bottomless sloughs. The Skunk River bottoms, for example, were "known and dreaded" by travelers from "Maine to California". Emigrants considered themselves lucky if they escaped with-

out having to be "pulled out at least three or more times."

Equally dreaded was Purgatory Creek in Calhoun County which today is spanned by railroad and highway bridges and offers no barrier to travelers between Sioux City and Fort Dodge. It was not so in covered-wagon days. "Purgatory Slough!", exclaimed a Sioux City editor in 1859, "What a name! And oh! what a slough! we hear those exclaim who have been so unfortunate as to be caught in it. We heard one individual say that it took four yoke of oxen to pull his light buggy through this slough. The bottom of it has never yet been found, and it is thought by some that it has fallen out, leaving nothing there but black miry mud, a contest with which it is thought must at least equal the supposed torments of Purgatory — hence the name."

The first settlers were frequently hemmed in by just such adverse obstacles as Purgatory Slough. His claim staked out and his crop sown, the pioneer had a never-ending use for his wagon. Supplies had to be purchased at some remote settlement; produce had to be hauled overland. A trip to the mill provided an interesting although not always easy diversion. Sloughs were frequently soft, streams swollen, and roads impassable. Often the pioneer had to fell trees across an un-

bridged creek. "Then he would unyoke the oxen and make them ford or swim across. Having carried the grain in bags to the opposite bank, he would take the wagon apart and carry it over piece by piece. All safely across, he would reassemble the wagon, reload the grain, reyoke the oxen, and move on slowly across the prairie."

The horse-drawn wagon — sometimes it was a buggy — was the means by which the pioneer went to church and quarterly meeting, log raisings, and quilting parties, to political gatherings and elections, to Fourth of July celebrations and Christmas festivals. When winter came and the snow lay deep upon the ground, he moved his wagon box to a bobsled and traveled swiftly over the snow-mantled countryside. The use of the farm wagon and the sleigh continued until well into the twentieth century; indeed it required the automobile and the paved road to drive the horse and wagon from the highway. The transition from the livery stable, the wagon maker, the blacksmith, and the harness maker to the garage, the filling station, and the mechanic can be readily recalled by Iowans born in the twentieth century.

Bad roads prevailed in Iowa for well nigh a century. Indeed, although the casual overland traveler has no such problem to face, many a farmer is still isolated by deep snow and muddy

roads. The farm-to-market program is still far from complete in 1946.

It was not merely the covered-wagon pioneer who suffered because of the bad roads. The stagecoach companies — such as Frink & Walker and the Western Stage Company — played heavy rôles in the transportation system prior to 1870. In 1859 the St. Charles City *Intelligencer* declared that the Western Stage Company was probably the "most extensive" corporation in the State of Iowa. "The Company", the editor asserted, "employ fifteen hundred men, and over three thousand horses, and own more than six hundred coaches. The capital invested is a million and a half of dollars. The field of their operations is in Iowa, Wisconsin, Missouri and Nebraska, and they are now running a regular line of stage to Fort Kearney, three hundred miles west of the Missouri."

But size was no criteria of a company's ability to perform good work; in 1858 the Council Bluffs *Bugle* sarcastically congratulated the Western Stage Company for its "untiring energy and perseverance in bringing every mail to this city, for the last three weeks in a wet and pulp-like state, perfectly saturated with water and wholly unreadable. . . . We are sickened at the sight of every mail that arrives. . . . This western stage

company have proved an intolerable nuisance, and we should think it high time that the department at Washington were taking notice of these faults and the destroying of the mail matter."

A Mills County pioneer recalled the lumbering coaches that furnished communication with the outside world. "Two lines of these coaches formerly ran through the county, one, the St. Joseph and Council Bluffs line, running by way of Sidney, Tabor, Glenwood, and thence to Council Bluffs, and the route of the Western Stage company, through from one county seat to another, and these lines formed the only mode of public conveyance from one point to another. The trips of the stages were originally made weekly, then semi-weekly, and finally daily, as the growing business warranted such an increase of facilities. The life of the traveler in those days was by no means a pleasant one. When steep hills must be ascended, or muddy bottoms crossed, the passenger — wearied as he was by the swaying and rough usage of hard driving — was expected to descend and mount the hill or cross the bottom on foot." Although the stagecoach was a colorful part of our pioneer development, most Iowans were glad to trade it for the railroad coach.

