



MILEPOST 100

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**The Story of the Development
of the Burlington Lines
1849 - 1949**



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Chicago, Illinois

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PREVIEW

The Burlington came into existence on February 12, 1849. On that day a group of forward-looking citizens of Aurora, Illinois, secured a charter for a twelve-mile line to connect their town with the Galena and Chicago Union, the only railroad then serving Chicago. When operations began over the first completed segment on September 2, 1850, it brought to the metropolis its second railroad. The enterprise thus simply begun became a modest system between 1852 and 1856 when Boston capital joined local funds to piece together the original Aurora Branch with three other small companies to form the first Chicago, Burlington and Quincy Railroad. By 1870 the Burlington had reached the Missouri River at Kansas City, St. Joseph, and Council Bluffs, and was pushing into central Nebraska to connect with the Union Pacific. When the company was sold in 1901 to the Great Northern and Northern Pacific, it operated nearly 8,000 miles of road, and had built its own lines to Denver, to the Twin Cities, and from Lincoln northward to a connection with the Northern Pacific at Billings, Montana. Acquisition of the Colorado and Southern and the Fort Worth and Denver City in 1908 linked Texas and the Rockies. Today the Burlington Lines operate almost 11,000 miles, serving 14 states.

The Burlington has participated intimately in the social and economic development of the American Middle West; it has shared the hardships of the frontier settlements, helped colonize the fertile prairies, stimulated the rising cities on its route, and kept going through droughts, depressions, and wars. The story is one of pioneering courage and ingenuity, of devotion to duty, and of responsibility to the community. From the vantage point of a full century, it is fitting to look back over the history of the "Q," for therein lies the promise of an even greater future.

FORGING THE BURLINGTON SYSTEM

Creation of the C. B. & Q., 1849 - 1864

The Economic Awakening of the Middle West: As the year 1850 approached, the Middle West stood on the threshold of a spectacular period of economic development. For a generation, settlers in increasing numbers had been moving into the "Old Northwest" that lay beyond the Alleghenies between the Ohio River and the Great Lakes. Everywhere the rich level land had responded generously, and they set vigorously about the task of providing better transportation, for unless produce could be marketed economically, the vast resources of the land were virtually useless. In the 1830's and early 1840's canals seemed the solution; they were easy to build in the level Midwest and offered a far cheaper form of transport than the turnpikes popular in the more densely settled East. Railroads were already establishing themselves along the seaboard as the most efficient carriers of all, but they were likewise the most expensive. Therein lay a dilemma: in order to survive under private ownership, railways needed population to create traffic, but only railways could bring in people quickly on any large scale.

As early as 1836 and 1837, states like Ohio, Indiana, Illinois, and Michigan tried to cut this Gordian knot by authorizing huge programs of state railway construction. But the movement was premature and collapsed after the Panic of 1837. Before long, however, the march of events brought a natural solution to the West's transportation problem. The acquisition of Oregon in 1846 and of the Mexican Cession two years later, coupled with the discovery of gold in California, made inevitable the westward expansion of the American nation. People began flocking to the heartland of the Mississippi Valley. Capital was gradually accumulating for investment purposes, and the moment was ripe for railroad development in the Midwest.

Chicago: the Inevitable Railway Center: From the outset the focal point of these plans was Chicago, situated at a natural crossroads for transportation. Before the coming of the white man, the Indians had discovered that the easiest route from the mighty Mississippi to the Great Lakes lay up the Illinois River, across the



Street scene in Chicago in 1860's about the time Burlington constructed its own line between Aurora and the metropolis via Naperville.

brief portage at Mud Lake, and on down the Chicago River to Lake Michigan. The red men of Wisconsin and beyond also passed across the site of Chicago as they rounded the lake on their way eastward; so did the Indians enroute from their gathering place at Rock Island to the old meeting grounds near Detroit. When the white man came, he used these long-established trails. Joliet, Pere Marquette, LaSalle, and the host of trappers and traders who followed them, all used the "Portage Path" to and from the Mississippi, and the strategic site at the mouth of the Chicago River figured as a prize in Anglo-American diplomacy for a generation after the Revolutionary War. Fort Dearborn was erected in 1803 to protect this crossroads, and the Illinois-Michigan Canal was put under way in the 1820's to connect it with the interior. At this spot Chicago was incorporated as a town in 1833.

Almost at once the leading citizens, collaborating with the lead-mining interests of Galena, planned a railroad to connect the two towns and provide an eastern outlet not only for the lead but also for the grain that flourished along the route. In January, 1836, they obtained a charter for the Galena and Chicago Union, but, as elsewhere, the Panic of 1837 forced postponement of construction. Not until the summer of 1848, soon after the

establishment of the Chicago Board of Trade testified to the growing importance of grain traffic, was ground actually broken; on October 25, Chicago's first locomotive, the ten-ton *Pioneer*, made a brief excursion over the few miles of completed track. At last Chicago had its own railroad! Meanwhile the Michigan Central and Michigan Southern, once state-owned but now in the hands of powerful eastern capitalists, were beginning their dramatic race westward to provide Chicago with through rail connections with the East. A new era was dawning for northern Illinois in which many an ambitious community was hoping to play a part.

The Aurora Branch: First Link of the Burlington: One of the first towns to translate dreams into action was Aurora, a milling center on a principal stagecoach route 38 miles southwest of Chicago. A group of its businessmen prevailed upon State Representative Lorenzo D. Brady to draw up a charter authorizing the Aurora Branch Railroad to build 12 miles northward to a junction with the Galena Road. The approval of this charter by the governor on February 12, 1849, marks the birth date of the Burlington.

Work on this modest enterprise progressed rapidly. By August 27, 1850, six miles of wooden rails, overlaid with narrow iron strips on the inside edge, were ready for use between the junction and Batavia. Through trains to Chicago (via the Galena Road east of the junction) commenced operations six days later, making the future Burlington the second railroad to serve the city. The young company had no rolling stock of its own, hence it hired the historic little *Pioneer* as well as a single coach from the Galena Road. This was the train that puffed out of Batavia early on September 2, 1850, to make the inaugural run of the Aurora Branch into Chicago. Thus humbly began the operation of the Burlington system.

Progress thereafter was rapid. Early in October the rails reached Aurora, and about the same time the Company's first two locomotives were finally delivered at Chicago. The *Whittlesey*, a 12-ton engine with four drivers built by Norris & Brothers in Philadelphia in 1849 and purchased from the Buffalo and Niagara Falls Railroad, arrived on the brig *Patrick Henry* on October 7; shortly afterward came the 14-ton *Pigeon* that had been built by Baldwin in 1837 for the forerunner of the Michigan Central. On October 21, 1850, the company inaugurated regular service over its entire line according to the following schedule:

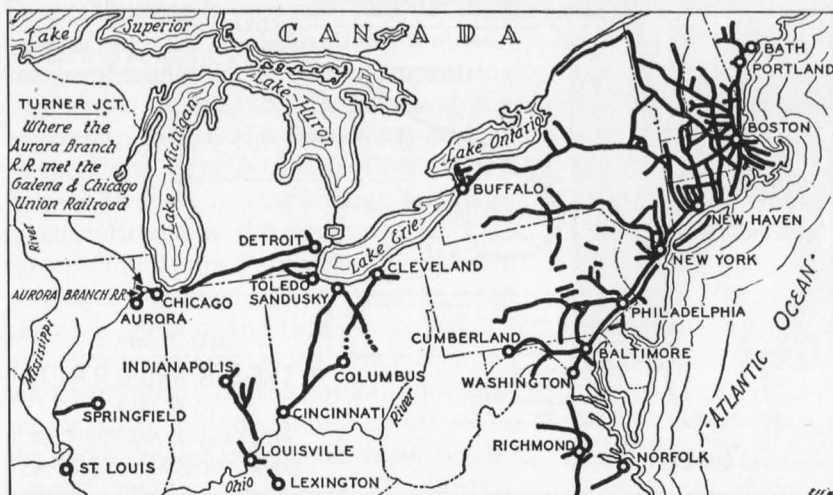
Leave Aurora . . . 7 am and 3 pm	Leave Chicago . . . 8 am and 3 pm
Arrive Chicago . . 11 am and 6 pm	Arrive Aurora . . . 10 am and 6 pm

Despite the usual difficulty of raising funds, the new line was well established by the end of 1850. The date was significant; in that year Chicago boasted a population of 28,620 and Congress set a precedent when it granted over two and one-half million acres of public land to aid the construction of a central railroad throughout the length of Illinois. The railway age had come for Chicago, for Illinois, and for the Middle West.

It was no time, however, for the Aurora Branch promoters to rest on their laurels. Their charter permitted them to unite and connect with other railroads. Logically enough, the directors first made overtures to the Galena Road, but the most that company would do was to enter into a favorable operating and traffic agreement for that portion of the line jointly used between Turner Junction and Chicago. Thus narrowly did the future Burlington escape absorption into some other system.

But some sort of action was imperative, particularly when the Illinois Legislature, in the first session of 1851, chartered a host of railroads which, if built, would effectively bottle up the ambitious Aurora Branch. On February 7, the LaSalle and Rock Island, strongly backed by the Michigan Southern interests, became the Chicago and Rock Island with authority to connect the cities of its title along a route running south of Aurora. Three days later a rejuvenated Illinois Central, heir to the federal land grant,

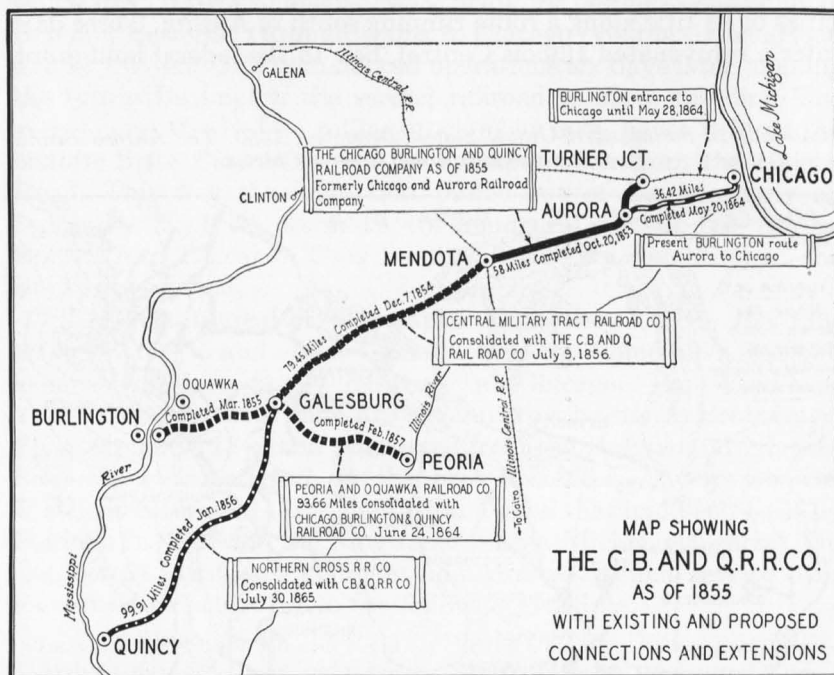
Railroads in northeastern United States, December, 1850. The Aurora Branch was the second railroad to serve Chicago.



was incorporated to build from Cairo through Centralia to Galena, with a branch to Chicago; this road would neatly straddle the infant Aurora Branch. And as an incipient air-line from the Mississippi to Chicago, still another company was authorized to build from Fulton eastward to Dixon. Anxious over the turn of events, the Aurora's stockholders promptly instructed their directors to secure connections at once with Rock Island, LaSalle, and Dixon, as well as with the Cairo-Galena line of the Illinois Central.

Forerunners in Central Illinois: As it turned out, the action of the Illinois Legislature had as profound an effect on Galesburg and the future Burlington as on the Aurora Branch. For years the citizens of that mid-Illinois town had looked forward to being on the route of the projected Peoria and Oquawka that was designed to connect the Illinois and Mississippi rivers, but on February 10, 1851, the Legislature amended the P. & O. charter in such a way that the road would by-pass Galesburg. Hence, under the leadership of Chauncey Colton, they obtained a charter on February 15

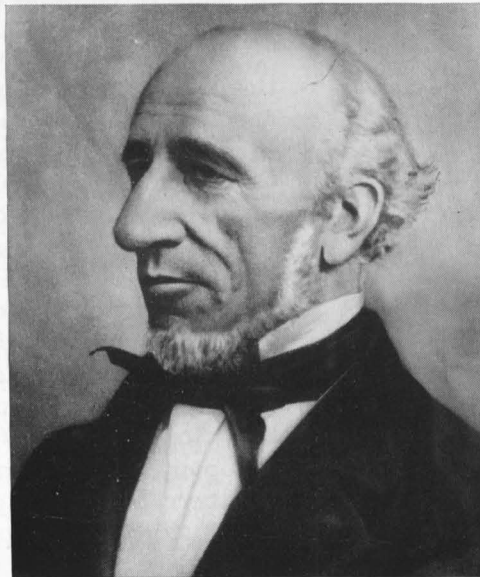
By 1856, the title Chicago, Burlington and Quincy exactly described the rapidly developing railroad system.



permitting construction of a line to be known as the Central Military Tract Railroad, northeastward to a connection with the former Rock Island and LaSalle. Since a new Northern Cross (which had inherited the name of an older company and permission to build from Quincy to Meredosia) had just secured the right to construct a branch northward toward Knoxville and from there to the western terminus of the Illinois-Michigan Canal at or near LaSalle, Colton thoughtfully secured permission to merge his line with this branch from Quincy if and when it should be built. As 1851 wore on, then, four small and struggling companies—the Aurora Branch, Central Military Tract, Peoria and Oquawka, and Northern Cross—all harbored ambitious but unco-ordinated plans for expansion. Only one was in actual operation, however, and all four were meeting well-nigh insuperable obstacles in raising funds.

The Coming of Boston Capital: In 1846, James F. Joy, an alert young Detroit lawyer, and John W. Brooks, a youthful civil engineer with railroad experience, had persuaded John Murray Forbes of Boston to mobilize New England capital for the purchase of the Michigan Central; a few months later New York interests took over the Michigan Southern, and the two rivals began their race to Chicago. By October, 1851, the Southern forces were in effective control of the newly constituted Chicago and Rock Island and had even commenced construction west from Chicago. The Central interests, however, had no allies west of the city to assure them a steady source of traffic. Hence, sometime during the winter of 1851–52, Brooks and Joy set out to secure the necessary western connections. They turned first to the Aurora Branch, buying enough securities to elect Brooks to the directorate in February, 1852. Immediately the Board voted to extend westward to a junction with the main stem of the Illinois Central.

Thus matters stood when Colton, who combined his role of railroad promoter with that of Galesburg's leading drygoods merchant, went East on his annual buying trip in 1852. In Boston,



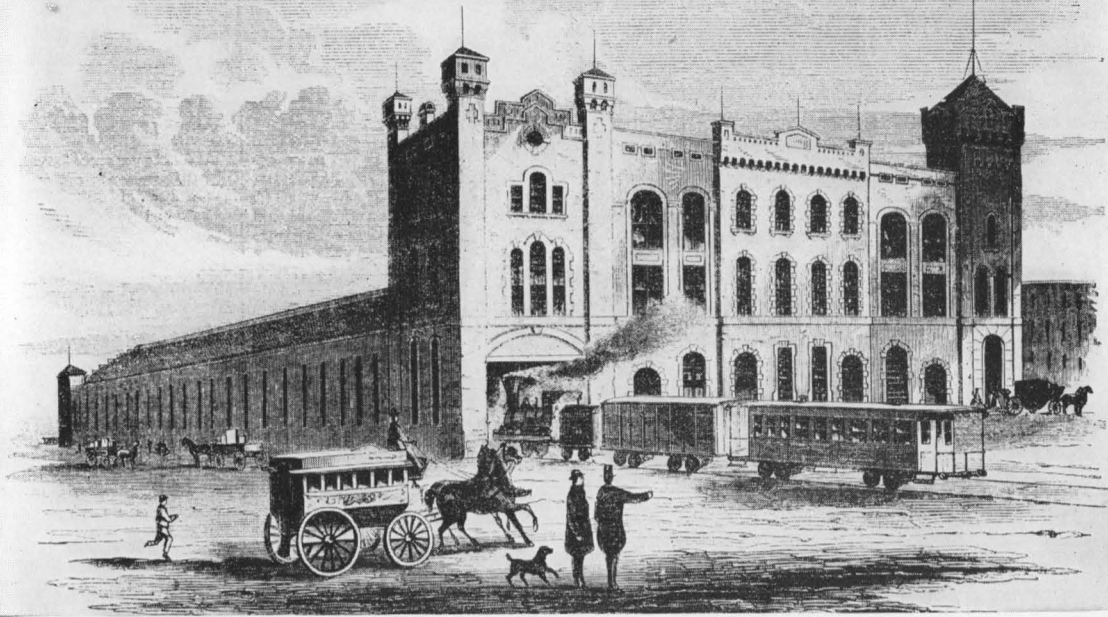
JOHN MURRAY FORBES, Boston financier, created the C.B.&Q. and guided its destinies nearly half a century.

he happened to meet Elisha Wadsworth, a director of the Aurora Branch, and James W. Grimes, then a director of the Peoria and Oquawka, and later governor of Iowa and senator from that state. These three men knew the Michigan Central people were seeking a western outlet. Therefore, they proposed to consolidate their three lines into a single through route between Chicago and the Mississippi and apply to the Forbes' group for financial backing. Brooks and Joy, to whom the plan was presented, were enthusiastic. The metamorphosis of the Burlington into a system had begun.

