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MODERN PASSENGER SCHEDULES AND THEIR DEVELOPMENT

BY

WILLIAM LEE KLINK

THESIS

FOR THE

DEGREE OF BACHELOR OF ARTS

IN

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COLLEGE OF COMMERCE AND BUSINESS ADMINISTRATION

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## MODERN PASSENGER SCHEDULES AND THEIR DEVELOPMENT

### Chapter I

#### INTRODUCTION

The development of passenger schedules is a subject which has received very little consideration among writers on railroad economics in America. It is true they have referred to this development from time to time in a subsidiary way along with their primary lines of discussion and argument, but there seems to have been no attempt to take this subject by itself and to give it general consideration from the pioneer days of railroad life to the present time.

Because of the lack of definite and adequate information on the subject, it is the purpose of this thesis to summarize the development of passenger schedules by decades giving illustrations of such a number and character as to show the significant changes that have come about.

In order to make effective use of illustrations, it is first necessary to explain some of the technical terms used in connection therewith. The two railroad terms, time-table and schedule, are used to a certain extent indiscriminately by railway men and to a still greater extent by the public, perhaps incorrectly so.

In the Standard Code of Train Rules of the American Railway Association the time-table is defined as: "The authority for the movement of regular trains subject to the rules. It contains the classified schedules of trains with special instructions relating thereto." The schedule is defined as: "That part of a time-table which prescribes class, direction, number and movement



for a regular train."\*

In the parlance of the American Railway Association it is readily seen that the schedule is only a part of the time-table and hence cannot be used at all times as a synonym for time-table.

It is not the purpose of this thesis to consider the schedule as the train dispatcher treats it, namely in its relation to train orders, but to investigate the actual changes that have come about from time to time which have helped to mould the schedule into its present stage of development. As passenger schedules alone are to be considered, only first class trains will be taken into account since regular passenger trains are almost invariably made first class trains. This fact is made evident by looking at an employees time-table on a division of any of our typical American railroads. Second and third class trains are usually manifest, time and way freight trains respectively. Direction and schedule number of trains will enter only incidentally. Chief consideration will be given to the movement and actual consist or equipment of the train.

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\*See Standard Code of Train Rules of the American Railway Association, p. 7, 8.





## Chapter II

## EARLY PASSENGER SCHEDULES - 1830-1850

The American railroad as we know it today dates from the year 1830 when the first 13 miles of the Baltimore and Ohio were opened for traffic. At this time there were only 23 miles of line in America. During the period 1830-1840 numerous short lines were built until in 1840 there was a total mileage of 2,818, the longest single line of which was the Charleston and Hamburg, of 137 miles.<sup>1</sup> The lines were in general isolated and even when there were junction points, interchange of equipment was unknown. It follows from these facts that the total distance any one train could run between terminals was exceedingly short.

In 1837 a train ran from Philadelphia to Harrisburg starting every morning from the corner of Broad and Race Street via the Lancaster and Harrisburg Railroad arriving at Harrisburg at 4 o'clock in the afternoon. Passengers transferred to the Canal Packets to be taken on toward Pittsburgh. The entire distance from Philadelphia to Pittsburgh was covered in  $3\frac{1}{2}$  days. The equipment of the train consisted of a locomotive and one eight-wheeled car. The car resembled a stage coach very much but was somewhat larger.<sup>2</sup> This illustration is not only of interest because it gives an idea of the service rendered by a typical American railroad during the 30's but also because this piece of railroad is now a very important link in the great Pennsylvania Railroad System.

The period 1840-1850 was not an active decade in railroad construction

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<sup>1</sup>Johnson and Van Metre, Principles of Railroad Transportation, p. 22, 25.

<sup>2</sup>Johnson and Van Metre, Principles of Railroad Transportation, p. 36.





The Southern States did not build any road of importance, and only three important lines in the Central West had begun operation. In the southern part of New England, however, the progress was greater, and many links of the present trunk line system of that section were completed.<sup>3</sup>

By the close of this period passenger service was established in the Middle West on the Michigan Central, which operated one train each way between Detroit and New Buffalo on the shore of Lake Michigan. From New Buffalo connection was made with Chicago by steamboat.<sup>4</sup> The Galena and Chicago Union Railroad had two trains each way between Chicago, Elgin, and St. Charles. The running time between Chicago and Elgin, 42 miles, was 3 hours and 10 minutes.<sup>5</sup> This road is now part of the Chicago and North Western Line.

In the East at this time service on the Erie Railroad was developed to a greater extent than on any of the other three great trunk lines. Two 301-mile schedules were operated each way between New York City and Corning, New York, and two more were operated each way as far as Otisville and Port Jervis. Trains made all station stops and required  $16\frac{1}{2}$  hours between New York and Corning.<sup>6</sup>

The Pennsylvania Railroad was at this time limited to the distance of 97 miles between Lancaster and Lewistown. It had one train each way between these places and double service between Lancaster and Harrisburg.<sup>7</sup>

In the New England States the Boston and Maine shows the greatest development at this time. It ran three trains 111 miles each way between Boston and Portland on 4 and 5 hour schedules. Eleven trains to and as many

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<sup>3</sup>Johnson and Van Metre, Principles of Railroad Transportation, p. 26.

<sup>4</sup>American Railway Guide, April, 1850, p. 37.

<sup>5</sup>Ibid., p. 38.

<sup>6</sup>Ibid., p. 24.

<sup>7</sup>Ibid., p. 11.



from Boston ran daily over this line: three each way between Boston and Portland; five each way between Boston and Haverhill, eight each way between Boston and Lawrence; and eleven between Boston and Reading. Two trains each way between Lawrence and Boston made no intermediate stops.<sup>8</sup>

The end of this period found the passenger service over the country in general in more or less of an experimental stage except in the more established sections of the country, New York and New England. The railroad had, however, demonstrated its superiority over the canal for speedy transportation. It could be constructed more cheaply than the canal and could also overcome the difficulties imposed by climate and elevation.<sup>9</sup>

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<sup>8</sup>American Railway Guide, April, 1850, p. 73.

