of the iron industry.[1]

On account of the opening of the Sisseton reservation, the branch line from Milbank in South Dakota on the Hastings & Dakota Division was extended from its former terminus into the reservation at Sisseton, 4.24 miles, at a cost of $20,154.94.[2]

In August, 1894 the Milwaukee acquired a controlling interest in the $4,200,000 stock of the Des Moines, Northern & Western Railroad Company. The latter company's line extended from Des Moines to Boone, Iowa, 42 miles, crossing the Milwaukee at Madrid and from Des Moines to Fonda, 114 miles, crossing the Milwaukee at Herndon. The Milwaukee planned to operate the road independently under a contract for a division of the earnings.[3] However shortly after there was a foreclosure sale and final absorption by the Milwaukee, the details of which will be brought out later.

In the fall of 1894 the Milwaukee purchased the Prairie du Chien & McGregor Railway Company for the sum of $80,000. After the construction of the road from McGregor westward, the transfer of freight and passengers across the Mississippi River between Prairie du Chien, Wisconsin, and McGregor, Iowa, was made for a time by steamboats owned and operated by John Lawler. Subsequently Mr. Lawler constructed a railroad bridge with two pontoon draws across the river under a charter of the Prairie du Chien & McGregor Railroad Company, a corporation of Wisconsin chartered on October 10,

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1. Annual Reports, 1891, 1892, 1893.
2. Annual Report, 1894.
3. Chronicle, vol. 59, p. 288.

1872. The bridge was completed on April 15, 1874 and connected the Wisconsin and Iowa Divisions of the Milwaukee. Contracts were made with Mr. Lawler from time to time for the transfer of all freight and passengers. At the expiration of the last contract during the year 1894 the railroad with its franchises and property consisting of about two miles of track and the pontoon bridge was purchased by the Milwaukee and operated as a part of the Prairie du Chien Division. The delivery of a deed dated October 18, 1894 conveyed the property. The capital stock amounted to $100,000. The operations for the year ended June 30, 1894 resulted in a gross income of $60,130, operating expenses of $42,910, and net earnings of $17,220. The property account of the Milwaukee was debited $90,000 for the purchase.[1]

In 1895 an extension of the Wisconsin Valley Division from Minocqua, its former terminus, to Star Lake, a distance of 12.80 miles, was completed at a cost of $185,823.73.[2]

In 1896 the track from Mather to Goodyear in Wisconsin and its two short branches, aggregating in all 18.67 miles, were taken up. The timber which this track was built to reach had been exhausted.[3]

In 1897 a spur track to Rekoosa on the Wisconsin Valley Division, heretofore classed as side track, was extended by construction at a cost of $3,669.66 and was now operated as main

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1. Annual Report, 1895. Poor's, 1895, p. 181. Deeds, p. 278.
2. Annual Report, 1895.
3. Annual Report, 1896.

track, an increase of 2.93 miles, making the length of the Wisconsin Valley Division 280.94 miles. The length of the line from Sioux City to Manilla was increased .10 miles, making the total length of the Sioux City & Iowa Division 348.97 miles. Under an agreement of the parties interested, the tracks owned jointly by the Pittsburg, Fort Wayne & Chicago, the Northwestern, and the Milwaukee between Vinsie and Fulton Streets in Chicago were rearranged, involving an increase of .08 miles in main track.[1] The costs of the three extensions constructed during this period, aggregating $207,448.35, were debited to property as a capital expenditure.

About this time the United States Supreme Court decided that railway associations were a violation of the law against trusts. Therefore all attempts to maintain such associations in the territories served by the Milwaukee were abandoned. The associations ceased to be of special value as long as pooling was prohibited by law. The Milwaukee at this time hoped that some day Congress would see the wisdom of permitting pooling and make it practical to maintain rates and avoid discrimination.[2]

On June 30, 1895 the company owned solely 6,142.64 miles of main track and jointly 11.19 miles or a total of 6,153.83 miles. This track was located in the following states: in Illinois, 512.94 miles; in Wisconsin, 1,650.71 miles; in Iowa, 1,553.47 miles;

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1. Poor's, 1898, p. 392.
2. Annual Report, 1897.

in Minnesota, 1,130.09 miles; in North Dakota, 118.21 miles; in South Dakota, 1,101.08 miles; in Missouri, 140.37 miles; and in Michigan, 152.08 miles. 517.19 miles of this main track was still laid with iron rail. On June 30, 1891 the main track owned solely and jointly was 8,083.85 miles including the Milwaukee & Northern lines. The company on June 30, 1898 was operating a total of 7,938.35 miles of track as against 7,048.97 miles, exclusive of the Milwaukee & Northern tracks, on June 30, 1891.[1]

As is apparent from the foregoing account, practically no new territory was tapped by new main line. However, the road grew physically in other respects during this period. During the summer of 1892 second main track was constructed from Forest Glen to Lake, 97.43 miles, on the Chicago & Milwaukee Division; from Mont Clare to Bensenville, 8 miles, and from Fittredge to Mont Carroll, 11.40 miles, on the Chicago & Council Bluffs Division; and from Grand Avenue in Milwaukee to North Milwaukee, 5.08 miles, on the Northern Division. The second main track was now completed between Chicago and Milwaukee. Grading for the second main track on the Chicago & Council Bluffs Division between Bensenville and Genva, 41.72 miles, was under way during the summer of 1893 under a contract made in the fall of 1892. The grading was completed and 5.54 miles of track were laid thereon by July 1, 1894; and 38.73 miles, by July 1, 1897.

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1. Chronicle, vol. 67, p. 531.

Work on the construction of second main track between Davis Junction and Fitzhugh in Illinois, 36.49 miles, was under way on this latter date. By July 1, 1898 the second track on these two projects were completed except ballasting. The Milwaukee now had a double track from Chicago to Savannah on the Mississippi River, 136 miles. The second main track and side track projects during the period aggregated $1,897,874.19 which was debited to property as a capital expenditure.