Piecing Together the C. B. and Q.: Before such a plan could become effective, it was necessary to amend the charters of the various companies involved. Between June 19 and 22, 1852, the Illinois Legislature not only authorized the three key lines (Aurora Branch, Central Military Tract, Peoria & Oquawka) to extend or alter their routes so as to form a continuous road from Chicago through Galesburg to a point opposite Burlington, but also permitted the Northern Cross to terminate its line at Galesburg. At the same time the directors of the Aurora Branch, aware that the Company's title no longer reflected its actual status as an independent main line, obtained permission to adopt the name "Chicago and Aurora Railroad Company."

With these formalities settled, construction proceeded apace, thanks to Forbes' unremitting fund-raising activities in the East and to continued local support. The Chicago and Aurora reached Mendota (where it met the main line of the Illinois Central) on October 20, 1853, while the Central Military Tract, abandoning its earlier plan to become a Rock Island feeder, built westward from Mendota to enter Galesburg on December 7, 1854. On March 17, 1855, the Peoria and Oquawka between Galesburg and East Burlington was opened for traffic, thus closing the final gap in the through route from Chicago to the Mississippi.

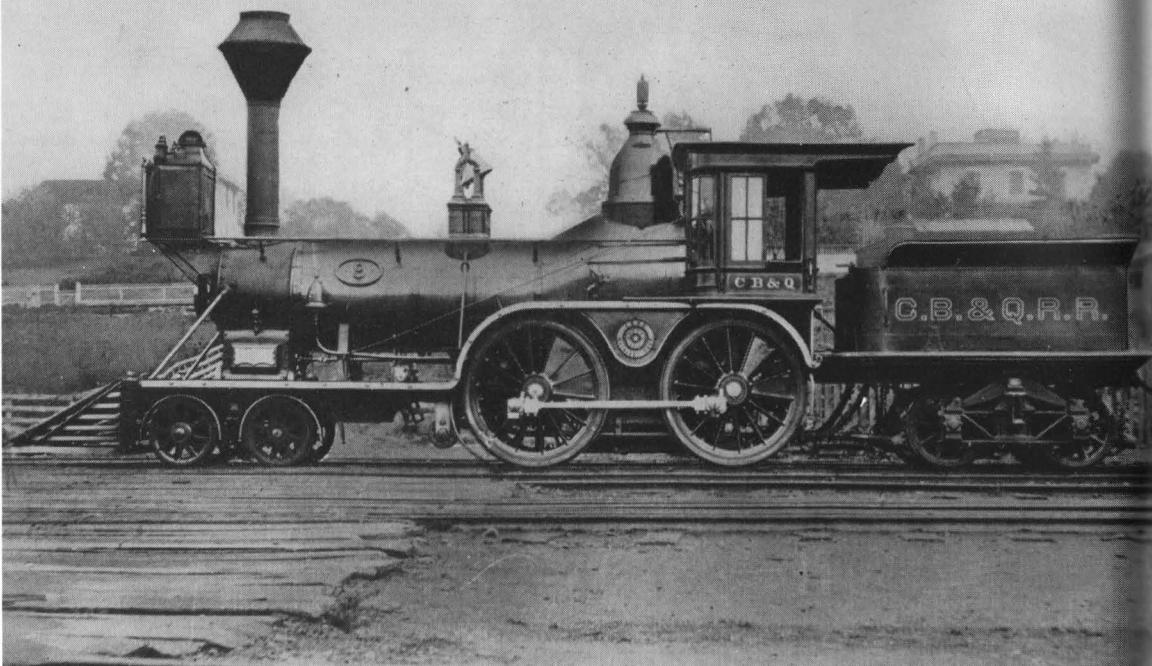
Meanwhile on February 14, 1855, the Chicago and Aurora received the Legislature's permission to change its name again, this time to "The Chicago, Burlington and Quincy Railroad Company." When the Quincy and Chicago (successor to the Northern Cross) completed its line to Galesburg on January 31, 1856, with the help of Forbes' money, the new title exactly described the property of the four commonly controlled units. In less than seven years from the incorporation of its first link, the C. B. and Q. "system" of well over 300 miles had spanned the state and connected Chicago with the Mississippi at both Burlington and Quincy!



In 1856, Burlington trains at Chicago began using the lakeside Illinois Central depot, "largest building of the kind in the U.S."

Creation of the Existing C. B. & Q. Corporation: In order to simplify administration and financing, the next step was to weld the independently organized segments of this system into one corporate entity. The process began on July 9, 1856, with the consolidation of The Chicago, Burlington and Quincy Railroad and the Central Military Tract Railroad into "The Chicago, Burlington and Quincy Rail Road Company." After picking up two small Illinois feeders in 1861, this corporation purchased the Quincy and Chicago on April 28, 1864. Finally, on June 24, 1864, The Chicago, Burlington and Quincy Rail Road consolidated with the Peoria and Burlington (successor to that portion of the Peoria and Oquawka west of Peoria) to form the present "Chicago, Burlington & Quincy Railroad Company." Thus the existing corporation, lineal descendant of the Aurora Branch, came into being. It has functioned ever since as the "parent company" of the Burlington Lines.

Curiously enough, for several years the most troublesome link to operate in the new chain was in and around the growing city of Chicago. When the Aurora Branch had opened service into the metropolis over the tracks of the Galena Road, it naturally shared that company's modest depots, first the original structure on Canal Street south of Kinzie, and later its successor at Wells and North Water streets. In 1855, however, the C. B. and Q. joined the Illinois Central, Michigan Central, and the Galena in building the



C.B. & Q. Engine No. 9 is earliest Burlington locomotive of which known photograph exists. Built in the early 1850's, it also was known as the "Lonsdale."

St. Charles Air Line to connect the railroads west of the Chicago River with those on the lakefront. Upon completion of this joint project in the fall of 1856, the four co-operating roads, as well as the Alton, concentrated their passenger business in the lakeside Illinois Central depot. There the Burlington was destined to remain until 1881 when, upon completion of the first Union Station, it moved to its present location.

Of even greater importance to the city and the company was the construction during the Civil War of a 38-mile direct line from Aurora through Naperville and Downers Grove to Chicago at a cost of a million dollars. Although the opening of this cut-off on May 20, 1864, meant that the original Aurora Branch rails would never again carry main-line traffic, it eliminated the round-about and increasingly expensive operation over the Galena Road, opened up a new suburban area for the city, and assured better service for through trains.

Meanwhile the Burlington had been acquiring extensive terminal facilities for freight south and west of the present Union Station, and by 1864 owned 75 acres with a river and canal frontage

of 3200 feet. Included in these holdings were 40 acres adjacent to the new main line for development into a stockyard. It soon became apparent, however, that a joint yard shared with Chicago's other railroads would be far more efficient. During 1865 the company sold its land and improvements as a nucleus for the new enterprise, and had the distinction of operating the first train into the Union Stock Yards when they opened for business on December 26, 1865.

Meanwhile the physical plant was brought to the highest standards of the day. In March, 1855, Joy reported that the road "is constructed in the most perfect manner, is well ballasted with gravel, is laid with a very heavy compound or continuous rail, with ample side tracks, and with substantial freight and passenger houses, brick water stations, and in all its appurtenances is believed to be as perfect as any road in the West." The next year (in which the C. B. and Q. and Military Tract consolidated) extensive new shops for the combined companies were completed at Aurora, and experiments were under way with coal-burning engines. As early as 1858, a year before George M. Pullman built his first sleeper, the Burlington converted two day coaches into sleeping cars, and in 1861 and 1862 three more coaches were similarly rebuilt. During the latter years of the war these sleepers disappeared from service; incomplete evidence suggests that they were taken over by the army for transportation of the wounded. In any event, it is a matter of record that in 1863 some 30 boxcars were "taken for Government use, on a requisition from Major-General U. S. Grant." The first report of the newly constituted C. B. & Q. in June, 1864, listed for the 400-mile system 98 locomotives, 60 passenger train cars, 1735 freight cars of all types, and 40 drovers' cars. A year later there were 105 engines, only nine of which still burned wood.

Growing traffic continued to tax even these augmented "modern" facilities. For the year ending April 30, 1864, the company rolled up well over thirty million passenger miles and nearly one hundred and twenty million ton miles. Passenger traffic was well balanced east and westbound, the average journey was 53 miles, and the average revenue $3\frac{1}{4}$ cents per mile. On the other hand, almost twice as much freight (with corn, wheat, hogs, and cattle leading the list) moved eastward as in the opposite direction, reflecting the dependence of the Union and its armies on western supplies. The average freight-car load was barely over seven tons, and the average revenue exactly $2\frac{1}{2}$ cents per ton per mile.

The Financial Record to 1865: Like all fledgling enterprises, the Aurora Branch at first had its full share of financial worries. Although the citizens of Aurora subscribed willingly to its stock, there was a definite limit to available local funds, and outside support was solicited almost at once. To buy the first rails as well as the pioneer *Whittlesey*, it was necessary to sell a \$45,000 bond issue—the company's first—in New York State in the spring of 1850. In July, 1851, capitalization was increased from the original \$100,000 to \$600,000, and the directors aimed a broad hint at Chicago by resolving that stock subscriptions from that city should be made "commensurate with the advantages to be derived" from the new road.

The solid support of Boston capital and the rapid increase of traffic, however, brightened the financial outlook in 1852. In October the company felt able to declare a semi-annual dividend of 6% and a special one of 8% "out of surplus earnings." Dividends were paid regularly the next three years, and Forbes wrote to a business associate that the C. B. and Q. had "passed safely through the infantile diseases of railroads, and its chance seems to me good for the future."

Even the Panic of 1857 failed to dampen the optimism of the management. "Notwithstanding the diminished income of the road, consequent upon the extreme depression in business, and the sacrifices that have been made during the financial disturbances of the past fiscal year," wrote President Van Nortwick in June, 1858, "the Directors have undiminished confidence in the success of the enterprise in which we are engaged." Nevertheless dividends were reduced to 5% in 1858 and omitted entirely the next two years. No sooner had recovery set in, as evidenced by another 5% dividend early in 1861, than the Civil War burst upon the nation. The dislocation of northern business was, however, momentary. After omitting (for the last time in its 100-year career) any dividend in 1862, the company witnessed a 90% rise in net income for the year ending April 30, 1863. Net income was even higher the next year, although rapidly advancing prices and heavy sinking fund payments reduced the amount available for dividends. As William B. Ogden, president of the rival North Western, frankly observed to his stockholders a year later, the Burlington had "made itself one of the largest earning and best paying roads in the country."

Joy wrote shortly after the close of the conflict: "While we may congratulate stockholders upon the success and value of their

investment, we may remind them also that ownership of a property like this carries with it duties to themselves and to the public. There is the duty to protect its value, and increase its ability for usefulness by completing those works which the property itself renders necessary, and which no other interest is capable of accomplishing." It was in this spirit, as the eyes of the nation turned to the Great West after the Civil War, that the men who molded Burlington policy not only sought to extend and improve the plant in Illinois, but turned to the more adventurous task of building up the lines they had already sponsored beyond the Mississippi.

The Aurora Shops of the Burlington, shown below as they appeared in the late 1860's, have long been one of that city's major industries.



Extension of the Burlington System, 1864-1901

One notable characteristic of the Burlington during its rapid expansion following the Civil War was the continuity and stability of its management. Until the closing years of the century, Forbes, flanked by the "solid men" of Boston, was the presiding financial genius and elder statesman despite the fact that Joy occupied the limelight in the decade immediately following the conflict. Beginning in 1875 the steadier but equally aggressive Charles E. Perkins emerged as the "strong man" of the system. A man of high principles and keen administrative talent, he had since 1859 been rigorously schooled in practical railroading on the B. & M. of Iowa, and later in Nebraska. Enjoying the unwavering support of Forbes, he integrated the system loosely held together by Joy and virtually tripled the size of the Burlington during his presidency from 1881 to 1901.

Meanwhile the company firmly established its reputation as a dependable and progressive carrier, a sound financial enterprise, and a responsible member of the community.

The Hannibal and St. Joseph: The oldest and in many ways the most colorful segment of the Burlington beyond the Mississippi River was the Hannibal and St. Joseph, chartered on February 16, 1847, to build between the cities named in its title so as to provide a short-cut between the Mississippi and Missouri rivers. Promoted by important citizens at each end of the route (one of whom was John M. Clemens, father of Mark Twain), work was commenced at Hannibal in 1851. On June 10, 1852, Congress offered a grant of public lands provided that "any property or troops of the United States" should move "free from toll" and that the United States mail should be transported "at such price as Congress may by law direct." (The federal government eventually agreed to pay 50% of commercial rates for troops and property, and 80% of the mail rates charged by roads that had not received land grants.) Encouraged by this grant, and by the realization that the new line would provide a connection westward to the Missouri from the southwestern terminus of the C. B. & Q. at Quincy, the Boston group soon began acquiring the road's securities. But control brought problems as well as promises for the future; Forbes had to scour Europe for funds. Yet work progressed



The far-flung railway post-office service of today had its inception when mail was first sorted in transit on the Hannibal & St. Joseph in 1862.

steadily—with the aid of an early steam shovel—and the construction gangs that had started from opposite ends met between Chillicothe and Cream Ridge on February 13, 1859. The next day a train made the through run from Hannibal to St. Joseph, inaugurating the first rail service to the Missouri River. That summer Abraham Lincoln traveled over the line on his way to Council Bluffs, and used it again in the fall on his way to a speaking tour in Kansas.

Prior to the building of the Hannibal and St. Joseph, trans-continental mail had reached the Missouri by steamer and stage. On April 3, 1860, however, a special train, hauled by a wood-burning locomotive, carried the mail the length of the line in slightly over four hours. Upon arrival at St. Joseph, the letters were handed over to the rider making the first relay on the inaugural westbound run of the famous Pony Express. Two years later another epoch-making improvement was introduced when, on July 28, 1862, the first railroad car equipped for sorting the United States mail in transit operated from West Quincy to the Missouri River.

The war years raised havoc with the Hannibal and St. Joseph. Bridges were burned, property destroyed, and the rails torn up by Confederate raiders. Operations were hazardous, but the

company, guided from Boston, stood staunchly on the Union side. Each employe even had to sign an iron-bound pledge of allegiance to the Federal government. Eventually Northern troops built a string of blockhouses along the route which safeguarded the operations of the railroad and permitted orderly sales of lands granted to the company.

No sooner had the conflict ended than the Hannibal and St. Joseph began to improve its connections and reach into new territory. A branch had already been built from Palmyra to West Quincy and on November 9, 1868, the road obtained a direct physical link with the C. B. & Q. when a bridge, sponsored by Joy, was completed over the Mississippi River at Quincy. Meanwhile a branch had been constructed between Cameron Junction and North Kansas City, and on July 4, 1869, the company opened the first bridge to span the Missouri River, thus establishing through service into Kansas City.

The close ties between the C. B. & Q. and H. & St. J. were temporarily loosened when, in 1871, Jay Gould and his allies in New York secured control of the Missouri line. For the next dozen years the property was used as a pawn in the bitter rate wars and shifting alliances of the region, and its finances suffered accordingly. Traffic interchange with the C. B. & Q. remained so important, however, that by May, 1883, the Burlington reacquired controlling interest in its stock and bonds. Thereafter the famous "St. Jo Line" became an integral part of the Burlington system.

View of Burlington, Iowa, in 1869 when Burlington and Missouri River Railroad was nearing completion across southern part of state.