<sup>9</sup>Johnson and Van Metre, Principles of Railroad Transportation, p. 27.



## Chapter III

## THE ERA OF EXTENSION OF EASTERN TRUNK LINES - 1850-1860

The decade of the fifties was a very active one in railroad construction and likewise in the development of passenger service. Railroads were coming into favor with people who traveled. They were rapidly displacing the stage and steamboats in spite of the fact that for long trips several transfers were usually necessary. The economic development of the country was making such rapid progress as to demand more passenger transportation and longer trips. Consequently several routes, such as the New York and Boston Express Line, were established for the purpose of offering continued transportation over longer distances and between important commercial centers. These routes which were composed of connecting lines\* did not offer a through route in the sense in which we use the term today but simply made possible the transfer from one line to the next without the use of an intermediate agency such as the stage or canal.

In order to discuss schedules further it is necessary to use the terms accommodation train and express train. The accommodation train is the train that makes all or nearly all station stops between its terminals. The express train makes only the more important stops between its terminals or may in extreme cases make no stops between terminals. The accommodation train frequently takes the name, "local", since as a rule it makes only a short run as well as all the stops within its run. The express train may travel any distance which may be 5 or 10 miles in the case of express suburban trains or 2500 miles in the case of transcontinental trains.

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\*See pages 7 & 8 infra.





In 1853 the New York and New Haven Railroad, now the most important division of the New York, New Haven, and Hartford, ran four accommodation and two express trains between New Haven and New York, a distance of 76 miles, and three accommodation and two express trains in the opposite direction. Accommodation trains ran on 3 hour and 40 minute schedules and express trains ran on 3 hour schedules. Express trains made three stops between terminals. Five accommodation trains were operated out 30 to 40 miles from New York and a like number into New York to take care of the short distance travel into the city which later took the form of suburban traffic. Express trains were run in the afternoon and evening.<sup>10</sup>

The Boston and Providence Railroad, forming part of a through route between Boston and New York, ran three accommodation trains and one express train in each direction between Boston and Providence,  $43\frac{1}{2}$  miles, on  $1\frac{3}{4}$  and  $1\frac{1}{4}$  hour schedules respectively. The express train making only one intermediate stop was for the accommodation of Boston-New York passengers, who were carried via this line from Boston to Providence, then via the Stonington and Providence Railroad to Stonington and then by steamboat to New York. The 50 mile distance from Providence to Stonington was covered in 1 hour and 45 minutes by the express train. Two accommodation trains were run in each direction between these points on  $2\frac{1}{4}$  hour schedules. By the above combination of three lines including the water route from New York to Stonington one could leave New York at 8 a.m. and arrive at Boston at 6:30 p.m. making a trip of  $10\frac{1}{2}$  hours. In the opposite direction the train left Boston at 5 p.m.<sup>11</sup>

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<sup>10</sup>Pathfinder Railway Guide, October, 1853, p. 42.

<sup>11</sup>Ibid., p. 21, 22.





Another through route consisted of the Boston and Worcester Railroad and the Western Railroad between Boston and Albany. This route is now that of the Boston and Albany Railroad. The Boston and Worcester had three accommodation and two express trains from Worcester to Boston, a distance of 45 miles. They ran on 1 hour and 45 minute, and 1 hour and 20 minute schedules. There was one more express train westbound.<sup>12</sup> Eight suburban trains ran out from Boston in addition to these. This fact indicates that at this early date suburban traffic had become of considerable importance at Boston.

The Western Railroad formed the connecting link between Worcester and Albany, a distance of 156 miles; with three accommodation trains westbound running on an eight hour schedule, and one express train on a 5 hour and 35 minute schedule. This train made connection with a train from Boston on the Boston and Worcester. Thus it was possible for passengers to cover the 200 miles from Boston to Albany in 7 hours including the transfer. There were only two accommodation trains and no express trains eastbound.<sup>13</sup>

The marked difference in the service eastbound and westbound indicates that there was a much lighter traffic in the eastbound direction. This may be explained partly by the large amount of migration from thickly populated New England toward the Great Lakes region at this time. Except for such movements passenger traffic is characterized by the fact that it is nearly equal in opposite directions. Also longer trains may have been operated eastbound.

An all-rail route called the New York and Boston Express Line was in effect at this time consisting of a combination of the New York and New

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<sup>12</sup>Pathfinder Railway Guide, October, 1853, p. 32.

<sup>13</sup>Ibid., p. 36.



Haven Railroad, New Haven, Hartford & Springfield R.R., Western Railroad, and Boston and Worcester Railroad. This was one of the early examples of the through route. Two express trains were operated in each direction and covered the distance of 236 miles by this line in eight hours. One train eastbound ran on a  $7\frac{1}{2}$  hour schedule. This combination route represented a distinct departure from the ordinary one-line, express-train route, and was without doubt an answer in the form of through service to the increasing demands of travelers for long distance transportation without the usual and undesirable transfers and long waits at junction points. A through fare of \$5 was quoted at this time.<sup>14</sup>

In 1858 the New York and New Haven still had only two express trains in each direction but had increased the accommodation trains to six eastbound and westbound. However, the running time of express trains was cut to 2 hours and 50 minutes with one schedule ten minutes less. The accommodation trains ran on 3 hour and 10, 15, 20, or 30 minute schedules.<sup>15</sup> This railroad still formed part of the Boston and New York Express Line with its eight hour trains.