The advent of the iron horse was one of the most significant events in Iowa history. The first

railroad to connect the Mississippi with the Atlantic seaboard reached Rock Island opposite Davenport on February 22, 1854. The next year the Mississippi was tapped by railroads at Dubuque, Clinton, and Burlington. In 1857 a fifth railroad reached the great river opposite McGregor. Five of the ten railroads linking the Mississippi with the Atlantic before the Civil War reached the Father of Waters opposite Iowa.

As the iron horse approached the Mississippi from the east a wave of enthusiasm swept over Iowa and there was a vociferous demand that railroads be extended westward across the Hawkeye State. Ground for the first railroad in Iowa was broken by Antoine LeClaire at Davenport in 1853. Iowa City was reached by the Mississippi and Missouri, now the Rock Island, in 1856. Ottumwa, Waterloo, and Cedar Rapids had railroad connections with the Mississippi River ports by 1860, by which time more than five hundred miles of track had been laid in Iowa.

Iowans were enthusiastic about the speed of railroad travel in those early days. On August 7, 1861, the editor of the Ottumwa *Courier* recorded: "We made the trip to Des Moines, by rail to Eddyville, thence by stage, attended the State Convention all one day, and returned in just two days and ten hours, of course riding two

nights in succession. This was quick and would have been pleasant but for the heat and dust. It is a magnificent country between here and Des Moines rendered peculiarly attractive just now by the most magnificent crop of every production the eye ever rested upon."

The Civil War halted railroad construction for a time but work was promptly resumed after 1865. A mad race across the State ensued as each railroad company sought to be the first to make connections with the Union Pacific at Council Bluffs. The race was won by the North Western on January 22, 1867. Two years later, in 1869, the Rock Island and the Burlington reached Council Bluffs. The Illinois Central, which arrived at Sioux City in 1870, made connections with the Union Pacific the following year.

After the main river-to-river railroads were completed, thousands of miles of track were constructed in a giant web in Iowa. By 1880, 4,977 miles of track had been laid — a decade later this figure stood at 8,412 miles. During this era of rapid expansion the railroads were charged with many abuses. Although they had been given about one-ninth of the total area of the State to aid them in construction and notwithstanding the fact that counties, cities, and private individuals had purchased stocks or bonds and granted lands

and valuable right-of-way privileges, the railroads were soon charging high rates, indulging in ruthless competition, discriminating against towns and shippers, and flagrantly violating all just practice through the long and short haul clauses. The Granger Law and the establishment of a Railway Commission in 1878 were two of the highlights in the fight against these abuses.

Iowa editors, however, early recognized the economic, social, and cultural values that accrued from linking towns with bands of iron. "Not far in the future", the Washington *Record* declared on July 24, 1867, "the sound of Railroad cars will be rumbling down from the North, and we shall hear the cry in our streets, 'all aboard for Keokuk!' Then the Keokukians and the Washingtonians will be neighbors. They will cultivate our acquaintance; their business cards will adorn our counters and desks. We will hobnob together — eat ice cream, drink lager, and visit one another; they will buy our pork and we will stock up our groceries from them. We will stop and take dinner and have a friendly chat with them while on our way to St. Louis and the Gulf with our market stuff. Then the Gate City of Iowa, instead of being farther off than New York, will be our next door neighbor, with only the village of Mt. Pleasant between."

A Davenport editor rejoiced in 1868 when comfortable sleeping cars were placed on the Rock Island line between Davenport and Des Moines. Previously it had taken "great courage and resolution" to leave "family, friends, and spring mattress behind" and set out for the State capital. Now one could "go to bed like a Christian in Davenport, and wake up in innocence in Des Moines." As the years passed better rolling stock and equipment, better terminal, siding, and switching facilities, smoother roadbeds, and stronger bridges added to the speed, safety, and convenience of railroad travel.

In 1914 an all-time high of 10,018 miles of track fairly intermeshed the Hawkeye State. Iowa, with two per cent of the total population of the United States, possessed about four per cent of the railroad trackage. At the peak of railroad development no point was more than twelve miles from train service. Since 1915 there has been a steady decline in railroad mileage, the total on the eve of Pearl Harbor being 8,938 miles, or 1,080 miles less than in 1914.

The advent of the automobile and the paved road, the competition of bus and truck, the revival of waterways transportation, the growing popularity of the airways, the gradual decline of towns on stub lines, and the unprofitable operation of

parallel lines were factors in this decline. The inauguration of the Burlington Zephyr and Rock Island Rockets, and the performance of North Western and Milwaukee streamliners may help in slowing down this trend. The railroads today form the very backbone of transportation in Iowa, handling more than ten times as much freight as do the giant towboats that ply the Upper Mississippi.