By agreement with the city of Chicago, as expressed in an ordinance passed December 3, 1897 and amended December 29, 1897 and an ordinance passed February 21, 1898 and amended May 23, 1898, the Milwaukee undertook the elevation of its tracks between Central Park Boulevard and Mayfair, 4.24 miles, and between Hawthorne Avenue and Wood Street, .15 miles, and also the depression of the Bearing line track, .22 miles. This work involved the elevation of the Y at Pacific Junction and the north Chicago line, .54 miles, making a total elevation of 4.93 miles and depression of .22 miles. The work from Central Park Boulevard to Pacific Junction providing for four tracks was under construction on July 1, 1898. These projects were the beginning of a large program of track elevation and depressions extending over a great many years. In 1899 the company set up a renewal and improvement fund to provide for the cost of such work as the track elevation in Chicago, extra main tracks, improvements to shops, and other extraordinary expenses, where the work was considerable and carried on systematically over an

appreciable period of time. The fund was created by current charges to operating expenses with the unexpended balance carried as a liability and the cash balance with certain depositaries carried as an asset. The improvements as completed did not appear in the property account.[1] $350,000 was put into the fund during the year ended June 30, 1896; $300,000, during the year ended June 30, 1897; and $1,125,000, during the year ended June 30, 1898. On July 1, 1898 the unexpended balance in this fund amounted to $1,898,505.45.[2]

The company throughout this period was constantly replacing the iron rail on its line with steel. On July 1, 1892, 1,326.34 miles of line were of iron rail; on July 1, 1893, 988.43 miles; on July 1, 1894, 899.83 miles; and on July 1, 1898, there were still 517.19 miles of the company's line laid with iron rail.

During this period large sums were expended in improving the company's main shops which were located at Milwaukee. In June, 1898, the new passenger station at Minneapolis was under construction. During the first three years of this period 80 iron bridges and viaducts, aggregating 10,235 feet in length and replacing wooden bridges, and 711 iron culverts, replacing wooden culverts, were built. 7.3 miles of pile and trestles were filled in with earth. Work of this sort was at its height in this period during the year ended June 30, 1894 when 36 iron bridges, aggregating 8,360 feet and replacing an equal number of

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1. Annual Report, 1898.
2. Annual Report, 1898.

wooden bridges, were built, 308 iron culverts replacing wooden culverts were built, and 2.5 miles of pile and trestle were filled with earth. Some of the important bridge projects during that year were an iron bridge over the Wisconsin River on the Wisconsin Division, two iron spans, 128 feet and 158 feet respectively, over the Minnesota River at Fort Snelling, an iron bridge 137 feet long at Medford on the Iowa & Minnesota Division, an iron bridge 136 feet long over the Whitewater River on the River Division, an iron bridge 154 feet long over the Skunk River, and an iron bridge 135 feet long over the Mill Race at Ottumwa.[1] During this period 134 iron bridges and 72 steel bridges, aggregating 27,871 feet and replacing wooden ones, were built; 1,752 iron culverts replacing wooden ones were built, and 23.7 miles of tile and trestle were filled in with earth.[2] Such portion of this work as represented the excess over cost of renewal in the original form was debited to the property account as a capital expenditure. During the closing prosperous years of this period the company seemed very conservative in this respect, not only in regard to these particular items but other improvements to the property as well, and no doubt at the close of the period the property account on the balance sheet was a conservative one indeed.

During this period 91 locomotives, 74 units of passenger equipment (in addition a one-fourth interest in 45 sleeping cars

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1. Annual Report, 1894.
2. Annual Reports, 1892 to 1898 inclusive.

due to a settlement on the old contract with Pullman Palace Car Company], and 7,885 units of freight and miscellaneous equipment were purchased or built at the company's main shops at Milwaukee.[1] The company found its investment in plant at Milwaukee, with which it could built part of its own rolling stock, very profitable, for it was building rolling stock for less than the purchase price. The extent of the work of this kind in the company's shops can be gained from the fact that during the first three years of this period.4 out of the 55 locomotives acquired, 21 out of the 59 units of passenger equipment acquired, and 3,843 out of the freight and miscellaneous equipment acquired were built in the company's shops. The expenditures for rolling stock were very large the first few and last few years as compared with the difficult depressed middle years of the period. An idea of the fluctuation in expenditures for equipment and improvements thereon can be gained from the fact that $1,587,748.98 was so expended during the year ended June 30, 1893; only $54,805.18, during the year ended June 30, 1895; and $1,709,830.70, for the year ended June 30, 1898. $4,971,408.45 was expended for the equipment acquired during these years. In addition to this $1,123,230.15 was expended for improvements to the rolling stock such as power brakes, automatic couplers, and heat and electric light equipment, making a total of

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1. Annual Reports, 1893 to 1898 inclusive.

$6,094,838.60 spent on additional equipment. On July 1, 1896 85% of the company's freight car equipment were equipped with automatic couplers, and 55% with air brakes as required by an act of Congress.[1] As was pointed out previously the contract with the Pullman Palace Car Company was terminated on November 10, 1890, the Milwaukee deciding to operate its own sleeping cars. For the first full year of operations of their sleeping cars, the railroad company received in gross earnings therefrom $196,066.32, paid in operating expenses $82,546.52, and had left $113,519.80 as net earnings. The investment in sleeping cars on the books was put at $879,985.13. Therefore it appeared at this time that the net earnings would be sufficient to pay for the replacement of old cars and pay a fair return on the investment. The results on the sleeping cars were gratifying as they were not obtained by impairing the service.[2] For the second year of independent operations of its sleeping cars the company received a gross income of $190,125.11, paid in operation expenses $84,540.40, and had left $105,584.88 in net earnings.[3] A settlement was made on January 31, 1896 with the Pullman Palace Car Company on the old terminated contract whereby the Milwaukee paid this company $105,860.60 and obtained the Pullman company's one-fourth interest in the 45 sleeping cars and the right to operate them.[4]

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1. Annual Report, 1898.
2. Annual Report, 1892.
3. Annual Report, 1893.
4. Annual Report, 1896.