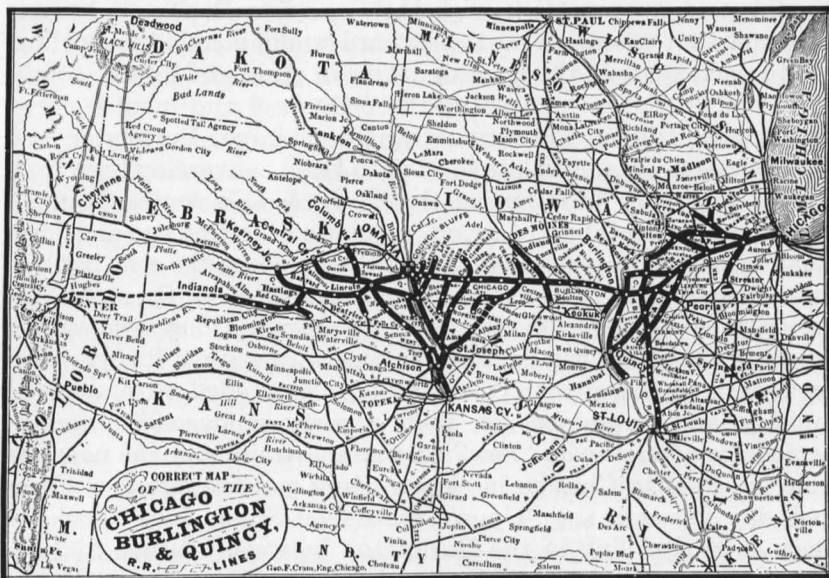
It was formally leased on July 1, 1900, and deeded to the parent concern on January 1, 1901.

The Burlington and Missouri River: The origin of the "Burlington Route" as a pathway westward from the Mississippi River is lost in the mists of history. When the Black Hawk Purchase in eastern Iowa was first opened to white settlement in 1833, a well-traveled Indian trail existed where the present main line of the railroad runs, and in December, 1851, a plank road company began to operate from Burlington—named after the city in Vermont—to Mt. Pleasant, 28 miles to the west. At the very meeting held to celebrate this event, however, the citizens along the route resolved that "while we regard our plank roads as emphatically the farmer's highway to market and prosperity, yet we ardently look for the time when the Mississippi shall be connected with the Missouri by railway, thus facilitating communication between remote points and constituting a part of the railroad to the Pacific Ocean through southern Iowa." Within a month, on January 15, 1852, William F. Coolbaugh and other leading men of the region, strongly supported by James W. Grimes, incorporated the Burlington and Missouri River Railroad to build across the state. Joy and Brooks, acting on behalf of the Michigan Central, notified the B. & M. directors early in 1853 that they would lend financial aid, since the projected line would provide a natural westward extension of the rapidly-building C. B. and Q., which in turn served as a western feeder for the Michigan road. Assured of such powerful assistance, the B. & M. immediately authorized a survey. Contracts were let the following year, and on New Year's Day, 1856, the company's first engine ran over the few miles then completed. In May of that year Congress finally heeded the company's plea for a land grant, while in Boston Forbes redoubled his efforts to raise funds for further construction. As a result, despite the Panic of 1857, the road reached Ottumwa, 75 miles west of Burlington, on September 1, 1859. The Civil War, with the consequent scarcity of men, material, and capital, and the uncertainty of trade, prevented the B. & M. from building farther westward while hostilities continued. But even this 75-mile feeder was so valuable to the C. B. & Q. that in 1864 the latter agreed to devote half of its gross earnings on Iowa business to the purchase of the B. & M.'s preferred stock and bonds. By this ingenious arrangement, the Iowa line obtained funds for its extension westward, while the C. B. & Q. increased its equity in the Iowa property.

Within three months after Appomattox, construction was resumed in Iowa. With Joy as president and the youthful Perkins on the ground as superintendent, the line was pushed steadily toward the Missouri River. The last spike was driven at Glenwood in November, 1869. Service to East Plattsmouth began on January 1, 1870, and two days later was extended to Council Bluffs by way of Pacific Junction over the tracks of another Joy-controlled line, the Kansas City, St. Joseph and Council Bluffs. Progress across Iowa had indeed been slow, but the company reached its goal without going through bankruptcy—a rare achievement—and was ready to share in the rich traffic that was expected to develop in eastern Nebraska. Meanwhile, on August 13, 1868, completion of the Mississippi River bridge at Burlington provided a through railroad to Chicago. On the last day of 1872, the B. & M. was leased by the C. B. & Q., thus putting the latter on an equal competitive basis with the North Western and Rock Island, both of whom had completed their own lines to Council Bluffs. In 1875 the Burlington purchased the Iowa road and thereby acquired one of its most valuable assets, Charles E. Perkins, who became a director, vice-president, and chief field general of the parent line.

The B. & M. in Nebraska—Extension to Denver: Even before the Iowa road was completed, plans were made for an extension westward into Nebraska. In 1864, Congress had authorized the B. & M. to build a short-cut from Plattsmouth, Nebraska, opposite its projected western terminus, to a junction with the Union Pacific near the 100th meridian, and had offered as an inducement a land grant of more than two million acres. Early in 1869 the B. & M. directors formed a new corporation, the Burlington and Missouri River Railroad in Nebraska, to build the projected line, and on July 4, ground was broken at Plattsmouth. Although this enterprise was technically independent, close relations with the B. & M. of Iowa and with the C. B. & Q. were assured through interlocking directorates.

During the summer of 1870, the rails reached Lincoln, the newly designated state capital, and in 1871 the lease of the Omaha and Southwestern gave the new company independent access to Omaha by way of Oreapolis. Finally, despite the threat of Indian attacks and the difficulties of construction in a virtually uninhabited country, the main line of 194 miles was completed westward to the Union Pacific rails at Kearney Junction on September 18, 1872. By the time the Missouri River Bridge at Plattsmouth was opened on September 12, 1880, the company had constructed



Map of C.B. & Q. about 1880 showing projected line to Denver. Note the Twin Cities line had not been built and the H. & St. J. was not included in system.

numerous branches and pushed as far westward as Indianola. The value of this westernmost feeder to the parent system was now thoroughly established; consequently in July, 1880, the C. B. & Q. acquired the Nebraska company by outright purchase, and in August, 1881, began building toward Denver. The next spring construction made feasible by using the first rails ever rolled in Pueblo was also undertaken eastward from Denver. The final spike was driven on May 24, 1882, and the through line opened for traffic five days later. Chicago and Denver were connected by the tracks of one railroad under single management.

Expansion in Illinois and to the Twin Cities: As the Burlington system marched steadily westward, it continued to build up its interior lines. By 1872, Mendota was connected via Denrock with East Clinton, and eventually Fulton, thus providing another outlet on the Mississippi. Early in 1877, lease of the St. Louis, Rock Island and Chicago between Sterling, Denrock, and East Alton provided a strategic north-south route in western Illinois, and, by means of trackage rights, gave access to St. Louis.

Meanwhile the idea of building to the Twin Cities steadily gained momentum. When the Northern Pacific had reached Puget Sound, and James J. Hill had extended his forerunner of the Great

Northern to a connection with the Canadian Pacific, it became apparent that extension northwestward would enable the Burlington to participate in the growing traffic in grain and lumber southward and in the movement north of the coal and manufactured products of Illinois. Consequently, the Chicago, Burlington and Northern was organized late in 1885 to build converging lines from Fulton (northern terminus of the C. B. & Q.'s routes from St. Louis and Mendota) and Oregon (a point on the Chicago and Iowa Road from Aurora) to Savanna and thence along the east bank of the Mississippi to St. Paul. Although the C. B. & Q. was but a minority stockholder in the new concern, a long-term traffic arrangement and substantial bond ownership assured its operation as a part of the system. Construction proceeded with unusual rapidity, and on October 24, 1886, a party of journalists accompanied the officials who "flew" on the first train over the new line from St. Paul to Chicago in eleven hours and ten minutes. From that day forward, the "Upper Mississippi Scenic Line" took its place as a vital link in the Burlington between Chicago and St. Louis on the one hand, and Prairie du Chien, Dubuque, LaCrosse, the Twin Cities, and the Pacific Northwest on the other. In 1892, the C. B. & Q. leased the Chicago and Iowa (whose tracks provided an air-line between Aurora and Oregon) and in 1899 purchased both that company and the Chicago, Burlington and Northern, thus placing the entire Twin Cities line under single ownership.

Further Expansion and Consolidation: During the single decade of the eighties, the railroad network of the United States increased 70 per cent, from 93,296 to 163,597 miles. In the next decade, mileage increased to 193,346. This tremendous activity was reflected on the Burlington not only by the completion of the Denver and Twin Cities lines and a host of minor branches, but also by such important construction as the extension to Centralia to tap the coal fields in that region, the alternate lines across Nebraska through Wymore to Oxford Jct., from Beatrice westward to Cheyenne, Wyoming, and the road from Lincoln northwestward to Alliance and beyond to the coal mines at Newcastle, Wyoming. Between December 31, 1880, and December 31, 1890, the Burlington grew from 2,771 to 5,160 miles. In 1894, the railhead was pushed from Newcastle on to a connection with the Northern Pacific at Billings, creating a short route between the Pacific Northwest and such points as Omaha, St. Joseph, Kansas City, and St. Louis. Six years later construction between Alliance

and Brush (on the Chicago-Denver main line) connected Denver with the mining and lumber territory served by the Northern Pacific, while the line from Northport to Guernsey tapped the potentially rich valley of the North Platte.

At the turn of the century, in order to simplify future financing, the Burlington acquired by deed those lines in its system still held only by lease or through stock and bond ownership. Under this program not only the Hannibal and St. Joseph and the roads to the Twin Cities, but also several other old and important subsidiaries were brought under the common roof. The Kansas City, St. Joseph and Council Bluffs, for example, had served the cities for which it was named since 1869. Its stock had been purchased by the C. B. & Q. in 1880; on July 1, 1900, it was leased, and acquired by deed January 1, 1901. Further south, the St. Louis, Keokuk and Northwestern had since 1879 provided through service along the west bank of the Mississippi between St. Louis (reached from St. Peters by trackage rights over the Wabash) and Hannibal. The road was extended to West Quincy in 1882, and acquired by stock purchase five years later. In 1894 it built an independent entrance into St. Louis where it had the distinction of operating the first train out of the present terminal. The company was leased by the C. B. & Q. on July 1, 1900, and acquired by deed six months later. Shortly afterward access to the Tri-Cities was improved when, in February, 1901, the Milwaukee and Burlington arranged for the joint ownership and operation of the 50-mile Davenport, Rock Island and North Western Railway which joined Clinton and Davenport on the west bank of the

St. Louis, Keokuk and Northwestern passenger train near West Alton, Mo., in 1902. This was one of many smaller lines consolidated into the Burlington.



Mississippi with Rock Island and Moline on the east, and connected with the C. B. & Q. at each end of the "loop" thus formed. As a result of this process of construction and consolidation, the Burlington Lines operated 7,992 miles of standard-gauge and 178 miles of narrow-gauge railroads by the spring of 1901.

Improvement in Plant, Equipment and Service: Extensive growth of the Burlington during the generation after the Civil War was matched by steady improvement in the physical plant. In 1876 the C. B. & Q. established a testing laboratory in Aurora. Eight years later a dynamometer car was constructed to obtain information for improving the efficiency of locomotives, for determining their proper tonnage rating, and for many other purposes. In 1886 and 1887 the company conducted at West Burlington the most exhaustive tests made up to that time in power brakes, and it was there in 1887 that George Westinghouse invented the triple valve which perfected the air brake and brought it into universal use to the exclusion of other types. Without this improvement, modern train performance could never have been achieved.

The Burlington began using steel rail as early as 1867, and by the turn of the century, maximum weight of rails had progressively increased to 85 pounds per yard. As the system grew and its roadbed and track became capable of bearing heavier loads, the locomotive and equipment roster expanded rapidly:

	1870(a)	1880(b)	1890(b)	1900(c)
Mileage operated.....	603	2,772	5,216	7,661
Locomotives.....	153	441	727	1,133
Freight cars: Box & Stock.....	2,159	11,457	21,018	33,299
Flat & Coal.....	700	3,274	5,767	8,988
Way cars.....	69	230	376	546
Passenger cars.....	70	184	377	680
Baggage, Mail & Express cars..	35	84	141	244
Dining cars.....	0	5	6	14
(a) As of April 30;	(b) As of December 31.		(c) As of June 30. In-	
C. B. & Q. only.	Includes B & M.		cludes C. B. & N.,	
	roads.		H. & St. J., etc.	

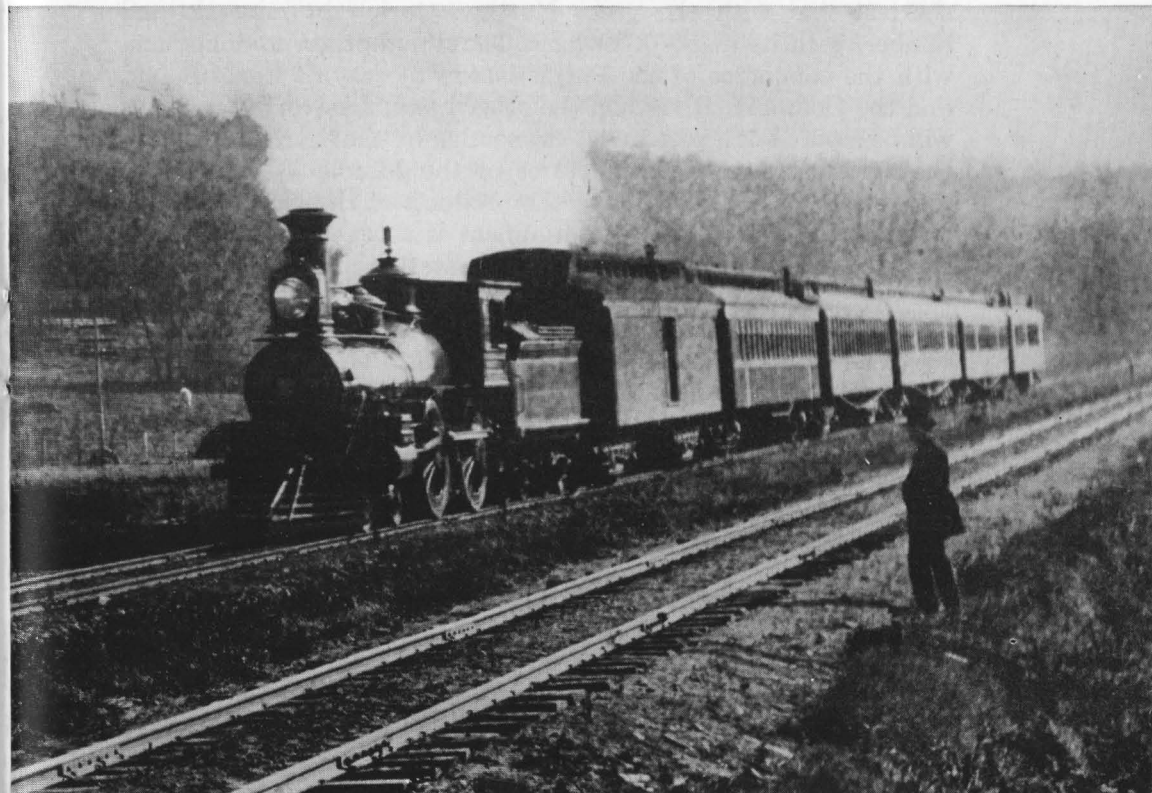
Until 1879, the motive power for both freight and passenger service was the American locomotive with a four-wheel pilot truck and two pairs of drivers (∠ooOO). In that year, the first Consolidation with eight drivers (∠oOooo) was inaugurated to take care of heavier freight trains, and this was followed a dozen years later by the Ten-Wheeler (∠ooOOO) designed for the same purpose, while the Mogul (∠oOOO) was developed for handling both freight and passenger trains. At the very end of the century, two important new engines joined the roster: the fleet Atlantic (∠ooOOo) for passenger service, and the Prairie (∠oOOOo), an

engine especially adapted for handling freight over the long level stretches of the Burlington. Refrigerator cars were introduced in the mid-1870's. By 1866 at least four sleeping cars were in operation. In January, 1870, two Pullman-owned combination diner-sleepers went into regular service between Chicago and Council Bluffs. By 1888 trains equipped throughout with vestibule cars were running between Chicago, the Twin Cities, and Denver.