Few Iowans could have realized what a tremendous change would result from the introduction of the automobile on the American scene. A half century ago, in 1895, there were only 300 automobiles in the United States. In 1900 there were 8,000 motor cars in this country — about 75 of which were in Iowa. Between 1910 and 1930 the number of autos in the United States increased from 370,000 to 26,523,779. William Howard Taft was the first President to ride to his inauguration in an automobile — the very year (1909) auto production first climbed to over one hundred thousand. An entirely new vocabularly sprang up as a result of this revolution in transportation. The mode of living of the people was changed. Even the Amana Society, which had withstood the coming of the railroad, could not withstand the disintegrating influence of the paved road and the motor car.

The first automobiles in Iowa were viewed with a mixture of suspicion, derision, and hate. A Davenport man is said to have brought the first "horseless carriage" to Iowa. This was a steam car — a single cylinder locomobile. In 1897 it was acquired by G. W. Haskell of Cedar Rapids. W. G. Dows is said to have brought the sixteenth Haynes car made to Cedar Rapids in 1899. These novel playthings could make ten miles an hour — if they ran — and terrified horses ran away whenever one appeared. A noted Iowa aviator, Clarence Chamberlin of Denison, recalls the fury of neighbors and farmers when the Chamberlins acquired a "newfangled horseless carriage" in 1902 — the first such "infernal contraption" in Denison.

Iowans were quick to adopt the automobile. The number in 1905 was 1,650, still small enough for newspapers to chronicle any unusual feat. In 1904 the Clinton *Mirror* of July 16th noted that F. L. Butzloff had taken a "flying trip to Chicago in his automobile with some Clinton guests. Leaving home at six o'clock, stopping for dinner and rest about two hours, they arrived at their destination at seven in the evening, making about eleven hours actual traveling. Boys made the trip on their wheels a while ago, their cyclometers registering 148 miles — so that Mr. Butzloff's auto ran

nearly fourteen miles an hour. It is not very far to Chicago in the twentieth century."

The automobile soon proved it was here to stay. Mass production had first been employed in 1900 and the first speedometer made in 1901. The first car to cross the continent took 61 days to do it in 1903. Head lamps were included as standard equipment in 1904 and tire chains introduced in 1905. Manufacturers pioneered with front bumpers and electric horns in 1906 and the left-hand drive became popular in 1908. The first closed bodies were built in 1909 and the trend toward streamlined bodies began in 1910. In 1911 some 50 motor trucks were operating on Iowa highways. Between 1910 and 1915 motor registration in Iowa soared from 18,870 to 145,342.

The steadily increasing number of automobiles was a primary factor in the development of our modern paved highways. Between 1849 and 1853 a number of plank roads had been authorized by the State legislature. Only three were actually built, the one between Burlington and Mount Pleasant being the longest and perhaps best constructed. The "Good Roads" movement was inaugurated in 1884; thirty years later Iowa had over 100,000 miles of roadway established and maintained by county and township officials. The creation of the Iowa State Highway Commission

in 1904 was an important step in the movement toward a uniform road system. The Commission was strengthened in 1913. In 1917 the State accepted a gift of about 2¼ million dollars from the Federal government. This money was matched by the State and the entire amount spent for better roads. Hard surface highways developed out of the substitution of the automobile for "Old Dobbin". High speed cars and mud roads were incompatible.

It was the 1920's that witnessed such a phenomenal change in the Iowa scene. Registration of automobiles and motor trucks soared from 440,701 to 784,450 between 1920 and 1929. In 1920 there were only 25 miles of paved roads in Iowa. Between 1921 and 1932 about 3,400 miles of Iowa highways were paved — the peak paving years being 1928, 1929, and 1930. When Iowa observed its centennial in 1946, her primary — State controlled — highways consisted of 5,459 miles of paved roads, 2,335 miles of graveled roads, 727 miles of bituminous surfaced roads, and only 36 miles of earth roads. Only a flash flood now and then reminds modern motorists of the days when the Skunk River bottoms were known and feared from Maine to California.

The changes in overland transportation during the past century have been nothing short of phe-

nomenal. It took the Mormon pioneers five months to cross southern Iowa in 1846. In 1934 the Burlington *Zephyr* whizzed between Council Bluffs and Burlington in three hours and thirty-two minutes, averaging 73.3 miles an hour. In 1856 it took the Mormon handcart expeditions at least a day to pull their wagons twenty miles while the Rock Island *Rocket* can speed from Chicago to Omaha in less than ten hours.