Of course all the above expenditures for rolling stock were not capital expenditures, much of it being for replacing equipment worn out in the service and removed from the inventory. During the early years of the period this part of the cost was charged to operating expense and the rest was put into the property account as an asset. Then beginning with the year ended June 30, 1894 the company began to systematically handle the rolling stock replacement costs through a fund similar to the method it began to follow a few years later as regards extraordinary improvements to the property as pointed out previously in this chapter. Every year the cost of replacement of worn out rolling stock was charged to operating expense and credited to this fund. To the fund was charged the cost of new rolling stock which represented replacements. The unexpended balance in the fund appeared in the balance sheet as an asset. Out of the $6,094,838.60 expended on rolling stock (new rolling stock and improvements) $2,343,183.81 represented charges to operating expense for replacements, which from 1894 on was handled through this fund, and $3,751,874.78 represented new additional equipment which was charged to the property account. The amounts expended for improving the rolling stock with automatic couplers, air brakes, etc. were always treated as a capital expenditure. The amount in this replacement fund on July 1, 1894 when it first appeared was $110,489.05. By July 1, 1895 the fund grew to $290,510. Worn out equipment was being provided for in the fund but not actually replaced as fast as it was used up. During the

depression at this time the company had enough equipment to handle the traffic, hence the growth of the fund. With the increase in traffic later, however, the company needed more equipment and purchased part of it from this fund.[1] The amount in the fund on July 1, 1898 was $258,492 representing $188,400 for locomotives and $68,292 for cars.[2] The capital expenditures for rolling stock for these years fluctuated, like many of the other company's expenditures, with the volume of business which in turn fluctuated with business conditions. $818,954.38 was so expended during the year ending June 30, 1893; only $338,700.51, during the year ending June 30, 1895; and $1,197,348.04, during the year ending June 30, 1898.

The rolling stock at the beginning and at the end of this period was as follows:[3]

	June 30, 1891	June 30, 1898 Standard Gauge	June 30, 1898 Narrow Gauge
Locomotives	801	808	7
Units of Passenger Equipment	672	775	8
Units of Freight and Miscellaneous Equipment	24,814	29,050	314

An idea of the changes in the property account during the period can be gained from the following brief table. A more detailed account of these changes appears in Table II in the Appendix.

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1. Annual Report, 1895.
2. Annual Report, 1898.
3. Poor's, 1892, p. 146 and 1898, p. 285.

Cost of Road and Equipment on June 30, 1901		$189,624,742.91
Additions:		
Improvements and Additions	$ 9,339,486.51	
Purchase of the Milwaukee & Northern Railroad	13,384,710.75	
Purchase of the Prairie du Chien & McGregor Railway	90,000.00	
Discount on General Mortgage Bonds	1,113,380.00	
Purchase of Miscellaneous Stock	795.00	
Miscellaneous	16,074.32	
Unexplained	1,080,508.40	
Total Additions	$24,803,817.44	
Deductions:		
Premium on General Mortgage Bonds	$125,000.00	
Sundry Credits	108,050.83	
Total Deductions	233,050.83	
Net Additions		24,570,566.78
Cost of Road and Equipment on June 30, 1902		$214,195,284.69

It is very obvious from the above figures that during this period the company was not expanding in respect to the extent of its main lines, but in other respects. In other words, with the exception of the merger of the Milwaukee & Northern, which the Milwaukee controlled prior to this period, the company was "digging in" on the vast territory which it had tapped during the previous period of mushroom growth.

By reason of the company's inability to obtain reasonable rates for insurance, the board decided on December 29, 1892 to create an insurance department to underwrite its fire risks. The executive committee of the board was authorized to organize such a department and to set apart from the balance at the credit of the income account as of June 30, 1892 $300,000 as an insurance fund. Such a fund and its accumulations were to be invested in the bonds of the company and any other available securities in the company's treasury. It was also provided that such fund with all accumulations should be held and used only to guarantee and make good losses by fire, to the extent underwritten by the insurance department, on property described in schedules and policies in the usual manner. An insurance department was accordingly organized under the direction of the committee and was authorized to underwrite from February 11, 1893 the schedule of property submitted; and the premium for such insurance was fixed at the lowest rate at which the syndicate of insurance companies had offered to place the same. By direction of the executive committee the fund was carried as an asset on the company's accounts as of the nominal sum of $10,000.[1] During this period the original fund of $300,000 was increased by interest on the investments and payments to the fund in excess of losses charged to the fund so that on July 1, 1898 it amounted to $554,340 of which $89,214 was in cash

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1. Annual Report, 1894.

and the rest invested in securities of the company.[1]

The only bonds floated to the public during the period were the 4% bonds secured by the General Mortgage of 1889. There seem to be no public announcements of the date and amount of the offerings but the company's records reveal the amounts offered to the public through sale and through exchange for underlying bonds from time to time from 1889 throughout this period.[2] In June, 1889 $5,000,000 of the $8,000,000 authorized to be issued on the 178 miles of road on which there was no funded debt were sold to the public. From the proceeds $2,500,000 in Chicago & Evanston bonds in the Milwaukee's treasury were taken up.[3] In June, 1890 $1,500,000 more were sold. This amount included the remaining $1,000,000 bonds on the 178 miles of road authorized in Article I of the General Mortgage. $1,000,000 bonds were sold in June, 1891; $500,000, at the close of 1891; $450,000, early in 1892. Also in March, 1892 $300,000 of these bonds were exchanged for underlying bonds outstanding. Then $550,000 bonds were sold in the spring of 1892; $1,310,000, in the fall of 1892; $1,000,000, in February, 1893; $3,000,000, in the fall of 1893; $3,000,000, in May, 1894, and $1,000,000, on July 23, 1895. During the last half of the year 1898, $2,131,000 were exchanged for underlying bonds out-

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1. The bonds in the fund on July 1, 1898 were as follows:

General 4's	$435,000	Chicago & Pacific Western Division 5's	$ 5,000
Consolidated 7's	10,000	Dakota & Great Southern Railway 5's	6,000
Southern Minnesota Division 6's	2,000	Kansas City Belt Ry. 5's	110,000
LaCrosse & Davenport Division 5's	4,000	Par Value	$572,000
		Annual Interest	25,570

2. Data secured by the accounting department from the company's records.
3. Poor's, 1891.

standing. The occasion for most of this exchange will be brought out in connection with the refunding of the Prairie du Chien Division 8's. Then in January, 1898 $2,500,000 more were sold to the public. Besides the $1,000,000 of these bonds sold to the public in February, 1893, $198,000 were sold to the insurance department and $100,000 more were sold to this department in September, 1894. Besides the $1,000,000 of these bonds sold to the public on July 23, 1895, $104,000 were sold to the insurance department, and $35,000 more were were sold to this department in December, 1897. So on June 30, 1898 there were $30,810,000 of these bonds in the hands of the public which were sold and $2,431,000 which were also in the hands of the public through exchange, or $33,241,000 in all. Besides there were $435,000 in the insurance fund which together with those in the hands of the public made $33,676,000 sold and exchanged. There were unsold in the company's treasury or due from trustees $5,498,000 more of which $390,000 represented actual expenditures for extensions, improvements, additional property, and underlying bonds paid and cancelled, all out of the cash receipts of the company from the operation of its lines, which expenditures had not been made good by the sale of these bonds. These bonds bail 4% interest per annum, payable on the coupon bonds semi-annually, January 1, and July 1, and on the registered bonds quarterly, January 1, April 1, July 1, and October 1. The 4's on this mortgage were designated Series "A".