One colorful event of the period was the inauguration on March 10, 1884, on less than 24 hours' notice, of the Fast Mail between Chicago and Council Bluffs. As a result of the performance of that train and its ever-speedier successors, the Burlington has continued to be the leading carrier of the transcontinental mail over this vital stretch. Passenger schedules kept pace with the increasing tempo of the times. In 1887, for example, through passenger trains from Chicago took 43 hours to reach Denver, 20 hours to Kansas City, and 16 hours to St. Paul. By 1900 these schedules had been cut to 27½ hours, 14½ hours, and 13¼ hours, respectively. Freight service exhibited a parallel improvement.

Operating and Financial Results: The steady and substantial earnings revealed by the charts on page 41 resulted from two fundamental characteristics of the Burlington: expanding traffic efficient-

Chicago, Burlington and Northern train in late 1880's, shortly after Mississippi River Scenic Line had been completed to St. Paul.



ly handled on the one hand, and conservative financing on the other. Although from 1864 to 1901 outstanding capital stock increased from \$6,500,000 to \$110,000,000, and funded debt from \$5,500,000 to \$147,000,000, the ratio of total capitalization (less sinking funds) to mileage was almost exactly the same in 1901 and 1864: approximately \$29,000 per mile. This figure contrasts sharply with a national average for all railways of over \$49,000 per mile on June 30, 1901.

Sale of the C. B. & Q. to the Northern Lines: The turn of the century witnessed far-reaching changes in the management of the Burlington. The death of Forbes in 1898 symbolized the close of an era; for 47 years he had guided the company's finances, serving as director for the last 41 years of his life. At the end of February, 1901, Perkins resigned in order, as he put it, "to push others to the front." George B. Harris became president, although Perkins remained on the Board "as a sort of guiding Director," and during the spring of 1901 handled the negotiations with Hill which culminated on April 25 in the sale of the company to the Great Northern and Northern Pacific at \$200 per share.

There were many reasons on both sides for this far-reaching step as explained by Perkins' letter in April, 1901, to the editor of the *Burlington Hawkeye*: "The C. B. & Q. Company will continue to do business precisely as heretofore. . . . But it will be assured of what it does not now possess—a permanent connection by the shortest line with the great Northwest, rich in minerals and lumber, with its markets for agricultural and other products, and with the commerce of the Pacific Ocean by way of Puget Sound and the Columbia River. On the other hand, the Northern Roads will be assured of a permanent connection by the shortest line with the agriculture and manufactures of the Middle West and the markets to be found there for the products of the North and the commerce of the Pacific. No argument is necessary to show that this assured permanency is of the greatest importance to all of the interests concerned, the people as well as the railroads. . . . The whole effect of the combination will be beneficial."

The dramatic attempt of Harriman to seize the Northern Pacific and with it one-half control of the Burlington in May, 1901, nearly upset the proposed alliance. But Hill retained control of the Northern Pacific by the narrowest of margins, and the so-called "Hill Lines," comprising over 18,000 miles of road, faced the new century as a strong and vigorous team.

Growth of the System since 1901

Logically enough, the principal expansion of the Burlington after 1901 was to balance out the system as a whole and to fill in interior links.

Background of the Colorado & Southern, Fort Worth, and Wichita Valley: The first segment of this group was the 15-mile line from Golden to Denver, completed by the Colorado Central Rail Road Company in 1870 and extended to Cheyenne seven years later. The central and southern portions of the system were put under way simultaneously, but by separate companies at Fort Worth and Denver in 1881. After overcoming bitter opposition from rival roads, John Evans brought the rails of the Denver, Texas & Fort Worth southward to Texline (on the Texas-New Mexico border) early in 1888. There he met Grenville Dodge's Fort Worth & Denver City, a company already controlled by the D. T. & Ft. W. through stock ownership. Through service between Denver and Fort Worth was inaugurated on April 1, 1888, and from the outset the two companies operated as a single system. So attractive was this property that the Union Pacific organized a subsidiary known as the Union Pacific, Denver and Gulf Railway Company which on April 1, 1890, purchased virtually all the present Colorado and Southern and with it control of the Fort Worth & Denver City. An extension was promptly built to a connection with the Chicago and North Western at Orin Junction.

In 1893, the Union Pacific, along with the Union Pacific, Denver and Gulf, went into receivership. As reorganization proceedings dragged along over five years, it became apparent that the Colorado and Texas roads would be separated from the Union Pacific. The Colorado and Southern Railway Company was organized on December 19, 1898, and ten days later acquired the Union Pacific, Denver and Gulf (including its interest in the Fort Worth) as well as the Denver, Leadville, and Gunnison, a narrow-gauge road that included the Denver, South Park and Pacific.

For a decade, the Colorado and Southern pursued a policy of expansion on its own account. Late in 1905 it purchased control of the Trinity and Brazos Valley which, by virtue of trackage rights and subsequent construction, provided a through route from both Fort Worth and Dallas to Houston and Galveston. At the same time the C. & S. bought control of the Wichita Valley which



Colorado and Southern in 1908 had 385 miles of narrow-gauge line. Shown above is the last narrow-gauge run—Climax to Leadville, August 25, 1943.

it extended southwest of Wichita Falls. Later, a 50% stock interest was obtained in the 337-mile Colorado Midland.

Both Hill and Harris watched these developments with intense interest, and late in 1907 or early 1908 opened negotiations to acquire control of the Colorado company. By then the C. & S. Lines were operating 1952 miles (of which 385 were narrow gauge) and, by means of the T. & B. V. (whose control was now shared with the Rock Island), provided a through route from Wyoming to the Gulf. A feasible, though somewhat round-about connection existed with the Northern Lines via the Burlington's line from Denver through Brush and Alliance to Billings.

Hill, as always, was seeking balanced traffic for his system. It was his belief that a thriving business could be built up by exchanging the coal, minerals, livestock, and agricultural produce of Texas and Colorado for imports from the Orient and timber and other products that were available in the Pacific Northwest. Consequently, on December 21, 1908, the C. B. & Q. acquired stock control of the Colorado and Southern; the Burlington now owns 70.7% of the total shares issued.

Growth in the West: In view of its ownership of the Colorado and Southern, the Burlington in 1909 began extending its Billings-Kirby branch as a heavy-duty line with easy grades southward through

the Wind River Canyon to Orin Jct. to provide an improved link with the Northern Lines. By the time this major extension was completed in the fall of 1914, the Great Northern had built into Billings so that both northern companies could enjoy direct connections with Denver and the Gulf. This through route was further improved in 1925 when the Fort Worth extended its own operations to Dallas under a trackage agreement with the Rock Island. Additional feeder lines in the Texas Panhandle were constructed between 1927 and 1932. Meanwhile, in 1930, the Trinity and Brazos Valley emerged from a 14-year receivership as the Burlington-Rock Island.

Growth in the East: Extensions east of the Missouri River since 1901 have been more important from a traffic than a mileage standpoint. Service between St. Louis and Kansas City was improved in 1904 by the construction of a 63-mile link from the old Keokuk Road just north of St. Louis to a junction with the Alton near Mexico, Missouri. In 1908 the C. B. & Q. purchased a newly built Illinois line between Centralia and Herrin, and six years later acquired additional mileage and trackage rights to Metropolis; in 1918 this line was connected by a jointly owned bridge across the Ohio River with southern roads serving Paducah, Kentucky. These southerly extensions were to secure on-line coal for the system, and to open up a new gateway between the South and the Middle West. During 1930 and 1931 the C. B. & Q. acquired a minority stock interest in the Gulf, Mobile and Northern, now Gulf, Mobile and Ohio.

Since the first World War, there has been a reduction of road mileage, but the system's capacity as a whole has been vastly increased by the building of multiple tracks, installation of more efficient signal devices, and the use of modern equipment. Since 1917 the C. B. & Q. has abandoned 886 miles of unprofitable line, the C. & S. 520 miles (including the last of the narrow gauge), the Wichita Valley 35 miles, and the Burlington-Rock Island 54 miles. At the close of 1948, the Burlington Lines and the jointly owned Burlington-Rock Island operated 10,823 miles, serving 14 states.

CREATING THE MODERN RAILROAD

Research: Railway operation has always been a continuous business; there have never been any "annual models" for it has been impossible to shut down the plant for even 24 hours for re-tooling. Consequently much of the far-reaching scientific and technical progress of the industry has escaped public notice because it has lacked the dramatic element of sudden change. Yet for every innovation as revolutionary as the first Diesel streamlined train or as spectacular as the first Vista-Dome car there have been countless unheralded improvements that have steadily increased the efficiency and safety of the railway.

Since the turn of the century the laboratory at Aurora has extended its investigations into every phase of railroad operation. Successful experiments in the treatment of water for boiler use, for example, have been a major factor in improved steam locomotive performance, while expert analysis has virtually eliminated the incidence of transverse fissures in rail. Year in and year out a long list of varied materials purchased for the railroad have been subjected to most exacting tests, both by the company and by suppliers. But technical research has by no means been limited to the laboratory. Successors to the original dynamometer car have continued to gather data on motive power efficiency, while detector cars have maintained a perpetual patrol over the rails.

Road-bed, track, and structures: One constant aim of Burlington experiments during the Twentieth Century has been to strengthen and improve road-bed, rail, and structures so as to carry the heavier loads at the higher speeds imposed by the new motive power and equipment required to handle steadily mounting traffic. On high-speed main lines, specially prepared and processed crushed rock, blast furnace slag, and chatt (a by-product of lead and zinc mining first used in 1905) serve as ballast.

Toward the close of the last century the hardwood, principally white oak, that was originally used for ties was becoming scarce, and since the railroad had to resort to softwood with naturally inferior lasting qualities, it was imperative to develop some form of chemical treatment to retard decay. The Burlington was a pioneer in timber-treating; its first plant was erected in Edgemont, South Dakota, in 1899. This installation was subsequently

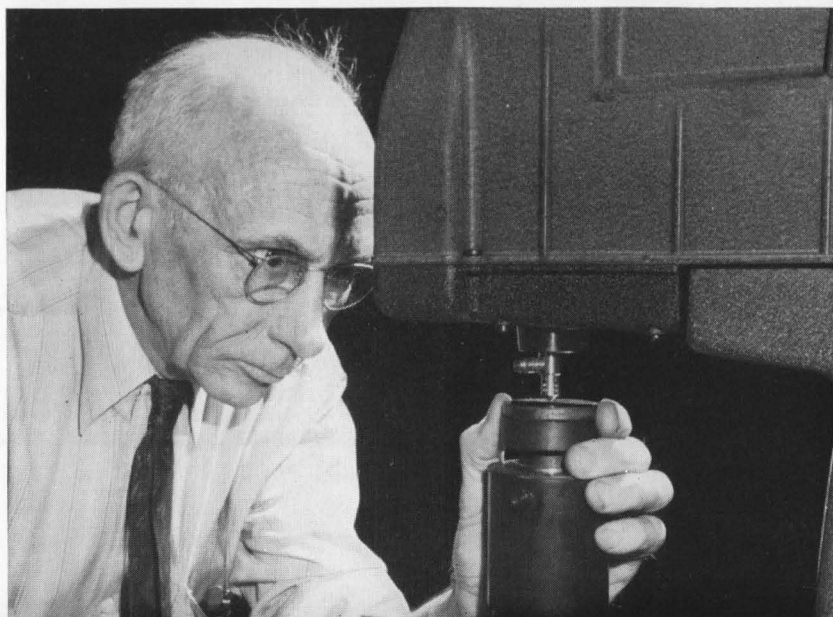
moved to Sheridan, Wyoming, and in 1908 a second and larger plant was built at Galesburg which covers 125 acres and is the largest railway owned and operated plant of its type in the country. Whereas in 1900 the average life of a tie was slightly over seven years, it has now been prolonged to over 20 years by scientific treatment.

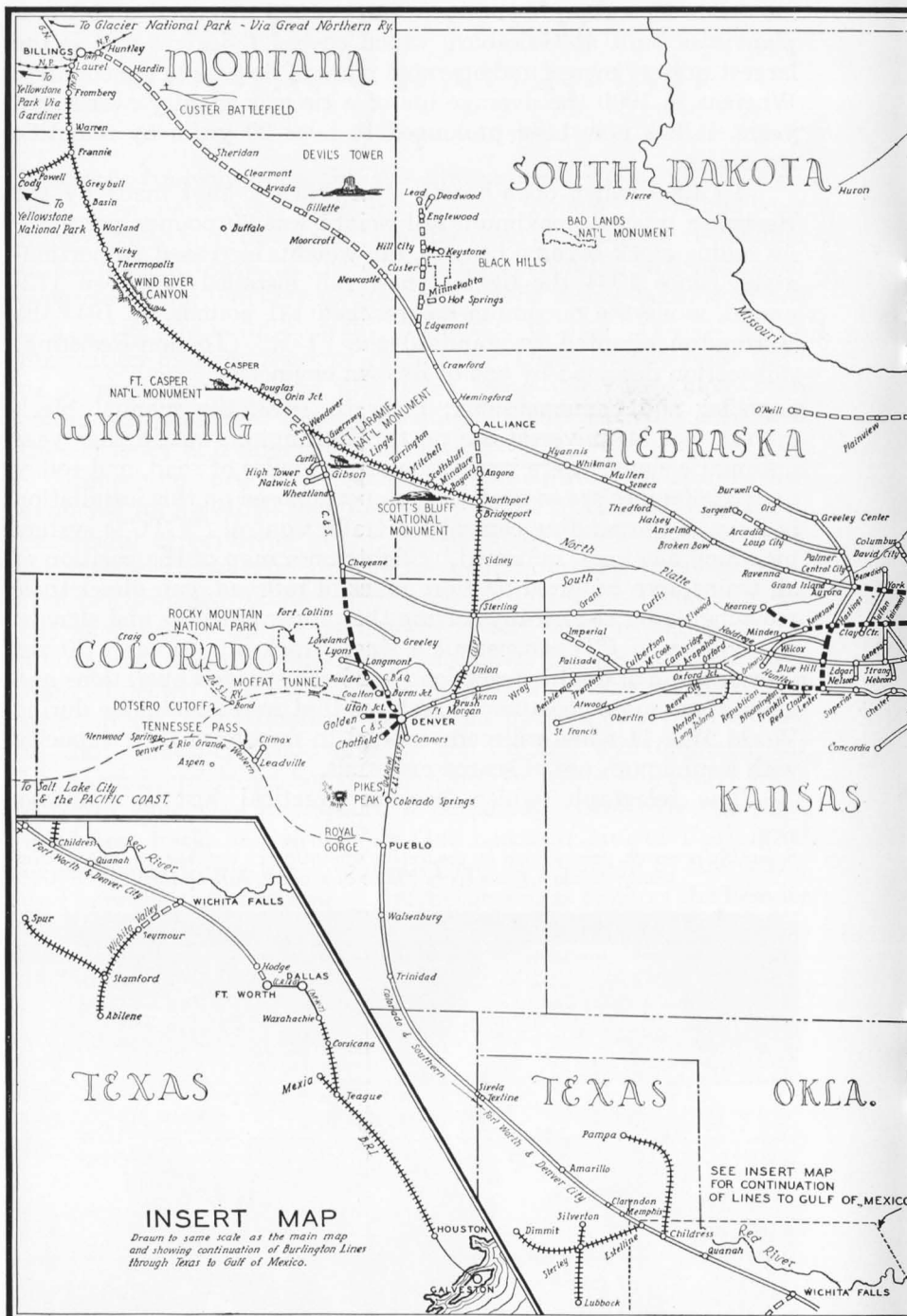
In 1909, when open-hearth steel replaced that made by the Bessemer process, maximum rail weight was 90 pounds per yard. As rolling stock became heavier, rail weights increased proportionately. Since 1934 the lightest new rail installed has been 112-pound, while the maximum has reached 131 pounds. In 1943 the Burlington adopted as standard the "T-R" (Torsion-Resisting) rail section designed by one of its own engineers.