In this same year the Western Railway in connection with the Boston and Worcester had three accommodation trains running three each way between Albany and Boston. The best time made by any of the trains was  $7\frac{1}{2}$  hours.<sup>16</sup> The through fare was \$5 for the 200 miles the same as the New York-Boston fare where the distance was 34 miles greater.

At this time the Pennsylvania Central and its affiliated lines, the

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<sup>14</sup>Pathfinder Railway Guide, October, 1853, p. 39.

<sup>15</sup>Appleton's Ry. and Steam Navigation Guide, October, 1858, p. 83.

<sup>16</sup>Ibid., p. 121.



Pittsburgh, Fort Wayne & Chicago, Northern Indiana Railway and New Jersey Railway had also formed a thru passenger route between Chicago and New York, a distance of 910 miles. Two fast express trains were operated in each direction. The total running time between Chicago and Philadelphia was 39 hours and between Chicago and New York 44 hours. Eastbound there was an alternative connection at Philadelphia over the Camden and Amboy Railroad to New York.<sup>17</sup> It required 2 hours longer to make the trip via this route because of a wait for the Camden and Amboy train at Philadelphia and because of slower running time than on the New Jersey Railroad.

Another very interesting and important development of this period was that of various lines which now constitute part of the great New York Central system. The Michigan Central was extended around the south end of the lake from New Buffalo into Chicago in 1852. In 1853 the Michigan Southern was built to Chicago. The first route opened for passenger service was that of the combination of Michigan Central, Great Western Railway of Canada, New York Central Railway and Hudson River Railroad. By 1858 there were three express trains eastbound making connections via the Michigan Southern and its connecting line, the Lake Shore Route, with New York Central trains at Buffalo. The Michigan Central had only two similar trains.<sup>18</sup>

Three transfers of cars were necessary at this time via either route. The distance between Chicago and New York via these routes was about 965 miles and the trip required 40 hours which was 4 hours less than was required over the Pennsylvania route. Two trains eastbound on the Western

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<sup>17</sup>Appleton's Ry. & Steam Navigation Guide, October, 1858, p. 56.

<sup>18</sup>Ibid., p. 68, 70.





Railway made connection with the New York Central trains at Albany for Boston requiring 9 hours to go from Albany to Boston, 200 miles. A similar number of trains and kind of service was offered to the westbound traffic.<sup>19</sup>

No dining car service was then in effect, and passengers on these long journeys were permitted to get refreshments along the way at all the important stations and cities such as Michigan City, Toledo, Cleveland, Erie, Buffalo, Rochester, Syracuse, Utica, Albany and Poughkeepsie.<sup>20</sup>

It is seen, then, that during this important decade was formed the shell of America's two greatest trunk lines, the Pennsylvania and the New York Central. Also several links of the New Haven System, which later became so important in the industrial life of the New England States, were in operation at this time.

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<sup>19</sup>Appleton's Ry. & Steam Navigation Guide, October, 1858, p. 68.

<sup>20</sup>Ibid., p. 68.





## Chapter IV

## IMPROVEMENTS AT THE TIME OF THE CIVIL WAR - 1860-1870

This period is characterized as one of improved service and facilities. While it was also a period of important railway construction, that fact was very much overshadowed by the development of new types of equipment and faster schedules.

By 1862 the running time of express trains on the Pennsylvania was cut to 37 hours Chicago to Philadelphia and 42 hours Chicago to New York. Westbound, the whole time occupied from Philadelphia to Chicago was 35 hours. The time from New York to Chicago was, via Philadelphia 40 hours and via Allentown and Reading 39 hours.<sup>21</sup> Two transfers were necessary between terminals, namely at Philadelphia and Pittsburgh.

In the same year the Hudson River Railroad operated four express trains in each direction between New York and Troy. In addition there were five accommodation trains from New York as far as Poughkeepsie and two all the way to Troy.<sup>22</sup>

On the old Boston and New York Express Line there was one less accommodation train each way and one more express train each way indicating an increase in the proportion of longer trips to shorter trips and a desire for greater speed.<sup>23</sup> Two years later one more express train was added eastbound and two more westbound. The running time remained the same.<sup>24</sup>

The New York Central route from Chicago to New York has always been

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<sup>21</sup>Appleton's Ry. & Steam Navigation Guide, Feb., 1862, p. 68.

<sup>22</sup>Ibid., p. 77.

<sup>23</sup>Ibid., p. 86.

<sup>24</sup>Appleton's Ry. & Steam Navigation Guide, Oct., 1864, p. 94.



a road well adapted for passenger service on account of its excellent road-bed equipment and scenic attractions. This is especially true of that portion of the route along the Mohawk and Hudson Rivers. In connection with the Hudson River Railroad there is a very interesting bit of advertising taken from an old record<sup>25</sup> which was written as follows:

"This is considered one of the best managed roads in the United States. The distance from New York to Troy is one hundred and fifty miles and the average running time is thirty miles per hour. Trains of this road run with an expedition, despatch, and regularity, not surpassed by any other in the country. It winds along the banks of the Hudson River thru a scenery which, for picturesque beauty, is not excelled by any in the Old or New World. The immense business it has successfully handled since its first completion and its almost entire exemption from accidents and collisions speak volumes in favor of its efficient, energetic and prudent management. One characteristic of this road deserves especial mention. We refer to the system of signal flags introduced to secure safety from accidents in the running of trains. Flagmen are stationed upon every mile of track, generally at the curves or upon a slight acclivity when a view of the track from some distance can be had. Upon the approach of a train, if all is clear ahead, the flagman displays a white flag signal. If there be any obstruction in sight or a diminished speed is required a red flag is displayed.