There were some interesting developments in connection with the financing during this period. Vice President Bond gave notice in December that the LaCrosse Division 7's would mature on January 1, 1893 at which time the principal and six months' accrued interest would be paid and that the interest would cease as of that date.[1] These bonds were convertible at par into preferred stock within ten days after the dividend date of the latter in October, 1892. There were a little less than $5,000,000 of these bonds out. The failure of the holders of over $1,000,000 of these bonds to take advantage of the conversion privilege which was worth something more than 20% of the principal was a good illustration of the apathy of security holders in regard to their interests.[2] Many of the bonds came in during the first week in January for redemption at par in cash. Then the Iowa & Minnesota Division 7's matured July 1, 1897. These bonds were also convertible into preferred stock at par. The amount outstanding was reduced from $1,736,000 to $383,000 during the ten days following the payment of the April dividend on the preferred. The holders of the $383,000 who failed to convert the bonds into preferred stock, at this time selling at about $131, had to accept cash at par on July 1.[3] The Prairie du Chien Division 6's, First Mortgage, matured February 1, 1898. The company in May, 1897 offered to exchange dollar for dollar with General Mortgage 4's, with

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1. Chronicle, vol. 55, p. 1077.
2. New York Sun, early in January, 1893.
3. Chronicle, vol. 64, p. 887.

interest adjusted as follows: for five months to July 1, 1897 at 6%, $33.33, and for seven months to February 1, 1898 at 4% less discount, $23.80, or a total of $56.13 to be paid in cash. In other words, the holders would receive in cash the difference in interest equalized on a 4% basis. There were $3,574,000 bonds out. The limit of the offer was set at July 1, 1897 and later extended to September 1, 1897. Approximately $2,000,000 of these bonds were turned in for General 4's.[1] By this conversion the company saved $160,000 per year and, together with the conversion of the Iowa & Minnesota Division 7's into preferred stock, the company saved a total of $158,460 per year.[2] The last opportunity to convert the Prairie du Chien Division 7 3/10's, Second Mortgage, into preferred stock was during the ten days ending October 31, 1897, the dividend on that stock being declared payable October 31, 1897. Late in October $988,000 were out.[3] The holders of $231,000 did not take advantage of the privilege with the preferred selling considerably above par.

The floating debt was of no significance during this period except in 1893. On July 1, 1893 it amounted to $3,340,000. The principal items of the debt were incurred by redemption of the LaCrosse Division bonds and for financing the construction of a new line on the Milwaukee & Northern mentioned previously for which $1,089,000 of the bonds of the latter company were issued to the Milwaukee. The Milwaukee had at this time $5,434,000

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1. Chronicle, vol. 64, p. 1000 and vol. 65, p. 26. Company records in the accounting department.
2. Chronicle, vol. 64, p. 1000. Annual Report, 1897.
3. Chronicle, vol. 65, p. 778.

in bonds in its treasury which could be sold. The board did not deem it advisable to offer bonds for sale at that time because of the condition of the money market, preferring to borrow temporarily to recoup the treasury funds used. They were able to do this.[1] As was indicated on page 88 General 4's were sold some months later to provide for this indebtedness.

The capital structure at the beginning and at the end of this period was as follows:[2]

	June 30, 1891	June 30, 1898
Common Stock	$ 48,027,261	$ 48,026,600
Preferred Stock	22,198,900	31,818,400
Funded Debt:		
In the Hands of the Public and in the Insurance Fund	124,125,000	130,001,500
In the Treasury or due from the Trustees	5,672,000	5,587,000
Total Funded Debt	$129,797,000	$136,588,500

A summary of the changes in the funded over the period, which is given in detail in Table III in the Appendix, appears as follows:

Funded Debt, June 30, 1891			$129,797,000
Increased by General 4's issued for:			
Improvements to the Property	$8,160,000		
Underlying Bonds redeemed and cancelled	7,294,000	$15,454,000	
Milwaukee & Northern Bonds assumed		7,247,000	23,701,000
			$153,498,000
Decreased by:			
Underlying Bonds redeemed and cancelled		$ 7,190,000	
Convertible Underlying Bonds received in exchange for Preferred Stock		9,619,500	16,809,500
Funded Debt, June 30, 1898			$136,588,500

1. Annual Report, 1895.
2. Poor's, 1892, p. 148 and 1898, p. 381.

The $8,819,500 increase in preferred stock is explained in the above figures, all the increase being for convertible underlying bonds exchanged for the stock. The $461 decrease in the common stock was made in accordance with a resolution of the board authorising that fractions of shares of common, aggregating 6.81 shares, be written off the books.[1] Of the total of $77,945,000 capital stock, preferred and common, $77,940,300 were in the hands of the public and $4,700 were in the treasury of the company.

In short, $8,190,000 in General Mortgage 4's were issued for capital expenditures the company had incurred and $7,294,000 were issued for underlying bonds redeemed and cancelled. In some cases the 4's were exchanged directly for these underlying bonds with the bondholders and in other cases sold to provide the redemption proceeds. Those sold to the public were first issued to the company's treasury by the trustees as shown in the table and then most of these were in blocks from time to time as given on page 88. The table shows the amount of bonds issued to the treasury. Moreover, blocks of bonds sold to the public when consisting of these bonds previously issued to the treasury are not shown in such a table. These operations were converting the higher interest bearing underlying bonds and were financing the expansion in the property with General 4's as the executors of the General Mortgage intended it should be in 1889. Besides $8,819,500 underlying bonds were

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1. Annual Report, 1907.

converted into preferred stock with no fixed interest charges. Obviously the company's financial position was becoming stronger and stronger throughout this period.