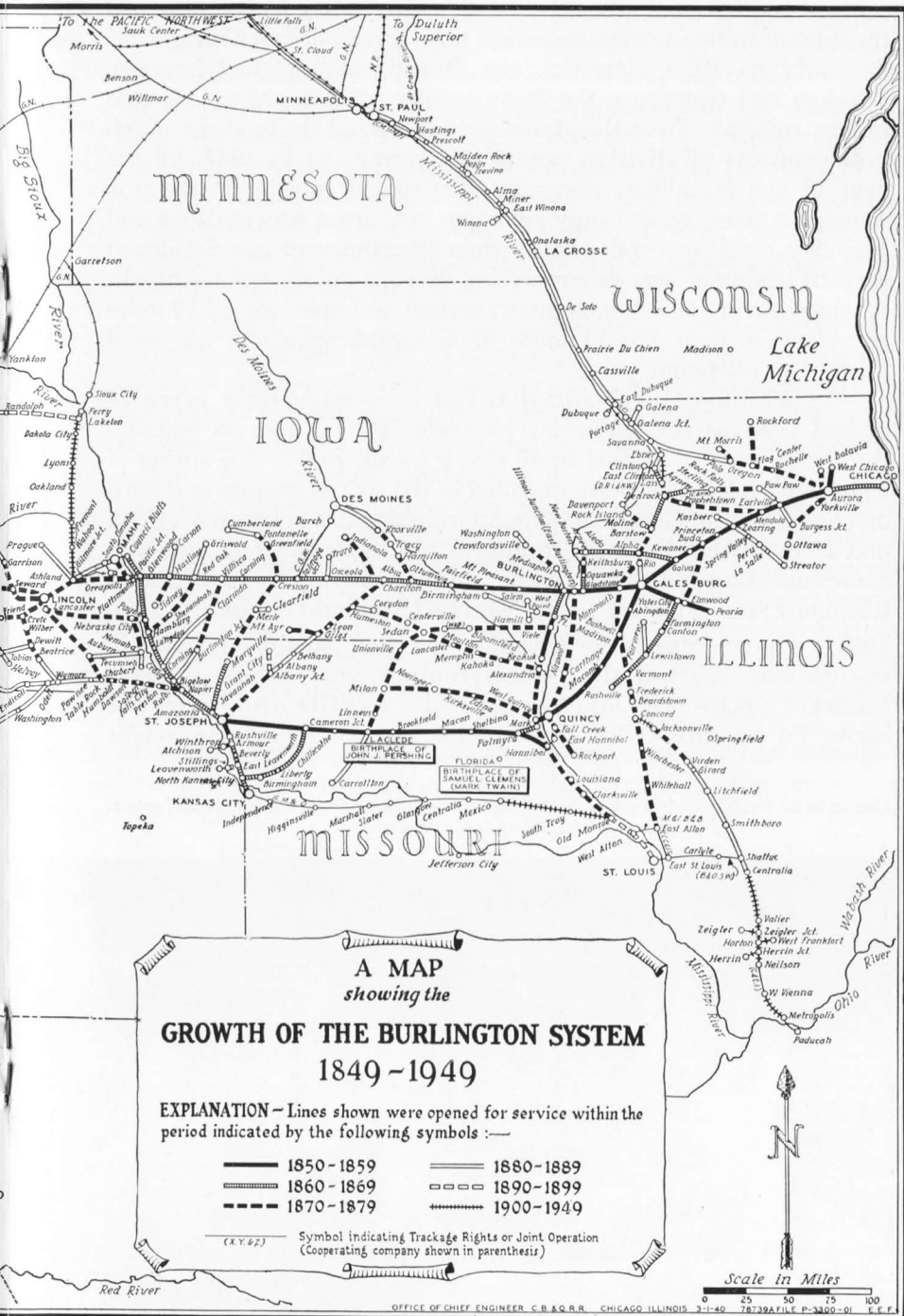
Signaling and Communication: Prior to 1903, the manual block system was in universal use on the Burlington, but in that year automatic signals were installed along 23 miles of road, and today over 3,000 miles are so protected. Superimposed on this installation is a rapidly expanding centralized traffic control ("CTC") system by which one man, informed by lights on a map of the position of all trains on a hundred or more miles of railroad, can direct their movements by electrically setting the proper switches and signals. The ability of CTC to permit a single-track line to carry 70 per cent or more of double-track load has both speeded operations and made them more economical, features that were invaluable during World War II when railroads needed to maximize their capacity with a minimum use of scarce materials.

The telegraph, which became practical just as railways

Scientific research, exemplified by the testing operation in the Aurora laboratories shown below, affects every phase of modern railroading.





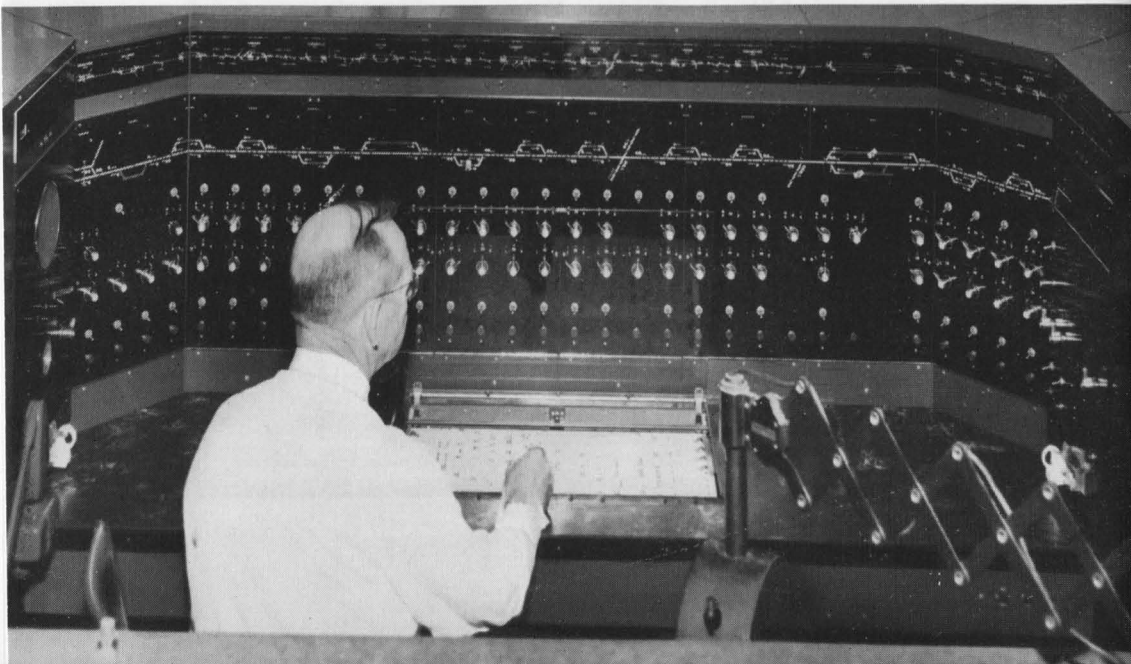


entered the national scene, held undisputed sway as the principal medium of railroad communication until after the first World War. As early as 1910, however, the Burlington installed between Chicago and Galesburg the first "printing telegraph" to be used on any railroad. From this device was perfected the teletype which now connects all division points and terminals; in 1947, 92 per cent of the 50-million telegrams dispatched on the Burlington moved by teletype and only eight per cent from way stations and branches by Morse code. Meanwhile the company has developed its own telephone service connecting division points and terminals. At the close of 1947, the company owned and operated 8,519 miles of pole line, over 26,000 miles of telegraph wire and an equal amount of telephone wire.

In addition, the Burlington has adopted various types of special systems for particular purposes. Public address installations are now functioning in all major yards, and in the spring of 1944 radio-telephones were installed in the switch engines and yard office at Chicago. Early in 1947 road freight trains between McCook and Denver were similarly equipped to provide constant two-way communication between engine and caboose. In 1948 radio-telephony was extended to the Kansas City and Galesburg yards.

Motive Power—Steam: As freight loads grew steadily heavier in the opening years of the present century, the multiple-wheeled Mallet ($\angle o O O O O O O O$), the Mikado ($\angle o O O O O o$), and the Santa Fe ($\angle o O O O O O o$) were successively developed for freight

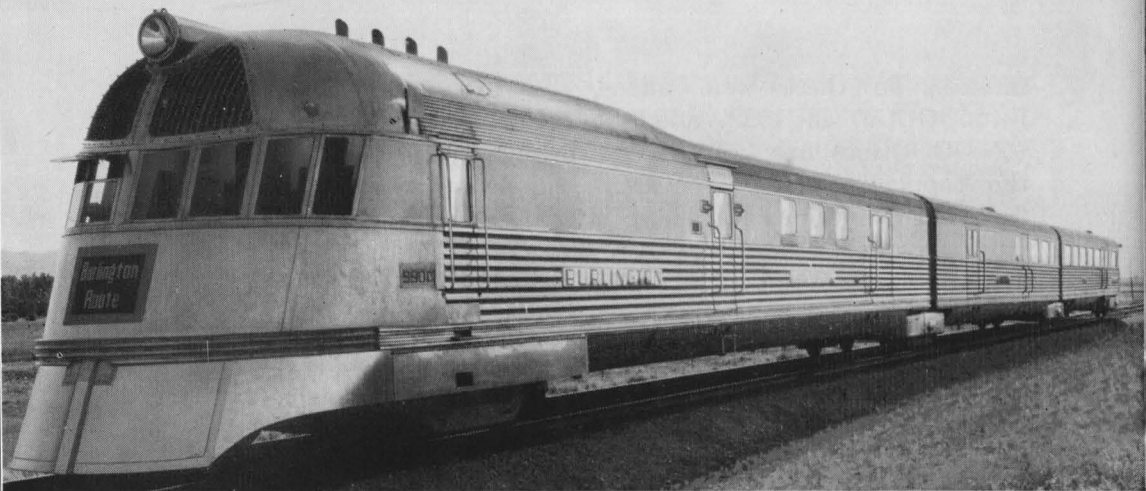
Centralized traffic control gives dispatchers continuous information and instantaneous control of train movements.



service. To these were added the Mountain-type engines (∠ooOOOOo) in 1922, and the heavy Colorado locomotives (∠oOOOOOoo) five years later. Meanwhile, beginning in 1906, the popular Pacifics (∠ooOOOo) supplemented the passenger fleet and maintained leadership in that service until the heavier Hudsons (∠ooOOOoo) took over the crack trains in 1930. Steam motive power development culminated in that same year with the introduction of the versatile Northern type (∠ooOOOOoo), capable of handling either heavy freight or passenger trains on sustained high-speed schedules.

During the last generation, the improvements incorporated in the most recent types of motive power have doubled the efficiency of the steam locomotive. The introduction of roller bearings, lightweight reciprocating parts, and the accurate cross-balancing of large locomotives have permitted unusually smooth and economical operation at high speeds, while the general use of nickel-steel and other alloys in construction has reduced the hammer blow of the drivers on the rails and insured longer life both of track and of locomotive parts. Other important steps forward have been the development of integral steel castings for locomotive and tender frames, and the perfection of superheaters, force-feed lubricators, and constant curve-resistance devices on engine trucks and trailers; in connection with this last improvement, radial spring buffers have practically eliminated jolting when the train starts or stops. The widespread use of automatic stokers and introduction of enclosed cabs have contributed greatly to the comfort of engine crews.

Motive Power—Diesel: The most revolutionary event in the history of Burlington motive power has been the introduction of the Diesel-electric unit. The company's long experience with gas-electric cars on branch lines had demonstrated the economy of the internal combustion engine. Thus, when a lightweight Diesel engine was first produced in 1933, and when at the same time lightweight cars became practicable, the Burlington experimented with a complete Diesel-electric train for main-line service. Working in close collaboration with the railroad, the Electro-Motive Corporation built a 600-HP engine as the power unit for a three-car articulated stainless steel train constructed by the E. G. Budd Mfg. Company in Philadelphia. There, on April 9, 1934, the first test run was made. On April 18 America's first Diesel streamlined train was christened the *Zephyr*, and



The original Zephyr, inaugurated by the Burlington in 1934, introduced the Diesel-powered, streamline era to railroading in America.

started on an exhibition tour of eastern cities and along the Burlington. On May 26, 1934, the entire nation followed the dawn-to-dusk non-stop run from Denver to Chicago; on this record-breaking trip the little train covered 1,015 miles in 785 minutes at an average of 77.6 miles per hour, and with a top speed of 112.5 miles per hour. This performance, dramatically concluded before a vast throng at Chicago's "Century of Progress" Exposition, conclusively demonstrated the ability of such a train to maintain with safety a consistently high speed. During the summer of 1934 the *Zephyr* continued its exhibition tour across the country, and was visited by over two million people in 222 cities. On November 11, 1934, it ushered in a new and brilliant chapter in American railroading when it entered regular service between Lincoln, Omaha, St. Joseph, and Kansas City.

So successful was this train in respect to dependability and economy of operation that the Burlington at once inaugurated a long-run Dieselization program. In addition to expanding its *Zephyr* passenger fleet in spectacular fashion, the company began acquiring separate units for switching service in 1934, for passenger service in 1936, and for freight service in 1944. As a result, by the spring of 1948 all switching in major yards and a substantial proportion of both freight and passenger main-line service (including, for example, all passenger runs except commutation on the Chicago-Denver line) had been Dieselized. The main-line fleet has had an average availability of over 94 per cent. The introduc-

tion of the Diesel locomotive was a revolutionary event in the history of the Burlington and of the railway industry.

Equipment: Progress in equipment, both freight and passenger, has kept pace with the developments in motive power. Specialized freight cars have been designed and perfected for the increasingly diverse needs of agriculture and industry.

The outstanding improvements in passenger equipment since 1900 have been the advent of the steel car, which came into general use just prior to World War I, air-conditioning during the thirties, the introduction of lightweight stainless steel streamline trains as a companion development to the Diesel-electric engine, and the pioneering introduction of the Vista-Dome car.

Growth of the Zephyr Fleet: In addition to marking a radically new departure in motive power, the *Zephyr*, launched in the Depression, symbolized the Burlington's determination to regain for the railroad the passenger traffic lost to the highways, and to create new business. In the seven years preceding Pearl Harbor the company added a dozen more Zephyrs on eight different runs.

World War II interrupted the expanding program of streamlined passenger service, but at its close the trend was resumed as rapidly as materials became available. In 1945, the Burlington introduced the country's first Vista-Dome car, which proved so popular that 40 cars of this type were immediately ordered. By December 19, 1947, enough had been received to inaugurate two entirely new *Twin Zephyrs*, thus releasing the predecessor trains for fast daylight runs between Chicago and Omaha-Lincoln as the *Nebraska Zephyrs*. Appearing in 1949, the luxurious Vista-Dome *California Zephyrs* extended Zephyr service to the Pacific Coast through the heart of the Colorado-Utah Rockies via the Rio Grande and through the Feather River Canyon of California over the rails of the Western Pacific.

Terminals, Stations, and Yards: As important and often as striking as the Zephyr trains are the terminals and stations used by travelers on the "Q." At Chicago, the company owns a quarter interest in the Union Station completed in 1925. In St. Louis, Kansas City, Denver, and St. Paul, it occupies and owns a part interest in the modernized union terminals of those cities, while at Minneapolis it shares the Great Northern depot as a tenant. Other structures along the line are equally efficient and even more up-to-date; the modern field-stone station at LaCrosse, opened in



The new Twin Cities Zephyrs, introduced by Burlington in 1947, were the first regular-service trains in America with Vista Domes.

1940, set the pattern for the superbly appointed Burlington, Iowa, station dedicated in 1944.

Well-planned and ample yards are a prerequisite to fast, dependable freight service. At Galesburg, operating hub of the Burlington's "Lines East," the company in 1931 placed in operation a 49-track hump yard equipped with electro-pneumatic car retarders. In 1942, to meet the sudden increase in traffic brought about by World War II, another yard, including a 35-track hump with retarders, was put into operation. By October, 1943, at the end of a full year's operation, the new yard was saving an average of 1,291 car days per day which was equivalent to adding that much equipment to the nation's hard-pressed car pool.

To match these facilities on "Lines West," the "flat" yard at Lincoln, Nebraska, was converted in 1944 into a 36-track hump yard, equipped with retarders. With a capacity of 6,660 cars on its 65 miles of tracks, this enlarged yard cut an average of $1\frac{3}{4}$ hours from previous transit time of trains passing through the yard for re-classification. At Cicero, just outside Chicago, the 87-track-mile yard, capable of handling 6,590 cars, has met both war and peacetime requirements, but since World War II, the yards at North LaCrosse and West Quincy as well as those at North Kansas City, Dayton Bluffs (St. Paul), and Denver have been greatly expanded and modernized.

Shops: Without shops and servicing facilities, the "moving parts" of the railroad plant would soon come to a standstill. Construction of the extensive locomotive and car works at Aurora in 1855-56 enabled the company to keep its motive power and equipment in prime condition over the years, and as the network spread westward additional shops, such as the locomotive works at West Burlington and the plant for building cars at Plattsmouth, were erected at strategic points.