The streamlined auto and the paved road make it possible to record equally phenomenal changes. In 1904 a motorist required eleven hours to make the trip from Clinton to Chicago. In 1946 a motorist can drive from Council Bluffs to Chicago in shorter time and with greater comfort. Modern trucks and busses are making equally impressive records.

In 1923 motor busses were, for the first time, recognized as public carriers and placed under the supervision of the Iowa Railroad Commission. Twenty years later bus lines carried a total of 17,148,762 passengers on Iowa roads, traveling a total of 334,902,175 miles. The covered-wagon pioneers would be fairly dazed by the speed of modern highway and railroad travel in Iowa — not to mention travel by air which is another story.

WILLIAM J. PETERSEN

Wheels, Planes, and Power

When white settlers came into Iowa a little more than a century ago, they traveled inland in vehicles drawn usually by horses or oxen. As the wagons with their iron-shod wheels rumbled to a stop in some grove or beside a stream or spring, the settlers may have seen Indians starting westward, walking or riding ponies, carrying their possessions on their backs or on the backs of their horses. Sometimes an Indian housewife lashed the ends of two poles to the sides of a patient pony letting the opposite ends drag along the ground. Between these poles she fastened a sort of basket of skins and in or on this travois she transported small children and household goods. Aside from canoes of hollowed logs, bark, or skins, these were the only means of transportation known to the red men. Horses had been brought to America by the white men.

Here on the Iowa prairies one hundred years ago two civilizations came temporarily in contact. The Indians used stone or bone implements, hunted and fought with bows and arrows, and traveled on foot, on horseback, or by canoe. Even their pottery was made without a wheel. The

white men brought tools of iron, hunted and fought with guns, and could travel by wagons. Some of them had come to eastern Iowa on steamboats propelled by paddlewheels powered by steam. Each community had a mill to grind grain or saw lumber and this mill was run by a water wheel. Their women used spinning wheels to make their yarn. Wheels made possible the rapid settlement of Iowa.

The lack of wheels was not limited to the Indians of Iowa. For some reason none of the native people of North and South America were using the wheel at the time white men came to the new world, although archaeologists have recently discovered that an ancient race in Mexico had figures of animals mounted on wheels. This civilization, however, disappeared and the secret of the wheel which they had glimpsed or brought with them from another land lay buried for two thousand years. Other Indians knew the lever, the screw, the wedge, and the inclined plane, but the magic of the wheel escaped them. Far to the north crude sledges, drawn perhaps by men, dogs, or reindeer, slipped over the ice and snow. In the more civilized regions, persons of importance might be carried in litters. The Americas knew only inert plane surfaces as aids in transportation and the power was chiefly human muscle.

Who first invented the wheel is lost in the fog of history. No monument has been erected in his honor. Primitive man no doubt learned that it was easier to roll stones or logs than it was to carry them or drag them along the ground. When he could hack out a narrow section of a log he had a wheel. Perhaps he found that thongs of stretched and dried skins around the circumference of the circle would prevent splitting. As his ingenuity increased, man learned that he could make a wheel with spokes, rim, and hub. It was a great achievement when he could use brass or iron bands to protect the rims.

The wheel brought mobility to mankind and comparative freedom from physical burdens. A platform resting on the axle between two wheels became a war chariot of Egypt or Syria, a Chinese jinricksha, or a peasant's cart. A larger platform or box resting on four wheels made a wagon, a sedan chair on wheels became a carriage. Men or animals furnished the power. For centuries this was the limit of man's ingenuity.

When man combined the idea of the lever and the wheel he invented gears, wheels within wheels, and the mechanical age was born. The muscle power of men and animals was too puny for this age. Wind and water were too uncertain. Steam was the breath of life that started the wheels roll-

ing — pistons and drive wheels, paddlewheels and propellers. Then gasoline was harnessed and the age of speed began. Sheets flapping in the wind suggested airplanes, but wheels, fast moving propellers, are needed to take a plane aloft and keep it there.

And so transportation has progressed by land, water, and air. The century of Iowa's statehood has witnessed the greater part of this advance. When Ansel Briggs was inaugurated Governor of the State of Iowa in 1846, settlers came up the rivers in steamboats, but they crossed the prairies in wagons. Railroads were being built in the east, but it was ten years before train service reached the capital of Iowa. Automobiles came with the new century and airplanes some ten years later. No other century in history witnessed such a change. Inventors combined planes, wheels, and power to produce new and ever faster methods of travel and transportation. Now these are being supplanted by rockets and atomic energy. When the second centennial occurs Iowans may shoot "through the air with the greatest of ease".

RUTH A. GALLAHER

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