The change in the capitalization per mile during this period was as follows:[1]

	June 30, 1891	June 30, 1895	June 30, 1898
Stock	$ 11,214.03	$ 11,701.11	$ 12,240.94
Bonds	22,687.81	22,584.05	22,195.59
Total Capitalization	$ 33,901.84	$ 34,285.16	$ 34,845.53
Interest	1,351.93	1,236.73	1,198.18

Some change toward more stock per mile and less bonds per mile is noticeable. The decrease of over $50 per mile in interest charges from 1891 to 1898 is of great significance.

After all the changes as regards new special funds, the physical property, current financing, and capital financing related in the previous pages, the condensed balance sheet at the close of the period, June 30, 1898, appeared as follows:[2]

(Figures in Thousands)

Assets		Liabilities	
Road and Equipment	$ 214,195	Common Stock	$ 46,023
Securities	891	Preferred Stock	31,812
Assets in Funds	2,251	Funded Debt	130,002
Materials and Supplies	2,[illegible]	Current and Accrued Items	6,736
Due and Current Accounts	1,[illegible]	Liabilities to Funds	2,557
Cash	5,088	Income Account	9,[illegible]
Miscellaneous	[illegible]		
Total Assets	$ 2[illegible],[illegible]	Total Liabilities	$ 2[illegible],[illegible]

1. Annual Reports for these years.
2. Poor's, 1899, p. 288.

The funded debt above is given in detail in Table IV in the Appendix.

The income account for these years appeared as follows:[1]

Condensed Income Account
(Figures in Thousands)
Year ended June 30

Item	1892	1893	1894	1895	1896	1897	1898
Average Miles Operated	5,759	5,762	5,188	6,205	6,188	6,191	6,191
Operating Revenues	$33,419	$34,204	$31,516	$27,499	$32,887	$30,887	$34,393
Operating Expenses	20,018	21,658	19,103	16,123	18,800	17,504	20,271
Net Revenue from Railway Operations	12,401	12,546	12,413	11,376	14,087	13,383	14,122
Taxes	933	1,058	1,199	1,085	1,082	1,184	1,134
Railway Operating Income	11,468	11,488	11,214	10,291	13,005	11,909	12,988
Non-operating Income	237	122	101	135	65	163	131
Gross Income	11,705	11,610	11,305	10,426	13,070	12,072	13,119
Deductions from Gross Income	112	21	96	—	58	—	—
Net Income Available for Interest	11,593	11,588	11,319	10,426	13,012	12,072	13,119
Int. on Funded Debt	7,162	7,065	7,504	7,629	7,612	7,489	7,190
Net Income	4,431	4,524	3,715	2,797	5,400	4,583	5,929
Dividends on Preferred-Amount	1,573	1,751	1,809	1,819	1,848	1,896	2,104
Dividends on Preferred-Percent	7	7	7	7	7	7	7
Dividends on Common - Amount	—	1,838	1,838	1,381	1,381	1,841	2,531
Dividends on Common - Percent	—	4	4	3	3	4	5.5
Total Dividends	1,573	3,589	3,647	3,200	3,227	3,737	4,635
Balance	2,858	935	68	*403	2,173	846	1,294
*Deficit							

1. Coverdale & Colpitts, p. 8.

Before going into the analysis of the changes and fluctuations in the company's revenue and income during these years, some explanation is necessary at this point.[1] In explaining these fluctuations over the years, the explanations given by the company together with some operating statistics contained in its annual reports to the stockholders will be utilized. The comparisons are mostly from year to year. When a year is mentioned, the fiscal year and not the calendar year is being discussed.

Both the engineers' income figures and the company's statistics are for the fiscal years ending June 30. This holds true until 1917. Thereafter the fiscal year was and still is identical with the calendar year as it was up to 1888 previously.

The dividends on both classes of stock were declared payable semi-annually in October and April. The dividends in the fall were from the earnings of the previous fiscal year. For instance the table of income figures show 7% paid on the preferred and 4% paid on the common during the year ending June 30, 1888.

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1. The foregoing income figures, like those previous and following in this history are taken from the engineers' report on the condition of the road in 1924 in which they advised a financial reorganization. They are superior to the company's income figures from year to year in that the accounts and the practice followed in the computations from the company's books are uniform. The company's accounts are not uniform over the years covered by this history, changing with accounting methods. These changes were sometimes in compliance with new rulings of the Interstate Commerce Commission. The present classification of revenues followed by the railroad company's was begun July 1, 1907 under orders of the commission. The engineers' income accounts are the same as those laid down at that time for the roads to contain in their reports to the commission. Therefore, before 1907 and even to some extent after, the engineers' figures in some cases differ somewhat from those put out by the company. However, a comparison of the two sets of figures show no differences of material nature and over the years follow the same course.

3 1/2% on the preferred and 2% on the common were declared payable on October 30, 1892 from the earnings of the fiscal year ending June 30, 1892 and another 3 1/2% on the preferred and 2% on the common were declared payable on April 19, 1893 from the year ending June 30, 1893.[1] In March, 1909 and thereafter, the semi-annual dividends were made payable in March and September which need not concern us at this time.

There was a material increase in the revenues from 1891 to 1892 due to the good crops with the subsequent increase in general traffic, the development of the territory and the industries along the lines of the Milwaukee, and to the maintenance of rates in most of the territory.[2] The increase as compared with the previous year in the average distance each ton of revenue freight was carried from 182.32 miles to 195.87 miles and the consequent (in part) increase in ton miles of revenue freight from 1,805,835,111 to 2,285,883,098 was no doubt a material cause of the increase in operating revenues. Operating expenses also increased, the chief item of increase being over $1,000,000 in maintenance of motive power, machinery, and rolling stock, but the increase was not as great as the increase in revenues so net income increased considerably. However, the directors decided not to resume the April dividends on the common upon which no dividends had been declared since September, 1888

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1. Annual Report, 1893.
2. Unless otherwise stated, the sources of information in this analysis are the company's annual reports for these years.

until the crop prospects were a little more definite and intelligent action could be taken.[1] In October, 1892, as was expected, a 2% dividend was declared on the common. In 1893 the increase in the revenues were offset by the increase in expenses.