Conversion of the West Burlington facilities in 1916-17 to a locomotive shop for heavy repairs and for the construction of the largest type steam locomotive marked the opening of the modern era. A second major step was the construction in 1922-23 of a complete new locomotive shop at Denver to serve both C. B. & Q. and C. & S. In 1926 a steel car plant was erected at Galesburg for the repair and construction of open-top cars, and five years later the locomotive shop at Havelock, just east of Lincoln, was converted into a freight car shop for repair and construction of covered cars. This plant was further enlarged in 1943 when the steel open-top car plant at Galesburg was moved to Havelock, where virtually all freight cars for the Burlington Lines now are manufactured. The principal shops of the Fort Worth and Denver have long been located at Childress, Texas, where the process of modernization has been continuous.

In recent years, entirely new plants have been erected for the proper repair and servicing of Diesel equipment. Heavy repairs are handled in a shop specially designed for the purpose at West Burlington. Running repairs on Diesels are made at Chicago; Denver takes care of these repairs at the west end of the territory.

Finally, special facilities have been installed wherever appropriate. For example, the venerable Aurora shops, completely modernized, do all major work on passenger train cars, as well as specialized machine-shop jobs. Modern car-washing devices have recently been installed at Chicago and Denver. The extensive salvage plant at Eola, Illinois, the well-stocked General Storehouse at Aurora, and a host of collateral installations, including the extensive timber preservation plant at Galesburg, illustrate the fact that the modern railroad has grown into a complex bundle of industries.

Personnel: Railway employes are divided by the Interstate Commerce Commission into 128 categories that embrace practically every type of worker, from executive and engineer to plumber and

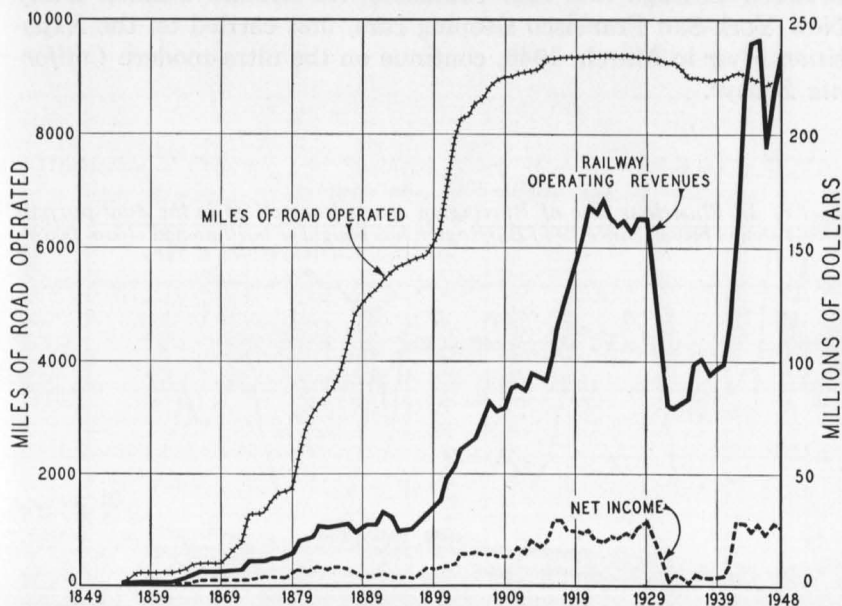
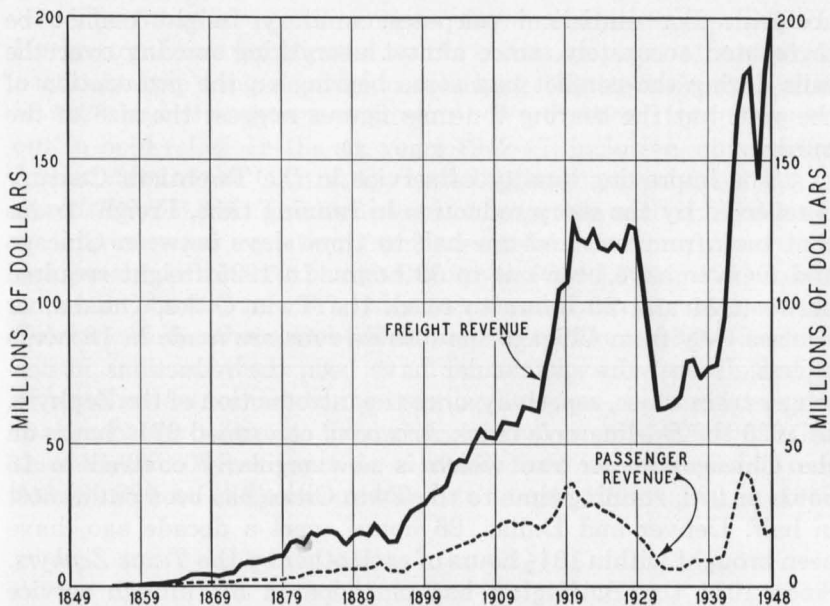


Gravity classification "hump" yards at Lincoln (above) and Galesburg expedite the movement of freight cars through these transportation hubs.

pattern-maker. In 1889, after 40 years of existence, the Burlington family topped the 20,000 mark and increased gradually until 1901 when the total exceeded 30,000. The 40,000-mark was passed in 1907, and augmented even further at the end of 1908 when the C. & S. and Fort Worth joined the system. The combined effect of World War I and government operation brought system employment to an all-time high of 68,830 in 1920. During the "prosperous twenties" the figure remained around 50,000, dipped to around 27,000 during the depression years, then climbed back through the period of World War II and reconversion to the 1948 level of approximately 37,000.

Service, Operations, and Finances: The prime purpose of a railroad is to produce transportation, and the best measure of a company's performance is the quantity and quality of such service produced over the years. The charts on page 41 give the highlights of the Burlington's development and achievements during its century of existence.

The service rendered by the Burlington during World War II is worthy of special mention. Between January 1, 1942, and the end of 1946, the Burlington Lines transported a total of 6,834,635 military personnel in 15,095 special trains and over 70,000 special cars, a feat accomplished without the loss of a single life in a train



Trends in C.B. & Q. freight and passenger revenues, miles of road operated, railway operating revenue, and net revenue are shown by these charts. Clearly reflected in the chart-lines is the history of the nation—the wars, the booms, the panics and depressions—for nearly a century.

accident. For statistical purposes, military freight cannot be segregated accurately, since almost everything moving over the rails during the conflict had some bearing on the prosecution of the war, but the soaring ton-mile figures suggest the size of the burden.

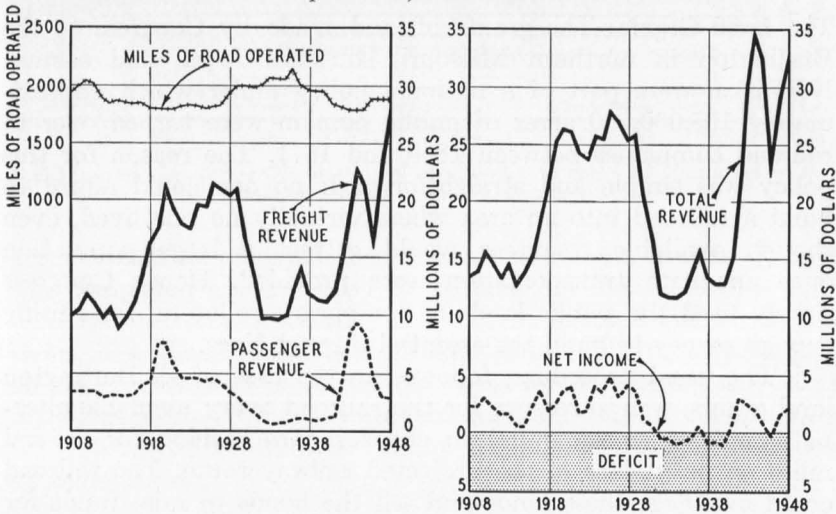
The improving quality of service in the Twentieth Century is reflected by the sharp reduction in running time. Freight trains that took from two and one-half to three days between Chicago and Denver have been cut to 39 hours. In 1925 freight required between 24 and 30 hours to reach the Twin Cities, Omaha, or Kansas City from Chicago; now those runs are made in 18 hours or less. Even more spectacular have been the reductions in passenger train times, especially since the introduction of the Zephyrs. In 1925 the Burlington's crack *Aristocrat* consumed 27½ hours on the Chicago-Denver run which is now regularly covered in 16 hours or less; running time to the Twin Cities has been cut almost in half. Denver and Dallas, 26 hours apart a decade ago, have been brought within 18½ hours of each other by the *Texas Zephyrs*. Since 1934 the Burlington has participated in through service between Chicago and San Francisco via Moffat Tunnel. Daily New York-San Francisco sleeping cars, first carried on the *Exposition Flyer* in March, 1946, continue on the ultra-modern *California Zephyr*.

Last of an illustrious line of Burlington steam locomotives is the dual-purpose 4-8-4 shown below. Since 1940 Burlington has bought or built no new steam power.



The financial performance of the companies comprising the Burlington Lines is indicated by the charts on pages 41 and 43. In particular the long depression following the stock market crash of 1929 and the enormous surge of World War II traffic stand out in bold relief. In the six years 1942-47, inclusive, outstanding funded debt of the C. B. & Q., including equipment issues, was reduced \$69,936,251. This achievement, together with the reduction of interest rates resulting from successful refunding operations, cut the annual interest charge from over \$9,000,000 in 1941 to well under \$6,000,000 in 1947. Mention should also be made of the Colorado & Southern Debt Readjustment Plan of 1941-42 which, without altering the capital structure, shrinking invested principal of bondholders, or disturbing existing liens and collateral, enabled that company to cut its fixed charges from over \$2,000,000 to less than \$1,000,000 per year. As a result, fixed indebtedness of over \$48,000,000 in 1941 was reduced to about \$27,000,000 in 1947.

Highlights of Colorado and Southern system (C.&S., F.W.&D.C., W.V.) operations, 1908-1948.



THE RAILROAD AND THE COMMUNITY

A railroad is far more than a provider of overland transportation even though that is its basic function. It is a civic promoter and colonizer, neighbor and employer, big business and financial institution, taxpayer, soldier, and regulated utility. Consequently, not even a brief account of a system as widespread as the Burlington can be told in terms of transportation alone.

The Railroad and the Farmer: The first objective of the Aurora Branch was to link the milling center of Aurora with the city of Chicago, and the principal freight business of the line was agricultural produce. Through the years the produce of farms and ranges has been such an essential part of the company's traffic that the C. B. & Q. has become known as a "granger road." Furthermore, between 1852 and 1864 various units of the Burlington system received for eventual sale to settlers approximately 3,500,000 acres of public domain which the federal government granted in order to encourage railway construction and thus hasten the development of the West. Thus, in addition to being a "granger road," the Burlington has been a colonizer as well.

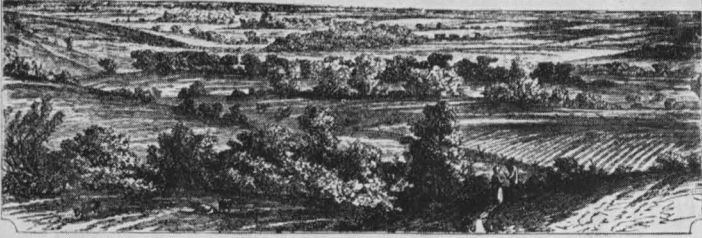
The Land Grants: The grants of land made by Congress to the Burlington in northern Missouri, southern Iowa, and eastern Nebraska, were part of a national policy under which approximately 155,000,000 acres of public domain were turned over to railroad companies between 1850 and 1871. The reason for this policy was simple and straightforward: no one could afford to build a railroad into an area where virtually no one lived, even though available resources would attract a large population once adequate transportation were provided. Hence Congress simply used the public lands as temporary collateral for raising enough money to build the essential through lines.

The usual procedure, followed in the case of all Burlington land grants, was to reserve for the railroad every available alternate section (square mile) in checkerboard fashion for several miles on both sides of the projected railway route. The railroad could mortgage these lands and sell the bonds to raise funds for

PRODUCTS WILL PAY FOR LAND AND IMPROVEMENTS!

MILLIONS OF ACRES

View on the Big Blue, between Camden and Crete, representing Valley and Rolling Prairie Land in Nebraska.



IOWA AND NEBRASKA LANDS

FOR SALE ON **10 YEARS CREDIT**
BY THE

Burlington & Missouri River R.R. Co.

AT 6 PER CT. INTEREST AND LOW PRICES.
Only One-Seventh of Principal Due Annually, beginning Four Years after purchase.
20 PER CENT. DEDUCTED FROM 10 YEARS PRICE, FOR CASH.

LAND EXPLORING TICKETS SOLD
and Cost allowed in First Interest paid, on Land bought in 30 days from date of ticket.
Thus our Land Buyers **GET A FREE PASS** in the State where the Land bought is located.
These **TERMS** are **BETTER** at \$5, than to pre-empt United States Land at \$2.50 per Acre.
EXTRAORDINARY INDUCEMENTS on FREIGHT and PASSAGE are AFFORDED TO PURCHASERS and THEIR FAMILIES.

Address **GEO. S. HARRIS, LAND COMMISSIONER,**
or **T. H. LEAVITT, Ass't Land Comm'r.** Burlington, Iowa.

Or apply to

FREE ROOMS for buyers to board themselves are provided at Burlington and Lincoln.

COMMERCIAL ADVERTISING PRINTING HOUSE, DULUTH, N. D.

CIRCULARS are supplied GRATIS for distribution in ORGANIZING COLONIES and to induce individuals to emigrate WEST.

A SECTIONAL MAP, showing exact location of our IOWA LANDS is sold for 30 Cents, and of NEBRASKA LANDS for 20 Cents.

B. & M. land circular, 1873, is typical of advertising material circulated in this country and abroad to attract settlers to West.

actual construction. Then as soon as each 20-mile stretch of track was completed and accepted by government inspectors, the railroad received deeds for the acres it had selected and could sell them to settlers. Proceeds from land sales could be used to pay off the mortgage placed upon the lands by the railroads. By this ingenious system, funds were obtained for aiding construction through territory otherwise wholly incapable of supporting such an undertaking.

Meanwhile, the alternate sections of public land still held by the government within the primary limits of the grant were doubled in price from \$1.25 to \$2.50 per acre. Thus the United States assured itself of as much revenue from land sales in the primary grant areas as it would have received if the grants had not been made, as well as a ready market for the sections it retained. Furthermore, in return for its lands, each beneficiary railroad had to carry the mails, troops, and federal property free of charge or at prices fixed by Congress. Eventually the government agreed to pay approximately 50 per cent of commercial rates for the transportation of troops and property, and 80 per cent for carriage of the mails. This formula was followed until the repeal of all land-grant rates in 1946.

Each of the three grants to what is now the Burlington system was made with some specific national advantage in mind. The grant of 600,000 acres to the Hannibal and St. Joseph in 1852 was not simply for the local benefit of northern Missouri, but to open that region as a market to the nation, to provide the first rail link between the Mississippi and the Missouri rivers, and to push the railhead closer to California. The act of May 15, 1856, reserving approximately 250,000 acres (increased in 1864 to 350,000 acres) for the Burlington and Missouri River Railroad in Iowa had a similar well-recognized purpose. "We of the Atlantic Coast," declared Senator Wilson of Massachusetts in explaining his support of the bill, "who are engaged in manufacture and commerce, all have a direct interest in the settlement and development, growth and prosperity, of the new states of the interior." The new states of the West and Southwest solidly joined the industrial North and East in supporting every land-grant measure.