"The Hudson River Railway is one of the best constructed roads in the country. The road-bed generally is thirty feet wide at the top, the protection wall is three feet in thickness and carried five feet above ordinary

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<sup>25</sup>Appleton's Ry. & Steam Navigation Guide, Feb., 1862, p. 76.



high tide. The rail weighs seventy pounds per yard and the outer rail in all cases of exposure to the river is ten feet from the top of the wall affording a wide margin for the washing of the bank and ample security against running the cars into the river in case of accident. The thru fare never exceeds \$3 which considering the distance and time saved is extremely low."

The above quotation was written in 1862. While it was only an advertisement and possibly somewhat exaggerated, yet it does tend to show how this famous 150 miles of railroad has pushed itself ahead of its competitors and has built up the reputation which it now enjoys.

The signal system referred to above is of interest because signals have for many years been an important advertising feature in the development of passenger traffic. Here they were seen in their primitive form. The flagmen stationed at regular intervals formed a crude block system which later developed into the manual block-signal system only to be supplanted by the automatic block system. Their signal system, crude as it was because it was better than the signal system of its competitors was used as an advertising measure the same as its automatic electric block signals and electric locomotives have been used since.

The question may now arise as to what signals have to do with the development of passenger schedules. A good block signal system may help develop passenger schedules in two ways. First, signals make possible the safe operation of trains at higher speeds because they keep the enginemen informed as to track conditions immediately ahead. This fact makes it possible to shorten the time of a schedule between terminals. Second, signals tend to create more passenger business for the road using them and informing the public of their use thru advertising. The public feels safer in traveling over a road





block-signalized than over one not block-signalized and for this reason will choose the road with the block signals, other things being equal. But by choosing the road with the block signals the public is increasing the passenger traffic of that road which will in turn make a demand for a larger number of schedules.

The other notable development of this era was that of special equipment. The sleeping car as we know it today, originated with George M. Pullman, who built the Pioneer A in 1864.<sup>26</sup> This car was first operated on the Chicago and Alton Railroad. Parlor cars at this time were used on trains making day runs. In 1868 the first Pullman diner, the "Delmonico" was started on the Chicago and Alton.<sup>27</sup> There was some attempt toward building vestibuled cars but the first vestibuled train of the modern type was built by Pullman and run on the Pennsylvania Railroad in 1886.<sup>28</sup>

By 1868 the Boston and Worcester and Western Railways were consolidated into the Boston and Albany Railway as it is known at present.<sup>29</sup> There were then two express and two accommodation trains each way. The fastest express run<sup>was</sup> <sub>A</sub> 7 hours and 25 minutes.

During the same year the Pennsylvania put another express train into service between New York and Chicago. Besides the three express trains each way between Chicago and Pittsburgh there was one local each way.<sup>30</sup> Between Philadelphia and Pittsburgh there were the three fast trains each way and three accommodation trains. There was a local suburban service of seven trains each way out of Pittsburgh east and a suburban service of three trains each way

26. Johnson and Van Metre, Principles of Railroad Transportation, p. 63.

27. Johnson and Huebner, Railroad Traffic and Rates, Vol. II, p. 97.

28. Johnson and Van Metre, Principles of Railroad Transportation, p. 63.

29. Appleton's Ry. & Steam Navigation Guide, Aug., 1868, p. 179.

30. Ibid., p. 219.





between Philadelphia and Paoli, 21 miles west. These suburban trains were local, that is, they made all station stops between their terminals.<sup>31</sup>

On the New York Central route there were four express trains each way between Chicago and New York. By 1870 Commodore Vanderbilt had consolidated the New York Central with the Hudson River Railroad and was operating thru trains from New York to Buffalo.<sup>32</sup> The Lake Shore and the Michigan Southern had also been consolidated and operated the connecting trains from Buffalo to Chicago without change, thus only one transfer was necessary between New York and Chicago.<sup>33</sup> The total time required to make the trip between terminals had by this time been reduced to about 31 hours. Trains run from New York to Albany in 4 hours and 10 minutes with no intermediate stops.<sup>34</sup> This illustration points toward a general tendency at this time toward longer runs between stops.

There were eight express trains in each direction over the Hudson River Division besides an equal number of locals. A large suburban traffic had already begun to develop within a radius of 15 miles of New York and required some 15 additional trains each way to handle this business within suburban limits.<sup>35</sup>

At this time there was from Boston also an important suburban traffic which extended 21 miles on the Boston and Albany as far as Farmington. There were seven suburban trains each way in this territory.<sup>36</sup>

The varied activities of this decade extended into the next and still other important changes in service and facilities came for the comfort and convenience of the traveling public.

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<sup>31</sup>Appleton's Ry. & Steam Navigation Guide, Aug., 1868, p. 121, 122.

<sup>32</sup>Appleton's Ry. & Steam Navigation Guide, Sept., 1870, p. 127.

<sup>33</sup>Ibid., p. 132.

<sup>34</sup>Ibid., p. 91.

<sup>35</sup>Ibid., p. 91.

<sup>36</sup>Ibid., p. 172.



## Chapter V

## PASSENGER SERVICE AFTER THE WAR - 1870-1880

While this was a reconstruction period in American political and commercial life it was in railroad circles a period of extensive expansion in the west and south and a period of betterments for the most part among the older roads in the east. In the east the chief change in facilities offered was that sleeping and drawing room cars were placed on all through trains.

At the beginning of this period the New York and Boston Express Line still constituted the most important thru route between the two cities. There were now three fast trains each way and the running time had been cut to 7 hours and 20 minutes on one of them.<sup>37</sup> In this period the New York and New Haven Railroad Company obtained control of the Shore Line Division,<sup>38</sup> which was the late New Haven, New London and Stonington Railway and which later in connection with the old New York and New Haven line was to become the greatest highway of steel between the important cities of New York and Boston. This line was six miles shorter than the Great New York and Boston Express Line but had not come into favor as yet with the public for thru travel. In 1871 there were three thru trains eastbound and two westbound over this shore line. Their running time was not yet as good as on the old Express Line as the fastest train required 8½ hours to make the trip.<sup>39</sup>

The following year the New York and New Haven expanded its system and took the name of New York, New Haven and Hartford Railway which it has retained. Its heaviest travel was still over the old Express Line<sup>40</sup> but it

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<sup>37</sup>Appleton's Ry. & Steam Navigation Guide, Jan., 1872, p. 107.