Then came some difficult years in the company's history. In 1894 there was a bad drop in revenues due to the general depression in industrial and commercial affairs which had prevailed during the year. The tons of revenue freight carried decreased from 12,261,705 tons to 10,794,058 tons, a decrease of over 2,500,000 tons or approximately 20%. Ton miles decreased from 2,378,470,421 to 2,077,909,449, a decrease of over 4,000,000 or approximately 17%. Revenue from freight decreased over $4,000,000. The earnings from passengers increased during the months of July, August, September, and October in 1893 due to the World's Fair but the passengers were carried to the fair at reduced rates and other months showed a decrease more than offsetting this increase. Only a large decrease in expenses prevented a larger decrease in net income than had occurred. Repairs to the track and renewal of rails decreased over $800,000 due to the large amount of work of this nature accomplished the previous year. The cost of conducting transportation decreased considerably over $1,000,000, not due to the wage rates which were about the same but due to the decrease in

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1. Chronicle, vol. 54, p. 443.

tonnage and train service. Interest charges increased considerably no doubt due to the selling of $8,000,000 General 4's to the public in the fall of 1893 and in May, 1894.[1] In 1895 the depression continued with telling effect on the revenues and earnings of the company. The earnings from freight decreased over $2,500,000 or approximately 12% from the previous poor year. Tons of freight hauled did not decrease appreciably but the average distance each ton was hauled decreased from 182.5 miles to 168.5 miles, a decrease of 24 miles or about 12%. Consequently the ton miles decreased from 2,077,869,479 to 1,755,245,552, a decrease of 312,623,927 or about 15%. While total freight traffic remained about the same in tons, the traffic in agricultural products decreased from 3,482,317 tons to 2,794,748 tons or a decrease of about 20%. The rates per ton per mile remained about the same from the previous year, 1.075¢. Therefore there was only one explanation of the decrease in revenues and earnings besides the fact that the earnings from passengers declined from over $7,000,000 to less than $6,000,000 or about 25%. This explanation was the general commercial depression and the failure of crops in a considerable portion of the company's territory which heretofore produced a large volume of long haul traffic. Besides a loss in traffic receipts of perhaps $500,000 was caused by the strike which occurred in July, 1894. The great railroad strike in 1894 manifested itself at various points of the company by a union known as the American Railway Union. The road claimed that its

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1. See p.88.

men really did not have a grievance. The company at this time put itself on record as being willing to discuss with union representatives problems of mutual interest but as opposed to any organization of this kind which it claimed disregarded private property, public rights, and even the safety of the union's own members. The well known loyalty of the employees on the system prevented a greater loss than that suffered by the company. Expenses were reduced but not sufficiently to prevent a sharp decline in net income. The company did not curtail its expenditures in 1894 on such things as culverts, bridges, and fences in spite of the poor business that year. In fact, work on these things were at its height during that year, as pointed out previously. But during the year 1895, these items were radically curtailed along with the other expenditures. In April, 1895 the dividend on the common was reduced from 3%, paid since October, 1893, to 1%. Vice President Bond declared that this was not to be taken as a precedent as the dividend was really earned. He stated that the crop outlook was uncertain and poor. If the outlook in the fall was better he announced that the dividend would be increased.[1] As a matter of fact the income statement did not show that a 3% dividend on the common was earned in 1895.

A glance at the 1895 statement shows that the effects of the depression had run its course on the company's business. The

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1. Chronicle, vol. 60, p. 480.

earnings from freight increased from nearly $18,000,000 to nearly $24,000,000, an increase of about $5,000,000 or 33%. Tons of freight carried increased from 10,475,942 tons to 12,210,055 tons, an increase of 1,734,173 or about 17%. Ton miles increased from 1,765,243,551 to 2,381,667,988, an increase of 616,422,038 or about 35%. The increase was chiefly in agricultural products which increased 1,051,880 tons or about 39%. Agricultural products comprised about 32% of the total tonnage in 1898 as against 27% in 1895. The average distance each ton was carried increased from 168.50 miles to 195.06 miles, an increase of 26.56 miles or about 15%. Evidently the agricultural territory with the long haul traffic had "come back." The average tons of revenue freight per loaded car increased from 9.84 tons to 10.80 tons, an increase of over a ton or about 11%. Expenses increased of course with the larger volume of traffic but not nearly to the extent of the increase in revenues. Therefore good crops, an increase in the average distance each ton was hauled, and an increase in the tons hauled in each loaded car offset a decrease in the rate per ton mile from 1.075 cents to 1.003 cents or 7% and produced the increase in revenues and earnings in 1898 as compared with 1895. In April, 1898 the dividend on the common was restored to 2% after being 1% the October and April previous.[1] The decrease in revenues in 1897 was due to a general depression in business affairs. There was

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1. Chronicle, vol. 62, p. 502.

an increase in the traffic in agricultural products which comprised about 34% of the total tonnage as against approximately 32% the year previous. However, this increase was offset by the decrease in other commodities and by the shorter haul than usual on wheat. The average distance each ton was carried declined from 195.03 miles to 189.82 miles, a decrease of 5.34 miles or about 3%. Expenses and interest charges declined but not sufficiently to cause a substantial decrease in net income. However, in October, 1897 the company declared the regular 2% dividend on the common and an extra 1%. When the previous April and these October dividends on the preferred came out of the $4,583,305 net income for the year ending June 30, 1897 there remained $310,054.[1] In 1898 there was an improvement again. Revenues increased substantially. Earnings from freight increased from over $22,000,000 to nearly $25,500,000 an increase of considerably over $3,000,000 or about 15%. Tons carried increased from 11,554,156 tons to 14,230,247 tons, an increase of 2,676,089 or about 23%. Agricultural products increased from 3,872,598 tons to 4,453,984 tons, an increase of 581,386 tons or about 15%. Other tonnage increased from 7,681,455 tons to 9,776,748 tons, an increase of 2,095,293 tons or about 27%. Ton miles increased from 2,193,241,380 to 2,631,348,672, an increase of 438,107,292 or about 20%. No doubt business was good and businesses contributing tonnage in products other than agriculture had improved over the previous year, when as mentioned above, a

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1. Chronicle, vol. 65, p. 462.

decline in business from these sources caused a decline in the company's business during that year. There was an increase in expenses but not to the same extent as in revenues. The cost of conducting transportation increased nearly $1,000,000. The cost of fuel increased nearly $400,000. About $135,000 of this was due to a coal strike which occurred in the summer of 1897, and continued for five months. The company was forced to buy coal wherever it could and pay whatever was necessary. Interest charges were substantially reduced. Hence the net income increased considerably. The decrease in interest charges were appreciable during the last few years of this period. As was pointed out previously, the preferred stock was selling during the closing prosperous years of this period considerably above par. Conversion of the convertible issues into preferred stock became profitable. Two convertible issues matured. Besides, the company throughout the period, it will be remembered, was replacing high interest bearing underlying bonds with General 4's. The effect of these operations on the interest item in the income statement is noticeable. In April a 3 1/2% dividend was declared on the common, a decrease of 1/2% from the previous dividend. A semi-annual dividend of 3 1/2% or 7% per year was paid on the preferred stock throughout the period.