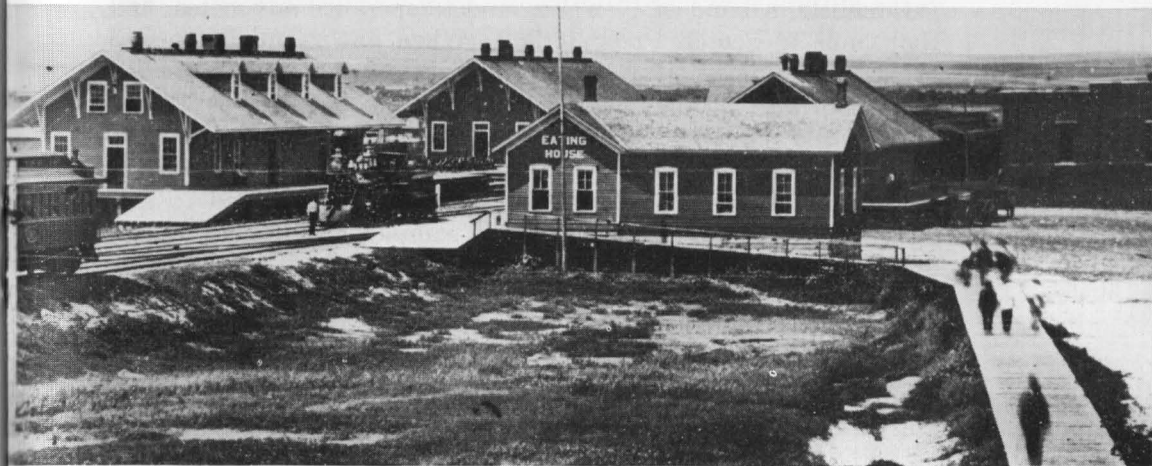
In 1864, the B. & M. of Iowa was offered approximately two and a half million acres in eastern Nebraska as an inducement to build a short-cut from the Missouri River 200 miles westward to the projected Union Pacific, which followed the Platte River between Omaha and Kearney. Congress realized, in making this grant, that this new line (completed by the B. & M. in Nebraska in 1872, see page 20) would not only lead to the development of a rich farming region, but would provide an alternate fast trans-continental connection.

Advertising and Selling the Granted Lands: The sale and the colonization of the Burlington's land grants extended over nearly half a century, beginning on July 12, 1859, when the Hannibal and

St. Joseph Railroad placed part of its 600,000 acres on the market. Although first sales were to local residents, immigrants were soon attracted from Iowa, Minnesota, and Wisconsin. To stimulate these sales, the Hannibal and St. Joseph Land Commissioner published an elaborate 60-page pamphlet in 1860, which included maps and copious descriptions and illustrations of the fertile farm lands of northern Missouri. Prices varied according to quality of soil and location, and the settler was allowed ten years in which to pay for his land. This enabled him to use his ready cash for the purchase of farm equipment and buildings. By the end of 1870, nearly 80 per cent of the grant in Missouri had been sold; the balance was disposed of gradually during the next 20 years. The average selling price of these farm lands, including town lots, was \$8.62 an acre. (The complete story of the Hannibal and St. Joseph's land and colonization work will be told in a forthcoming volume.)

Except for a few scattered transactions in Iowa during the sixties, most of the sales in Iowa and Nebraska took place between 1870 and 1880. The company opened its intensive campaign in April, 1870, by flooding the United States, Canada, and Europe with hundreds of thousands of advertising pamphlets printed in German, French, Welsh, Bohemian, Norwegian and Swedish as well as English. More than 250 agents sought immigrants east of the Mississippi and north of the Ohio rivers, and offices were opened in England, Scotland, Sweden, and Germany. Crop samples

Burlington station grounds at Lincoln about 1875. At left is Emigrant Home, which housed prospective land buyers until they could select farms.



from the rich lands of eastern Nebraska were sent to hundreds of agricultural fairs in this country and abroad. In addition to appealing to individual immigrants, the railroad encouraged formation of colonies which could travel as a unit from their native state or country to the land-grant area. Members of these groups were carefully selected by company agents as to occupation and financial standing; frequently they came to the West under the leadership of their own pastor, and together with individual purchasers were free to stay in the company's Emigrant Homes while selecting their farms.

The railroad was not merely interested in selling its own lands. To provide traffic, it sponsored a broad program to colonize its entire territory. For example, even before the rails were laid to Crete, Chief Engineer Thomas Doane and Land Commissioner Harris of the B. & M. in Nebraska were endeavoring to persuade the Congregationalists to locate a college in the town. As an inducement, the railroad gave 680 acres and 50 town lots to the college. As a result, the first train to reach Crete brought the men who laid the cornerstone of the "Academy" that is now Doane College. At Harvard, where there was not even a depot, a coach was sidetracked every Sunday for use as a chapel. In Iowa the B. & M. fostered colonies of Swedish Lutherans, Methodists, and Welsh Episcopalians, and helped French Icarians with agricultural experiments. A Catholic priest wrote a book describing northern Missouri and the Hannibal and St. Joseph lands, and urged his flock to settle there. In Nebraska the railroad brought in colonies of Russo-Mennonites, Bohemians, Yankee Congregationalists, a band of New England temperance advocates, and thousands of Scotch Presbyterians. When one group demanded exclusive privileges, the Land Commissioner promptly replied that there was "room eno' for all."

To the purchasers of its lands, the Burlington offered from the beginning a substantial reduction in freight rates on all "emigrant's movables." In 1876, this privilege was extended to any actual settler in a county where the railroad had lands for sale, or to any farmers' clubs wishing to bring in agricultural supplies, livestock, trees, or shrubbery. Meanwhile, seed for the various granges was brought in by the railroad free of transportation charges. (The story of the colonization of the Iowa and Nebraska grants has been related in *Burlington West*, published by the Harvard University Press in 1941.)

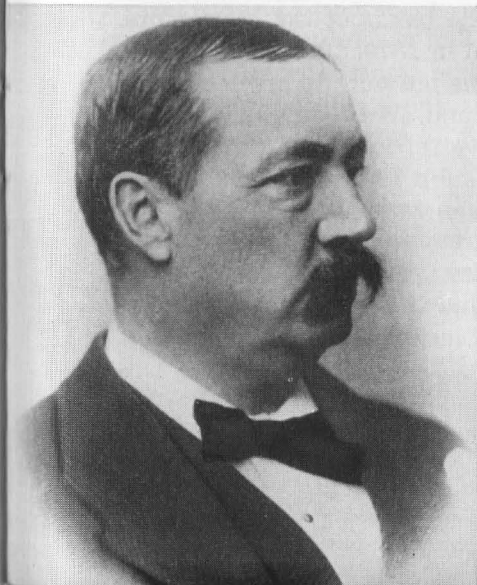
The results of the Burlington's colonization campaign were

highly successful. During the 1870's, the company disposed of over three-quarters of its Iowa and Nebraska grants by selling well over two million acres to more than 20,000 purchasers, most of them heads of families. In the more settled State of Iowa, farm values and improved acreage in the granted area increased 126 and 354 per cent, respectively, during the decade. In Nebraska, the stream of migration that had been following the Platte River Valley in 1870 was diverted so that by 1880 its center passed southward through the region bisected by the B. & M. Population, farm values, and improved acreage in this area increased in consequence. By 1890 the last of the Iowa lands had been sold, and final recapitulation revealed that although the area was a choice farming region, the average sales price was \$11.67 per acre. The larger Nebraska grant, closed out in 1905, was sold at the modest average sum of \$5.24 per acre. In these two states, the Burlington received slightly more than enough net return from its grants to cover the cost of the original construction from Burlington to Kearney Junction, not including equipment or the Plattsmouth Bridge.

Active colonization by no means ceased when the last granted lands were sold. In 1904 the Burlington organized an Immigration Bureau as part of its Passenger Department, and launched a program to "sell" the West by means of exhibit cars and advertising. For a decade, Homeseekers' Excursion Trains operated weekly from Chicago and Omaha to sparsely settled western regions, and every agent of the railroad was charged with advising landseekers of opportunities in his particular area. At the outbreak of World War I, these excursions were discontinued and immigration activities were eventually transferred to the Colonization Bureau of

the Agricultural and Industrial Development Department. The agent in charge of the Bureau, with headquarters at Omaha, still actively assists settlers in finding desirable locations and co-operates in local programs to secure irrigation, good roads, and other agricultural and civic improvements.

CHARLES E. PERKINS rose from clerk (1859) to president (1881-1901). He saw system grow from 400 to 8000 miles.





Burlington agricultural agent preaching gospel of "better seeds and better sires" to group of threshing hands about 1914.

Agricultural Development: Since the Burlington system was built primarily to serve a region chiefly agricultural, its various constituent companies took an early interest in the promotion of crops and livestock. As early as 1854, the Hannibal and St. Joseph's expert land examiner reported to the directors on the agricultural possibilities of its territory, and five years later the company was advising hundreds of prospective settlers what crops could and should be raised in northern Missouri. In 1858, before the Burlington and Missouri River Railroad in Iowa had built 50 miles of track or sold a single acre, its Land Agent Charles Russell Lowell (a nephew of the poet and diplomat) was questioning local farmers about their yields of corn and wheat, and inquiring whether they thought vineyards would thrive on the banks of the Mississippi. By the time active colonization began in 1870, the B. & M. companies in Iowa and Nebraska were able not only to give complete statistical information as to crops and livestock, but also to submit samples of grain to prospective settlers. One of the most far-reaching services was the introduction in 1875 of alfalfa as a commercial crop in Nebraska. Two generations later alfalfa was the leading hay crop in that state. During the seventies, and again in the nineties, the Burlington and Missouri River roads published first the *Iowa and Nebraska Farmer*, and then the *Corn Belt*, both largely devoted to agricultural developments and possibilities.

In an effort to counteract the scarcity of timber, and to experiment in forestation, 560,000 trees of various kinds were planted along the right of way in Nebraska in 1873. The railroad was constantly urging farmers to report their experience with new crops or new breeds of livestock. In co-operation with the granges and agricultural schools, exhibits were prepared for the numerous county, state, and foreign fairs. Before the Nineteenth Century drew to a close, the Burlington had established a series of experimental farms, including a famous one near Holdrege devoted to dry-farming.

The modern counterpart of these activities has been the encouragement of scientific agriculture in its various aspects throughout the 14 states served by the Burlington. By means of seed and soil exhibits, poultry specials, and livestock trains, the Burlington has brought the contributions of the most advanced laboratories and experimental stations directly to the farmer. Outstanding in this program has been the promotion of sugar beets in both the C. B. & Q. and C. & S. territory. To improve the quality of livestock raised along the line, the company in 1924 traded Purebred dairy sires for scrub bulls in 31 Nebraska communities. To aid the farmer in fighting grasshopper plagues, it helped to form a turkey-raising association in the Big Horn Basin. To make farming more secure in the dryland areas, the agricultural department distributed seeds of drought-resistant grain sorghums. In 1940, to pick a random example, a Soil Fertility Train was operated through Colorado, Montana, Nebraska, Missouri, Iowa, and Wyoming, under the auspices of the agricultural colleges of those six states and in co-operation with the United States Department of Agriculture. World War II interrupted scientific exhibits of this sort, but in the fall of 1947 a 17-car Soil Conservation and Agricultural Development special visited the principal areas served by the Burlington in Texas. Louis Bromfield, noted author and soil conservationist, addressed some 10,000 persons during the tour, while thousands more visited the traveling exhibits prepared by the Texas A. & M. Extension Service.

The limiting factor to intensive agricultural production in western Nebraska, eastern Colorado, Wyoming, and Montana has been light rainfall. Accordingly, the Burlington has long interested itself in irrigation. It has encouraged privately financed projects, made surveys, and assisted the Reclamation Service and other government agencies.

The increase of production through expanded irrigation, the protection of crops against the ravages of disease and insect pests, the increase of yields through better seed and scientific tillage methods, and the improvement of livestock are normal peacetime objectives of the Burlington's Agricultural Development Department. Their attainment contributed greatly to meeting the enormous food requirements of World War II.

The Railroad and the City: The growth of the great American West, urban as well as rural, can be told in terms of railroads. During the Civil War when material shortages made it difficult to secure iron rail and plates, the Burlington directors authorized a loan to a group of Chicago men to put up a mill at once. A year later the company helped launch the Union Stock Yards. To the pioneer village of Aurora, the new railroad brought nothing less than a whole new future. Industry and trade leaped forward, and early in 1856, the railroad company added to the boom by erecting the "expensive Machine and Repair shops" that have been in operation ever since. On March 30, 1855, thirteen days after the opening of the Chicago-Burlington service, the *Monmouth Atlas* vividly portrayed what the iron horse meant to that rising community located just west of Galesburg: "The railroad has put new life and activity into everybody. Business is going ahead rapidly. Pork buyers and pork sellers are on the alert for wheat and other kinds of grain coming into the country and as rapidly going out. Hogs are taken off alive, by the hundreds, to Chicago, where they are butchered and packed for the French soldiers in the Crimea; lumber and goods are arriving from abroad; strangers are on the look-out for new homes, and there seems to be a 'good time' generally among businessmen of all classes. All kinds of produce can be turned into cash at high prices, and if the farmers do not get rich, it is their own fault."

This was the story that was repeated over and over again as the tracks brought the nourishing streams of population and commerce to ambitious cities and towns. The decision of the Hannibal and St. Joseph to enter Kansas City, and the completion at that point of the first bridge across the Missouri River was the beginning of Kansas City's pre-eminence as a railroad center and gateway to the Southwest. To Omaha, the Burlington and Missouri River railroads brought a link with the state capital at Lincoln and access to the rich farmlands south of the Platte River, as well as a third route to the eastern markets.

When the Burlington reached Denver, the company already had an extensive network of lines, and brought to the local producers and consumers a strong railway connection with the great and growing areas which it served in Nebraska, Iowa, Missouri, and Illinois. The extension to the Twin Cities had much the same result. Furthermore, this water-level line along the Mississippi gave to Minneapolis and St. Paul their first direct connection with St. Louis over the tracks of a single company, and contributed especially to the coal trade between Minnesota and southern Illinois.

After World War I, a growing number of plants devoted to the manufacture of machinery and consumption goods such as plows, reapers, threshing machines, trucks, tractors, refined food products, furniture, clothing, and so on, sprang up in Burlington territory. To encourage and develop this new source of traffic, the company established a separate Industrial Department to work in co-operation with its Land Department in locating new industries along the line. Industrial surveys were prepared containing precise information on sites, utilities, labor supplies, transportation, and markets for all principal towns served.

Decentralization of industry, brought about by labor conditions as well as by the advantage of proximity to western consuming centers, became popular during the early thirties, so that when World War II came the company was equipped to prepare hundreds of surveys for the Ordnance and Engineering depart-

View of modern-day, downtown Lincoln from top of Nebraska State Capitol. Contrast this with photo of Lincoln in 1875 on Page 47.



CALL FOR AID.

Dispatch from Sargeant.

Aurora, Oct. 9th, 1871.

To all Agents:

There will be a train leave Galesburg at 8 o'clock to-night, with box cars to pickup PROVISIONS for the Suffering People of Chicago.

Thousands there are without FOOD.

Notify your people to bring to Depot to-night, what they wish to donate.

A. L. SARGENT.

Master of Transportation.

THIS TRAIN WILL BE IN EARL ABOUT MIDNIGHT. NO LATER NEWS YET. -6:15.

Burlington ran special train to aid Chicago Fire sufferers in 1871.

ments of the Army, showing the advantages of midwestern locations. A large number of war installations of all kinds, including particularly shell loading plants, storage depots, and aviation centers, were placed in the territory served by the Burlington. Mineral resource maps showing the location of raw materials were prepared and made available to the War Department and have since been supplied to industries seeking sources of raw materials.

The Railroad as a Neighbor: When the great Chicago Fire broke out in October, 1871, a train laden with food and supplies was hastily made up at Galesburg; its schedule was telegraphed to way stations so that people along the route could put additional supplies aboard.

With rights over all trains, the relief special reached the stricken city in time to give desperately needed help. In the new country being opened in the West, the railroad often meant the difference between survival and disaster. During the drought and grasshopper plagues of 1874, Perkins organized the Nebraska Relief and Aid Society to care for the impoverished regions. This organization distributed more than \$250,000 in goods and cash among stricken settlers. Under orders from Perkins, all commodities consigned to persons in distress were carried free of charge. "Without that aid," J. Sterling Morton wrote, "families might have perished, farms been abandoned, and the state reverted in part to wilderness." Later George W. Holdrege, for years General Manager of Lines West, arranged that farmers hard hit by drought and low farm prices were to be given winter employment in the company's shops and returned to their farms when spring came.

Throughout the years the company and its agents have sought to live up to these earlier traditions. Following the devastating floods in the Republican River Valley in 1935, the railroad initiated a rehabilitation project that not only restored transportation service in record time, but gave much-needed employment to communities suffering from months of drought before the floods. Two years later, in order to help fight infantile paralysis through-

out its territory, the Burlington purchased a Drinker Respirator or "iron lung" to be held in constant readiness at Omaha for service to employes or to anyone else in need of emergency treatment.

Equally important though often unrecorded have been the helpful and sometimes heroic deeds performed almost daily by train crews, agents, maintenance men, and many others in the course of their regular duties.