<sup>38</sup>Ibid., p. 108.

<sup>39</sup>Ibid., p. 108.

<sup>40</sup>Appleton's Ry. & Steam Navigation Guide, July, 1873, p. 95.



was making the shore line service better in order to take traffic away from the old line, part of which it did not own. It cut the running time of one of its fast trains via the shore line to 8 hours at this time.<sup>41</sup> By the end of this period another thru accommodation train had been put into service eastbound and the fastest express train was running between terminals on a 6 hour and 45 minute schedule which was 35 minutes less than the best run on the old Express Line.<sup>42</sup>

After the close of the Civil War passenger service was very poor south of the Ohio River. There were no large systems such as there were north of the Ohio, and consequently it was a very laborious task to go any great distance in the Southern States. At the beginning of this period one of the best routes between New York and New Orleans was the "Great Southern Mail Route" composed of many short lines.<sup>43</sup> It took 84 hours to make the trip by this route and 88 hours by another route composed of the Selma, Rome and Dalton Railway, Virginia and Tennessee Railway, Jackson and Great Northern and others.<sup>44</sup> It is only 1500 miles from New York to New Orleans but it took as long to cover this distance as it did a few years later to travel the entire distance from the Mississippi River to the Pacific Coast. The transcontinental lines are over 500 miles longer and in addition they cross the great Rocky Mountain grades. During this period there was no marked development of large systems in the South but some of the combination routes offered improved service. The Atlantic Coast Line Fast Passenger Route offered service between New York and New Orleans in

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<sup>41</sup>Appleton's Ry. & Steam Navigation Guide, July, 1873, p. 96.

<sup>42</sup>Appleton's Ry. & Steam Navigation Guide, Feb., 1879, p. 91, 92.

<sup>43</sup>Appleton's Ry. & Steam Navigation Guide, Sept., 1870, p. 251.

<sup>44</sup>Ibid., p. 268.







about 72 hours and operated Parlor Cars and Pullman Palace Sleeping Cars on its trains.<sup>45</sup>

Between the Ohio River and New Orleans the service was somewhat better. The Mobile and Ohio had Pullman service between Cairo and Mobile and New Orleans with connections at the Ohio River with northern and eastern cities.<sup>46</sup> There were fewer changes via this route than any other. "The Great Jackson Route," later consolidated with the Illinois Central, offered service similar to that of the Mobile and Ohio.<sup>47</sup>

Although the first so-called transcontinental line, that of the Union Pacific from the Missouri River to Ogden, Utah and the Central Pacific from Ogden to San Francisco was officially opened in 1869, in so far as the development of passenger schedules is concerned, this road may be considered to be one of the products of the reconstruction age and hence to be considered here. In 1870 there was one passenger train in each direction over this route. It was an accommodation train all the way and required 102 hours to go from Omaha to San Francisco. The fare from Omaha to Sacramento, the end of the Central Pacific Railroad proper, was at this time \$134.50 and from Chicago \$22 more.<sup>48</sup> This service was not improved to any extent until the following decade when the Overland Flyer was put into service in addition to the accommodation train. During the entire decade of the 70's the schedule was shortened only 3 hours.

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<sup>45</sup>Appleton's Ry. & Steam Navigation Guide, Feb., 1879, p. 212.

<sup>46</sup>Ibid., p. 209.

<sup>47</sup>Ibid., p. 207.

<sup>48</sup>Appleton's Ry. & Steam Navigation Guide, Sept., 1870, p. 80, 238.



## Chapter VI

## SCHEDULES DURING THE EXPANSION OF 1880-1890

Railway construction work was pushed harder during the 80's than during any other time in railroad history. In the year 1882 more than 11,000 miles of new line were put into operation. During the entire decade there were approximately 70,000 miles of new line opened.<sup>A</sup> The magnitude of this increase is more clearly seen when we consider that the total mileage built between the beginning of railroading in 1830 and the year 1880 was a little less than 100,000 miles.

The passenger routes already established by 1880 were not changed to any great extent, but thousands of miles of new track were opened, and of course passenger service was established on each line except in a few rare cases on such roads as spurs built to lumber camps or similar industries. The fact that most of the new lines were built in undeveloped country was necessarily accompanied by the fact that passenger traffic was very light at first, and the typical time-tables on these new lines show two local trains in each direction (on some very short branch lines perhaps only one train each way, in many cases a mixed train).

In the New England States the old Express Line still had the balance of traffic in the early part of this decade. There were six express trains and two accommodation trains westbound and six express trains and four accommodation trains eastbound. The best run was made in 6 hours and 45 minutes. Some of the slower trains required as much as 10 hours. On the Shore Line Division of the New Haven one schedule had been cut to 6 hours and

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<sup>A</sup>See Webb's Economics of Railroad Construction, p. 9.