Glancing over the income statements for this period and bearing in mind the unfavorable business conditions prevailing over most of the period, the striking feature of the income account is the steadiness of earnings over the most trying years with the substantial improvement at the close. It is clear that

the lines were operating in a territory which had passed the first hazards and weaknesses of the pioneer stage. People were established in the territory sufficiently to weather the depression with the minimum disturbance in business and traffic. The results also show that the railroad was capitalized and operated so as to enable it to receive the benefit of the relatively favorable conditions in the territory in which its lines were situated. Over the period the earnings available for interest aggregated $83,030,000. Interest payments aggregated $51,651,000, leaving a balance of $31,379,000. Of this $23,608,000 was paid in dividends, leaving $7,771,000 for other purposes. While the payment of 80% of the earnings in interest and dividends left a relatively small amount for improvements and betterments, the large margin of safety covering the interest requirements and the maintenance of earned dividends through a period of business depression tended to establish a sound credit position at the time of reviving prosperity in the closing years of the period.[1]

The following comparative statistics as of June 30, 1898 are of interest:[2]

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1. Coverdale & Colpitts, p. 5.
2. The sources of these figures are the same as those at the close of the previous chapter.

	Milwaukee	Northern Pacific	Great Northern
Stock per Mile	$12,649.84	$35,534.18	$ 5,597.65
Funded Debt per Mile	22,195.29	37,353.55	*28,708.56
Interest per Mile	1,198.18	1,583.66	* 1,436.13
Gross Earnings per Mile	5,555.83	5,428.63	5,055.43
Operating Expenses and Taxes per Mile	3,445.26	2,700.18	2,587.47
Net Earnings per Mile	2,110.57	2,728.45	2,467.96
Operating Expenses and Taxes to Earnings	60.22%	49.73%	51.18%
Operating Expenses to Earnings	59.28%	46.8 %	47.14%
Average Rate per Ton per Mile	.972¢	1.06¢	.932¢
Freight Earnings per Train Mile	$1.73	$2.85	$2.99
Average Distance each Ton Hauled	184.20 mi.	326.8 mi.	
Tons Freight per Loaded Car	10.84	12.21	14.76
Tons Freight per Train(6-30-99)	187.	264.59	316.32
Average Rate per Passenger per Mile	2.28¢	2.22¢	2.22¢
Freight Earnings to Gross Earnings	74.49%	73.60%	70.97%
Passenger Earnings to Gross Earnings	17.51%	20.50%	14.97%

*To the bonded debt was added the $20,000,000 St.Paul, Minneapolis & Manitoba guaranteed 6% stock in calculating this figure. To the interest charges was likewise added the 6% dividend guaranteed on this stock by the Great Northern.

The smaller stock per mile of the Milwaukee as compared with the Northern Pacific and the smaller funded debt and interest charges per mile of the Milwaukee as compared with the Northern Pacific and Great Northern stand out clearly. With respect to these three figures in comparison with the other two roads, the Milwaukee since 1891 improved its capital structure to the greatest extent. It compares very favorably with the other two roads as regards gross earnings per mile, but as was the case in 1891, the

expenses per mile were higher; so much so as to compare unfavorably as regards net earnings per mile. This condition is reflected again in the higher operating ratio of the Milwaukee. As in 1891 the Northern Pacific and Great Northern seem to be enjoying higher rates for freight. In the intensity with which the equipment was used as reflected by the average distance each ton was hauled and the tons which were carried on the average in a loaded car and in a train, the Milwaukee compares unfavorably with the other two roads. These figures no doubt explain at least part of the higher expenses per mile on the Milwaukee. The fact that the Great Northern always has been the large ore carrier of the three roads explains in part at least the higher tonnage per mile and per train. The smaller importance of passenger traffic as a source of revenue on the Great Northern as compared with the other two roads is noticeable as in 1891.

CHAPTER III.

THE DEVELOPMENT OF A SOUND AND STRONG MIDDLE WESTERN SYSTEM--1898 TO 1906.

As was pointed out previously, the closing years of the previous period of business ushered in a period of business revival that was marked by steady improvement in the company's territory. In Wisconsin, Minnesota, Iowa, and South Dakota the second generation was improving and expanding the agricultural development initiated and established during the preceding period. Land values were rising and crop production was increasing and being diversified. Towns were growing and the industries were increasing in importance. The larger purchasing power of the population in the territory resulted in the rapid expansion of railroad traffic. From 1898 on the requirements of improved service were of more importance than the need for new railroad lines. It was the day of heavier motive power, grade reductions, larger cars, and longer trains. However, extensions were constructed on a much larger scale than during the last period. In the earliest years of this period, the controlling railroad problem was to anticipate the growth of traffic through the provision of the facilities to handle it.

The Milwaukee was in a strong position to meet the requirements of its growing business. It had established a sound financial structure during the preceding period. It had out $130,001,500 in bonds with interest requirements of some

$7,200,000 per annum, $31,813,700 preferred stock paying 7%, and $40,036,600 common stock paying 5%.[1] The General Mortgage 4's were selling on a 3.5% basis. The preferred stock was selling around 170; and the common, around 110. The preferred and common stock were available as financing media. The larger needs of the territory as far as branch line construction was concerned had been met. During this period, however, the main line mileage was increased from 4,154 to 5,912, a net increase of 758 miles. This was large as compared with the preceding period but very small as compared with the one following.[2]

At this time a real estate and industrial boom was under way in the Pacific Northwest. This boom was accompanied by new agricultural and mining developments. The relation of these matters to the Milwaukee will be discussed later. It may be well at this point to mention the fact that these developments meant the end of the Milwaukee as a middle western system and its beginning as a transcontinental system shortly after the end of this period.[3]

The large provisions for increased facilities, especially those other than new lines, and the end of the time during which the railroad was to be a middle western system are the two outstanding characteristic marks of this period.