The Burlington and the Employes: Throughout its years of growth while the Burlington was bringing towns and farmlands within the orbit of the national market, another "community within a community" was developing, composed of those who worked for the railway, and their families. Specialists by trade and often leaders in their home towns, "Q men" became a substantial and important element in social and economic life wherever the rails of the system penetrated.

From the earliest years, Burlington men and their families have carried over their business association into their social lives. In September, 1859, when the rails reached Ottumwa, the B. & M. sponsored a mammoth outdoor celebration attended by everyone who had had a hand in the project; a few months later the C. B. & Q. employes at Aurora organized the gala "First Annual Railroad Ball."

The "Burlington Family" numbers more than 35,000, representing many trades, crafts, professions. Below, employes leaving Havelock Shops.



That year was socially significant in still another way; the name of a woman appeared on the payroll for the first time: Mrs. Ellen Conway, a boardinghouse keeper for the old Hannibal and St. Joseph Railroad. The earliest recorded instance of a woman in transportation service is that of Mrs. E. F. Sawyer who in January, 1872, worked as a telegraph operator in Montgomery, Illinois.

Social activities continued without abatement down through the years; many of them are permanently recorded in song, verse, and legend. In 1920, at Havelock, the first Veterans' Association was formed of employees with a record of twenty years' continuous service. There are now 34 chapters

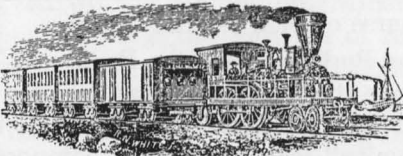
with a total membership of well over 7,000. These groups, dedicated to "the promotion of such measures as shall be conducive to the general welfare of our company, our country, and our homes," meet monthly and hold annual system reunions. The Ladies' Auxiliary, founded in 1925, now has 30 chapters and a membership of over 4,500. More recently several Booster Clubs have sprung up spontaneously to encourage transportation by rail and to provide a focus for social, musical, and athletic activities.

Another type of activity organized and managed solely by and for employees are the Credit Unions, established some years ago to encourage systematic saving and to provide loans at reasonable interest. Today there are twelve such Unions doing a thriving business on the Burlington Lines.

The Burlington Relief Department was established in the spring of 1889 to provide employees with accident and life insurance

FIRST ANNUAL

RAILROAD BALL,



OF THE EMPLOYEES OF THE

C. & N. W. R. R.

WILL BE GIVEN AT

Empire Hall, Aurora, Ill.

WEDNESDAY EVENING, DECEMBER 28th, 1859.

The Company of Dancers & Ladies is solicited.

SUPPER TO BE SERVED AT AURORA HOUSE.

Carriages will be in attendance at 6 o'clock, p. m.

Music by Glines & Templeton's Band.

Tickets, including Carriages and Supper, \$3.00; may be had of the Committee, or at the door.

BEACON PRINT.

Social activities among Burlington employees got under way in 1859.

at moderate rates. Since that time its members (who now number over 23,000) have received over \$31,000,000 in disability and death benefits.

On June 1, 1922, a pension plan was inaugurated by which the company gave, without cost to employees, a retirement compensation based on the beneficiary's age and length of continuous service with the Burlington. This plan was replaced by the Railroad Retirement Act of 1937 which required contributions from both company and employees and paid benefits in proportion to railway service performed anywhere. In June, 1943, at the request of the employees, the C. B. & Q. established Group Hospital Expense and Surgical Benefits Insurance. This was broadened in September, 1944, to cover wives and dependent children, and since its establishment over a million dollars have been paid in benefits. On both the Colorado and Southern and Fort Worth, Hospital Associations extending complete medical, surgical, and hospital coverage have been in existence since before their incorporation into the Burlington system.

The Railroad and the Brotherhoods: In the days when railroads were small, the relationship between officials and those in the ranks was close and on very much of a personal basis. The first national unions, in fact, formed by train service men during and just after the Civil War, were concerned primarily with mutual benefit plans and fraternal activities. But the gradual increase in size of railroads led to the handling of differences over wages and

*Literally mountains of paperwork are essential in running a great railroad.
Shown below is a small corner of the Auditing Department at Chicago.*



working conditions through union organizations. Before long, definite "labor" and "management" viewpoints emerged. These were crystallized by the succession of strikes in various parts of the country between 1877 and 1894; in 1888 the Burlington suffered severely from the prolonged strike of its engineers, firemen, and switchmen.

In the late 1880's, the Burlington and other lines began negotiating contracts or "working agreements" specifying rates of pay, hours, and various working conditions. Furthermore, beginning in 1888, Congress established various agencies of conciliation; by 1926 federal mediation, arbitration, and fact-finding were available as circumstances warranted, and in 1934 National Adjustment Boards were established with jurisdiction over the long-standing employee-carrier contracts.

As a result of these various measures, coupled with the genuine desire of all parties to work together, labor relations in the industry were generally harmonious from the mid-1890's until the onset of World War II. The vast majority of differences were adjusted by direct union-carrier negotiations at the conference table. Since 1941, however, the mounting cost of living, the necessity for the carriers to utilize their plants to utmost efficiency to maintain service and solvency, and the growing role of the federal government in labor-management relations have led to almost continuous negotiations and many cases before the federal boards.

On the other hand, railroaders regardless of rank or status share a common interest and pride in providing efficient transportation. Most of them, as well as the public and the government, are sincerely anxious to avoid controversy that may lead to an interruption of service.

The Burlington's Financial Record: The financial results of Burlington operations have been noted on the charts on pages 41 and 43. Generations of bankers and investors have instinctively thought of the C. B. & Q. as a sound investment.

From the day that Forbes and his New England colleagues bought into the tiny Aurora Branch, the Burlington became known as a "Boston-built" road, backed by the "solidest men" of that conservative city. In an age when business ethics were casual to say the least, these men regarded themselves as trustees or custodians of the funds invested in their enterprise; they consequently felt that they were honor bound to serve the company interests first and that it was strictly dishonorable to use their strategic position



About half of the local taxes paid by the Burlington goes to support public schools like this one.

to enrich themselves at the expense of those who held the corporation's securities. The Boston group not only kept capitalization per mile at a low figure, but early adopted a plan of building up sinking funds to reduce and eventually retire fixed debt. When Hill bought the C. B. & Q., he thoroughly appreciated the virtue and results of these policies, which were indeed similar to his own, cited them to his stockholders in support of the purchase, and saw to it that they were continued.

Events through subsequent years have testified to the solidity of the company's financial position. Two major wars since the turn of the century have called for huge expenditures to keep the plant at top efficiency, while the prolonged depression of the thirties placed a heavy strain on the system's resources. Yet no Burlington obligation has ever been defaulted, and C. B. & Q. dividends have been paid every year since 1862.

The Burlington as a Taxpayer: From 1855 to 1947 inclusive, the C. B. & Q. has paid over \$524,000,000 in taxes. Of this total, \$240,000,000, or over 45 per cent, was paid in the seven years 1941-47, principally in the form of federal income, unemployment and railroad retirement taxes. Through local taxes the Burlington has shouldered a substantial part of community obligations. As a supporter of schools, roads, bridges, and other essential public services, the railroad has been a steady and dependable source of public income. Approximately half of the \$8,400,000 local tax payments of 1947 was for the support of schools.

The Burlington as a Soldier: The transportation job of the Burlington during the two world wars of this century has been mentioned, but the system's contribution in terms of manpower and miscellaneous services deserves special attention.

Three days after this country entered World War I, the company advised all employes that those responding to the call of the federal government for service in the Army or Navy would be granted leaves of absence, and a week later joined the brotherhoods in agreeing to maintain the seniority of such men. Enlistments were prompt, and in the fall of 1917 were supplemented by the draft. By April, 1918, over 2,000 men from the C. B. & Q. alone were serving with the Army or Navy.

Meanwhile Hale Holden, president of the Burlington, was given special responsibility for the railways' role in the conflict. From April to December, 1917, he served as a member of the Railroads' War Board, and for the next six months as a member of the Advisory Committee to the United States Director General of Railroads. In June, 1918, he was appointed by the U. S. Railroad Administration as Regional Director of the Central Western Region, a position he held until February, 1920, when he resumed his duties as president of the company.

Fortunately for the nation as a whole and the taxpayers in particular, the approach of World War II found the nation's carriers in far better condition than in the earlier conflict, and as the operating statistics reveal, the American railroads carried their enormous wartime burden in magnificent fashion. The job for the country as a whole, incidentally, was done without the \$2,000,000-a-day charge on the taxpayer as in World War I; on the contrary, the carriers paid \$3,000,000 a day in taxes, representing a tremendous saving to the American taxpayers for each day of the war. This in itself was no small addition to our national resources.

The contribution of the Burlington in terms of manpower was striking. In all, over 8,800 men and women from every level of the Burlington organization joined the colors in various capacities. On the Burma Road and Alcan Highway Burlington engineers were on the job, as well as in every war theater in all quarters of the globe. The 745th Railway Operating Battalion, sponsored by the company, operated a vital section of the Bengal-Assam Railroad through malarial infested jungles on the Indo-Burma frontier.

As in World War I, the government called the Burlington's president into national service. In May, 1940, President Roosevelt reinstituted the Advisory Commission to the Council of National

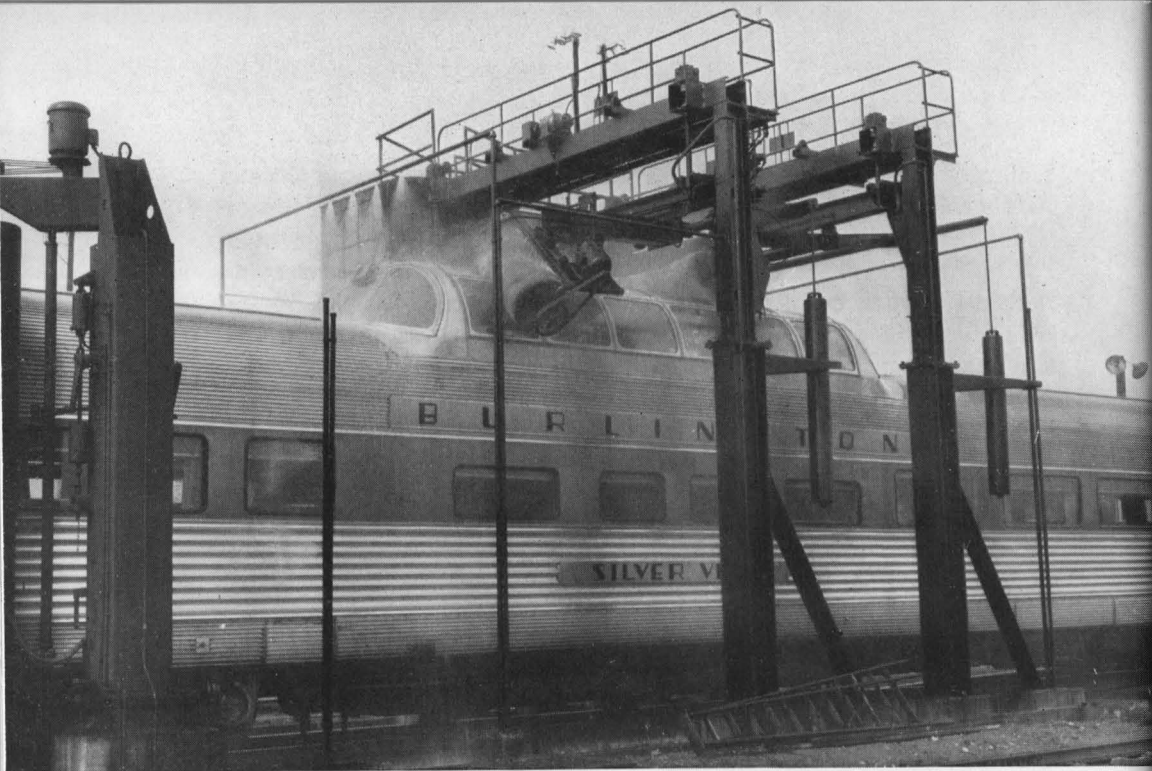
Defense and named Ralph Budd Commissioner of Transportation. As such he served at Washington until shortly after Pearl Harbor when his vital planning and co-ordinating work was taken over by the newly created Office of Defense Transportation. In December, 1943, when the Army temporarily assumed responsibility for the operation of the nation's railroads, and again in 1948, the Burlington's president was commissioned a colonel in the Transportation Corps and served as Regional Director of the Central Western Region.

As in World War I, positions as well as seniority were held open for all employes on military furlough. For two hundred who responded to the nation's call there was no return. A permanent plaque in the Burlington's central office bears the names of those who made the supreme sacrifice.

On the home front the rank and file toiled without intermission to keep essential supplies and troops moving without delay. Supervisory officers worked long hours month in and month out. Shippers co-operated to load and unload promptly and carefully. Travelers were tolerant of wartime delays and incon-

Diesel-powered Burlington train hurries through Big Horn Canyon, Wyoming, with petroleum to support United States fleet and fliers in Pacific.





Mechanical car washer at Chicago, specially designed to handle Vista Dome equipment, cleanses exterior of train in matter of minutes.

venience. Along the right-of-way the Burlington sponsored hundreds of victory gardens, and combed the territory for precious scrap metals. On the railroad as in the theaters of combat, it was a "total war" in every sense of the word.

The Burlington as a Regulated Utility: Railroad regulation in the United States became a reality in the decade following the Civil War. Many of the so-called granger states in particular enacted laws strict in character. In some instances rates were specified by statute; nearly all the acts forbade discrimination and the consolidation of competing lines. These laws were often challenged in the courts, but the basic principle of public regulation was firmly established in 1876 when, in *Munn v. Illinois* the United States Supreme Court flatly declared that any business, like a railroad, that was affected by the public interest must submit to regulation to the extent of that interest. Eleven years later the Interstate Commerce Act was passed. Since that time this basic act has been steadily expanded in scope until today the Interstate Commerce Commission may fix minimum as well as maximum rates, and exercise comprehensive authority over abandonments,

construction, combinations, facilities, securities, and service. Legislation concerning labor disputes, retirement, unemployment, and disability benefits has been separately enacted. Finally, since 1890, railways along with other corporations, have been subject to the Sherman Anti-Trust Act and, since 1914, to certain provisions of the Clayton Act.

Conclusion: For a century Burlington service has become steadily safer, more rapid, and more adaptable to the increasingly diverse needs of the shipping and traveling public. But the life of a railroad cannot be told fully in terms of business alone. Throughout its history, the Burlington has been part of the western community. It has shared the hopes and fears of prairie farmers, toiled side by side with the builders of cities, and experienced the alternate effects of prosperity and depression. Through its community development work, through its own family of workers, and as a citizen, the "Q" has been intimately identified with the social and cultural growth of its territory. Again like an individual, it has made many friends and, unfortunately, some enemies. It has performed good deeds, and made its mistakes, for a railroad too must learn by experience.

At the end of the first 100 years, the Burlington stands ready to play its part in the American West, a West still fired by the enthusiasm, the courage, and the imagination of its pioneers.

Burlington rails stretching away to the horizon . . . toward tomorrow.



BIBLIOGRAPHICAL NOTE

The material for this booklet has been gathered from a wide variety of sources. The system's permanent corporate records, such as charters and minute books, are in the custody of the Assistant Secretary of the C. B. & Q. at the Burlington headquarters in Chicago. Other C. B. & Q. historical records for the period prior to 1901, consisting principally of letter books and manuscript reports, are deposited in the Newberry Library in Chicago. Executive, operating, traffic, legal, treasury, and accounting source records for the C. B. & Q. since 1901, and for the C. & S. and F. W. & D. C. since their incorporation, are located in the general offices in Chicago, Omaha, Denver, and Fort Worth, and at some other division points. Additional material consulted included contemporary newspapers, local histories, government documents and court records, monographs, and general works pertaining to Burlington territory.

Forthcoming Studies of the Burlington

In the summer of 1949, Little Brown & Company will publish a pictorial social history of the Burlington and its territory by Lloyd Lewis and Stanley Pargellis. There is in preparation, for publication in 1950, a one-volume general history of the Burlington Lines by R. C. Overton which will be fully documented and will include extensive bibliographical references. In addition, monographs which will eventually be available in either manuscript or published form are in various stages of progress on the Land and Colonization Work of the Hannibal and St. Joseph, the Strike of 1888, Charles E. Perkins, the Agricultural Development Work of the Burlington, and the C. B. & Q. Refinancing Program of 1944-45. Further information concerning these studies may be obtained by writing to Donald Ashton, Executive Assistant, Burlington Lines, 547 West Jackson Blvd., Chicago 6, Illinois.