41 minutes. By 1882 the famous Boston Limited was in service which ran in two sections, one via the old New York and Boston Express Line, and the other via the Shore Line. The running time of both trains was 6 hours and 15 minutes.<sup>49</sup>

In this same year the New York and Chicago Limited was running over the Pennsylvania between the two great terminals in 26 hours and 40 minutes. It was fully equipped with Pullman Palace, Parlor and Sleeping Cars.<sup>50</sup>

In the west some of the notable examples of the expansion period are the Chicago, Burlington and Quincy, the Chicago, Milwaukee and St. Paul, the Northern Pacific and the Chicago, Rock Island and Pacific. The Chicago, Burlington and Quincy from a little system extending from Chicago to the Mississippi River grew almost to its present mileage connecting Chicago with St. Paul, Minneapolis, Denver, Kansas City, Omaha and St. Louis. Its service expanded from three local trains each way between Chicago and Burlington, Iowa<sup>51</sup> to a service taking on transcontinental aspects between Chicago and Denver with three fine trains each way between these two cities, one of them making connection at Denver with the Denver and Rio Grande for Salt Lake City and San Francisco.<sup>52</sup> The Chicago, Milwaukee and St. Paul extended its service to Kansas City, Omaha and Aberdeen. Its line between Chicago and the Twin Cities was already in operation.<sup>53</sup> The transcontinental line of the Northern Pacific was opened with its first transcontinental express train in each direction. This train ran from St. Paul to Portland and Tacoma and

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<sup>49</sup>Appleton's Ry. & Steam Navigation Guide, Jan., 1883, p. 52, 54.

<sup>50</sup>Ibid., p. 73.

<sup>51</sup>Appleton's Ry. & Steam Navigation Guide, Feb., 1879, p. 184.

<sup>52</sup>Travelers' Official Guide, March. 1889, p. 400.

<sup>53</sup>Ibid., p. 316-319.





carried Pullman Palace Sleeping Cars, Dining Car and Colonist Sleepers. Berths were free in the Colonist sleepers. The scheduled running time in 1889 was 88 hours between St. Paul and Portland.<sup>54</sup> The Rock Island System extended its limits in much the same general way as the Burlington and by 1890 had reached Denver and Pueblo on the west, what is now Oklahoma on the south, and the Twin Cities on the North. Two trains each way were operated daily between the Missouri River terminals and Denver making connections at the river with trains from and to Chicago over older lines of the company.<sup>55</sup> In 1880 the Rock Island advertised dining car service in a rather extensive and impressive manner. On the overland route to California in connection with other roads dining cars were operated on all express trains. They served "The Best of Meals from the Bill of Fare for Seventy-five Cents". These cars were "used solely for feeding the hungry".<sup>56</sup>

Briefly, one may say that the great development of this period is found for the most part in the Mississippi Valley, with extension in the case of the Northern Pacific, to the Pacific Coast.

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<sup>54</sup>Travelers' Official Guide, March, 1889, p. 343.

<sup>55</sup>Ibid., p. 314-315.

<sup>56</sup>International Ry. & Steam Navigation Guide, Aug., 1879, p. 112.



## Chapter VII

## EFFECT OF CONSOLIDATION - 1890-1900

Several of our larger railway systems were consolidated into their present proportions during this period. We have some notable instances of railways which have built up their great network not so much by extending the parent line by new construction, but by merging large numbers of small lines once independent of each other. The Pennsylvania system is our best example of this practice as it is composed of more than 200 small lines which have been merged into a single system.<sup>57</sup> The effect of this consolidation on passenger schedules is not so marked as would first be supposed. Under traffic agreements thru trains are often operated between important terminals before the lines are consolidated.

The number of thru trains between New York and Boston via the old New York and Boston Express Line was increased from six to ten in each direction. The running time was little changed. On the Shore Line of the New Haven some very radical changes were made. In 1890 there were six trains in each direction and ten years later twelve. The running time on the fastest trains was cut to 5 hours. The Bay State Limited was inaugurated which was and still is an all parlor car train, and there was an all-sleeping-car train at midnight in each direction between New York and Boston.<sup>58</sup> Two other famous trains coming into existence during this period were the Federal Express and Colonial Express between Boston and Washington, D.C. These trains were operated jointly by the New Haven and the Pennsylvania.

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<sup>57</sup>Johnson & Van Metre, Principles of Railroad Transportation, p. 30.

<sup>58</sup>See Official Guide of the Railways, July, 1900, for New York, New Haven and Hartford Railroad.



On the New York Central the New York-Chicago trains were not increased. The famous Lake Shore Limited, the New York Central's first excess-fare train was put into service during this period. Its running time was 24 hours even, as against the New York and Chicago Limited's time of 24 hours and 45 minutes. The time of the other thru trains was somewhat more than this being 30 to 35 hours.<sup>59</sup> The Pennsylvania did not increase its number of Chicago-New York trains either, but the Pennsylvania Limited which was at first an excess fare train between New York and Pittsburgh only was made an excess fare train the entire distance. The road had one other train for first class sleeping car passengers only. The running time of trains on this road was kept balanced with the New York Central's time.<sup>60</sup>

Between Chicago and St. Louis we have some very interesting changes. The Chicago and Alton had four trains each way. In 1890 the best one had a running schedule of  $8\frac{1}{2}$  hours for the 282 miles. During the nineties the Alton Limited, the Famous Red Train, was put into service with its fast schedule of 7 hours and 44 minutes.<sup>61</sup> The Wabash increased its trains from 2 to 4 in each direction between Chicago and St. Louis and cut the running time from 9 hours and 20 minutes to 7 hours and 51 minutes on the best trains.<sup>62</sup> The Illinois Central secured its present short line between these cities and transferred its Diamond Special from the old route via Decatur and Vandalia to the Springfield line. The schedule was thus reduced from 10 hours and 20 minutes to 8 hours. On the short line 4 trains were operated in each direction.<sup>63</sup>

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<sup>59</sup> See New York Central & Hudson River Railroad in Official Guide of the Railways, July, 1900.

<sup>60</sup> See Pennsylvania Railroad in Official Guide of the Railways, July, 1900.

<sup>61</sup> See Chicago and Alton Railroad in Official Guide of the Railways, July, 1900.