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1. Annual Report, 1908.
2. Chronicle, vol. 81, p. 849.
3. Coverdale & Colnitts, p. 9.

In 1899 the Milwaukee acquired the Des Moines, Northern & Western Railroad Company at a cost of $2,465,995.71.[1]

The Des Moines, Northern & Western Railroad Company.

The old St. Louis, Des Moines & Northern Railway Company was chartered on April 4, 1881.[2] On June 30, 1889 its line extended from Des Moines to Boone, Iowa, 42.37 miles, opened since July 1, 1882. A line from Des Moines to Clive in Iowa, 7 miles, was owned jointly with the Des Moines & Northwestern Railway Company. On June 30, 1889 the financial structure consisted of $387,700.50 common stock, $341,000 preferred stock, and $303,000 in first mortgage 30-year bonds. The latter were due August 11, 1911, at 6% per annum, payable February 1 and August 1. On November 22, 1889 the property was sold under foreclosure and out of this affair was organized the Des Moines & Northern Railway Company.[3] The line was of narrow gauge, three feet. It was broadened to the standard gauge, four feet and eight and one-half inches, during the year ending June 30, 1890. On June 30, 1891 the financial structure consisted of $538,700 capital stock and $741,000 first mortgage 50-year bonds dated November 23, 1889, due in 50 years, at 5% per annum, payable January 1 and July 1.[4]

The Des Moines, Adel & Western Railroad Company was organized in 1878.[5] Its line was opened from Knoxes to Adel in

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1. Chronicle, vol. 68, p. 40.
2. Poor's, 1885, p. 744.
3. Ibid., 1890, p. 558.
4. Ibid., 1892, p. 305.
5. Ibid., 1879, p. 614.

Iowa, 7 miles, on October 15, 1878 and to Panora in Iowa, 25.8 miles, at the close of 1879. The capital structure on June 1, 1879 consisted of $17,275 capital stock and $15,000 first mortgage bonds due on January 1, 1883, at 10% per annum.[1] In October, 1880, there was a reorganization plan in connection with which was formed the Des Moines, Northwestern Railroad Company which took over the property. In 1881 this company leased its line to the Wabash, St. Louis & Pacific Railway Company which extended it so that it reached from Des Moines to Fonda, in Iowa, 113.6 miles. On April 1, 1887 the road was leased to Wabash Western Railway Company. However, shortly after it was surrendered to the owners. On December 31, 1888 the financial structure consisted of $348,400 capital stock, $135,000 first mortgage bonds due July 1, 1890, at 7% per annum, and $15,000 second mortgage bonds at 7% per annum.[2] In October, 1887 there was a foreclosure reorganization and the property was transferred to a new company, the Des Moines & Northwestern Railway Company. The financial structure on June 30, 1891 consisted of $100,400 capital stock and $450,000 first mortgage bonds dated May 20, 1890, due in 1895, with 7% interest per annum, payable May 1 and November 1.[3]

In August, 1891 the Des Moines & Northwestern and the Des Moines & Northern were consolidated as the Des Moines,

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1. Ibid., 1880, p. 851.
2. Ibid., 1887, p. 550.
3. Ibid., 1893, p. 208.

Northern & Western Railway Company.[1] The line of the old Des Moines & Northeastern from Clive (7 miles from Des Moines) to Fonda, almost 107 miles, was of narrow gauge. The new consolidated company widened this line to standard gauge shortly after it was organized so now the entire line of the consolidated company was of standard gauge. On June 30, 1894 the financial structure consisted of $4,200,000 capital stock and $2,770,000 first mortgage 40-year bonds, due January 1, 1932, with interest at 4% per annum for five years from January 1, 1892 and at 5% thereafter, payable January 1 and July 1. The bonds were authorized at the rate of $18,500 per mile.[2] In August, 1894, as previously pointed out, the Milwaukee was reported to have acquired a controlling interest in the stock of the consolidated company. But on December 18, 1894 the road was sold under foreclosure and purchased on account of the bondholders for $2,340,000. The reorganization was dated March 1, 1895. On June 30, 1898 the financial structure consisted of $4,372,500 stock ($8,000,000 authorized) and $2,833,000 first mortgage 20-year bonds dated January 1, 1895, due January 1, 1915, at 4% per annum, payable on January 1 and July 1. The issuance of a total of $5,415,000 first mortgage bonds were authorized.[3] Then in January, 1899 the Milwaukee acquired most of the stock and bonds of this company. In May, 1899 the lines of the Des Moines

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1. Ibid.
2. Ibid., 1888, p. 280.
3. Ibid., 1898, p. 281.

Company were conveyed by a deed dated May 1, 1899 to the Milwaukee. The Milwaukee agreed to take up the $2,833,000 bonds and all other indebtedness of the company.[1] The property account of the Milwaukee was debited $2,488,595.71 for the purchase.[2] However, the actual consolidation took effect July 1, 1899. At this time the lines of the Des Moines Company extended from Des Moines via Clive to Fonda, 111.97 miles and from Clive, on this line, to Boone, 34.90 miles, or a total of 148.97 miles. The rolling stock consisted of 11 locomotives, 13 units of passenger equipment, and 348 units of freight and miscellaneous equipment.[3]

The earnings of the Des Moines Company for several years ending June 30, previous to its merger with the Milwaukee, were as follows:[4]

	1895	1896	1897	1898
Total Earnings	$334,233	$443,857	$430,138	$500,047
Net Earnings	101,375	180,645	90,857	231,580
Balance for the Year	* 25,034	34,054	* 38,835	35,708

*Deficit

On April 21, 1898 an act was approved by the legislature of Illinois whereby the Milwaukee, a corporation of another state, was enabled to acquire absolute title to its lines in that state. Heretofore, as pointed out in the first chapter, the Milwaukee in the absence of such legislation was forced to operate its lines

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1. Deeds, p. 338.
2. Annual Report, 1899.
3. Poor's, 1899, p. 281.
4. Ibid., 1896, 1897, 1898 and 1899.