<sup>62</sup> See Wabash Railroad in Official Guide of the Railways, July, 1900.

<sup>63</sup> See Illinois Central Railroad in Official Guide of the Railways, July, 1900





On the great transcontinental route between Chicago and San Francisco over the Chicago and North Western and Union Pacific System there were as yet only two trains in each direction. The Overland Flyer became the famous Overland Limited.<sup>64</sup> Its running time was reduced from  $87\frac{1}{4}$  hours to  $72\frac{3}{4}$  hours between Chicago and the Golden Gate terminal. The Santa Fe operated one train in each direction over its transcontinental line between Chicago and San Francisco. During this decade its schedule was reduced from  $114\frac{1}{2}$  hours to 94 hours.<sup>65</sup>

The Illinois Central operated two trains in each direction shortening the schedules from  $29\frac{1}{2}$  to 26 hours between Chicago and New Orleans.<sup>66</sup>

The Richmond and Danville Railroad became the Southern Railway. It still maintained its double train service in each direction between Washington and Atlanta on 18 hour schedules.<sup>67</sup>

The Chicago and North Western increased its service between Chicago and Minneapolis-St. Paul from two to four trains in each direction. The North Western Limited was one of the new trains. Schedules were reduced from 14 hours to 11 and 12 hours.<sup>68</sup>

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<sup>64</sup>See Chicago and North Western and Union Pacific Railroads in Official Guide of the Railways, July, 1900.

<sup>65</sup>See Atchison, Topeka & Santa Fe Railroad in Official Guide of the Railways, July, 1900.

<sup>66</sup>See Illinois Central Railroad in Official Guide of the Railways, July, 1900.

<sup>67</sup>See Southern Railway in Official Guide of the Railways, July, 1900.

<sup>68</sup>See Chicago and North Western Railway in Official Guide of the Railways, July, 1900.



## Chapter VIII

## DEVELOPMENT OF SPECIAL SERVICE - 1900-1910

The development of this decade was chiefly along the lines of special service. There was a marked increase in the total volume of passenger traffic over the country in general, but the great demand of the public was for Pullman service and was answered by the railroads in the form of all-steel Pullman Car trains with excess fare in some cases for excessive speed. More elaborate passenger terminals were provided in the larger cities for the comfort of the traveling public.

On the Shore Line of the New Haven the running time of the fastest train was still 5 hours. The Knickerbocker Limited, another all-parlor-car train on a 5 hour schedule, was added as was also the Merchants' Limited, a train of similar equipment.<sup>69</sup>

This period brought with it on June 15, 1902, the Twentieth Century Limited between Chicago and New York,<sup>70</sup> the most famous train ever operated in America and perhaps the most famous on the globe. The train was first made a 20 hour train, but in 1904 the time was reduced to 18 hours. By traveling the 978 miles in 18 hours it averaged 54 1/3 miles per hour for this great distance. The advent of this train marks a new epoch in railroad history, as there was no long distance train anywhere in the world that could compare with it previous to this time. Of course it was an extra-fare all-Pullman-Car train right from the beginning. The New York Central also

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<sup>69</sup>Official Guide of the Railways, July, 1910, p. 208.

<sup>70</sup>See Railroad Gazette, June 6, 1902, p. 414.



added another extra-fare train, Lake Shore Number Six, which ran on a 22 hour schedule from Chicago to New York.<sup>71</sup> In 1910 this road operated 18 trains upon which excess-fare was charged between certain or all of the points at which the train was scheduled to stop. In addition to these there were trains consisting of Pullman cars only upon which no excess fare was charged other than the ordinary Pullman fare.

The Pennsylvania added materially to its special service. On the same day the New York Central and the Pennsylvania System established competing twenty-hour trains between Chicago and New York. The Pennsylvania train was called the Pennsylvania Special.<sup>72</sup> Its route was nearly 70 miles shorter than that of the Twentieth Century Limited but it had greater obstacles to overcome in some other respects. Its difficulties included somewhat heavier grades and curves besides the trouble of ferrying between Jersey City and the 23rd St. Station on Manhattan Island. The latter impediment has been removed by the completion and use of the Hudson River Tunnels to the new passenger terminal on Manhattan Island. The Pennsylvania Special likewise became an 18 hour train in 1904. In all, the Pennsylvania operated 4 extra-fare all-Pullman trains each way between Chicago and New York besides three others in each direction.<sup>73</sup> The Manhattan Limited has become a very prominent train among the list of service de-luxe trains. The Pennsylvania also established the 24 Hr. St. Louis and 24 Hr. New Yorker, another extra-fare train between New York and the other great central west metropolis.<sup>74</sup> In 1910 this great

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<sup>71</sup>Official Guide of the Railways, July, 1910, p. 287.

<sup>72</sup>See Railroad Gazette, June 6, 1902, p. 414.

<sup>73</sup>Official Guide of the Railways, July, 1910, p. 482.

<sup>74</sup>Ibid., p. 481.

The first part of the document is a letter from the Secretary of the State to the Governor, dated the 10th of January, 1844. The letter is addressed to the Governor and is signed by the Secretary of the State. The letter is a copy of a letter that was sent to the Governor by the Secretary of the State on the 10th of January, 1844. The letter is a copy of a letter that was sent to the Governor by the Secretary of the State on the 10th of January, 1844.

In witness whereof, I have hereunto set my hand and the seal of the said State, at Albany, this 10th day of January, 1844.



trunk line operated on various parts of its system 13 trains of the extra-fare type besides several others of all-Pullman equipment.

The two 18 hour trains of the Pennsylvania and New York Central have had some interesting experiences during their history. In 1908 it appears that the 18-hour Pennsylvania Special ran so slowly that it got in the way of other trains. This we learn from a Chicago press despatch.<sup>75</sup> The incident which gave rise to this statement was the running of a special train of 4 cars carrying a theatrical party from Pittsburgh to Chicago in 7 hours and 42 minutes. This speed is almost exactly a mile a minute for the whole trip of 470 miles. The Twentieth Century Limited was known once while running late to run 133 miles between Elkhart, Indiana, and Toledo, averaging 70.9 miles per hour.<sup>76</sup> Unofficially it has been found by stop watches to be traveling between mile posts in 40 seconds or 90 miles an hour while running along the Hudson River.<sup>77</sup>

Between Chicago and St. Louis the extra-fare trains were not established as would be expected, but some very luxurious trains were operated in spite of this fact. On the Alton very little change was made during this period except that the Alton Limited was furnished with entirely new equipment.<sup>78</sup> The Wabash established its Banner Limited, a very fine train, running on the standard schedule of 7 hours and 45 minutes. In order to avert speed wars between these two cities the four roads interested have made 7 hours and 40 minutes the minimum time to be used by all passenger trains. During this period the Chicago and Eastern Illinois opened its Chicago-St. Louis Line and

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<sup>75</sup>See Railroad Gazette, May 8, 1908, p. 649.

<sup>76</sup>Railroad Gazette, July 21, 1905, p. 17 (G.N.S.)

<sup>77</sup>See also Railroad Gazette, June 23, 1905, p. 718.

<sup>78</sup>See Railroad Gazette, Sept. 1, 1905, p. 204.



in 1910 was operating three well equipped fast trains in each direction on the standard schedules.<sup>79</sup>

On the great transcontinental route the Overland Limited became a train for sleeping car passengers only. Its schedule was reduced by 1910 to 72½ hours westbound and 71 hours and 40 minutes eastbound between Chicago and San Francisco.<sup>80</sup> The famous Los Angeles Limited was a product of this age with its exceedingly fast schedule of 68½ hours westbound and 71½ hours eastbound between Chicago and Los Angeles.<sup>81</sup>

About 1902 there was a newspaper story that the Chicago and North Western, which handles these trains from Chicago to Omaha, would establish temporary telephone communications in one or more cars of its limited trains while such trains were standing at stations. It was said by some that this statement was wholly poetical; that is to say, it was based on hope and imagination.<sup>82</sup> But the hope and imagination were surely realized for in 1917 there were 20 limited trains equipped with telephones in the observation cars for use of the North Western's patrons while they waited to leave the Chicago terminal.

The Santa Fe added its prominent train, the California Limited, between Chicago and San Francisco with a schedule of 86 3/4 hours.<sup>83</sup>

The Illinois Central started its "Seminole Limited" between Chicago and Jacksonville, Florida, on its 34 hour schedule.<sup>84</sup> This has become the favorite train between Chicago-St. Louis and the tropical resorts of Florida.

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<sup>79</sup>Official Guide of the Railways, July, 1910, p. 870.

<sup>80</sup>Ibid., p. 737.

<sup>81</sup>Ibid., p. 736.

<sup>82</sup>See Railroad Gazette, Feb. 21, 1902, p. 134.

<sup>83</sup>Official Guide of the Railways, July, 1910, p. 914.

<sup>84</sup>Ibid., p. 1031.



The Southern Railway added two trains in each direction between Washington and Atlanta among them the New York and New Orleans Limited.<sup>85</sup>

These illustrations indicate the large amount of attention given to this branch of the passenger service at this time.

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<sup>85</sup>Official Guide of the Railways, July, 1910, p. 1126.





## Chapter IX

## PRESENT TENDENCIES - 1910-1918

While this period does not represent a full decade up to the time this thesis is written, it does, however, contain some marked characteristics of its own, which put it in a class by itself. It represents a continuation of the development of special service followed by a marked curtailment of special service and facilities, partly on the initiative of the railroads themselves after the United States entered the war and partly on the initiative of the Government which has taken control of operation with the Director General in charge.

The most notable change on the New Haven was the inauguration of the Boston-Pittsburgh-St. Louis Express between these terminals solid without change.<sup>86</sup> This train is operated jointly by the New York, New Haven and Hartford and the Pennsylvania. The service of this train was made possible by the completion of the Pennsylvania Terminal on Manhattan Island, and the building of the New York Connecting Railway connecting the terminal with the New Haven via the Hell Gate Bridge Route. This is an extra-fare train between certain points. The Federal and Colonial Express trains between Boston and Washington, previously operated via Harlem River, are now operated thru the Manhattan Terminal of the Pennsylvania.

In 1911 the Michigan Central which for many years has been known as a "fast track" placed on schedule its new train "The Detroitier" between Detroit and New York. It is scheduled over the Canadian Division from Windsor

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<sup>86</sup>Official Guide of the Railways, Dec., 1917, p. 481.



to Bridgeburg, 226 miles, in 3 hours and 40 minutes or a rate of 61.7 miles per hour.<sup>87</sup> This is claimed to be the fastest regular schedule in the world for a distance of over 200 miles and so far as can be found from the records the claim is well founded. The train makes one stop of 5 minutes during this time; and if we deduct this stop, the schedule speed is over 63 miles per hour. It is interesting to compare this record with that of the Great Western Railway of England which has trains scheduled 194 miles at 56.7 miles an hour.

By 1917 the number of trains upon which extra-fare was charged between certain or all points on the New York Central had been increased to thirty. In addition to this number there were a few other trains consisting of Pullman cars only.<sup>88</sup> This situation on the New York Central impresses upon us the fact that American railroads (especially those in the densely populated sections of the country) are fast developing a large traffic of a class above that of the standard first class service.

Another characteristic of this period is the fact that it has not been one in which schedules have been shortened as has been the case in previous decades. Instead there has been some tendency in the opposite direction. Between New York and Chicago the schedule of the Twentieth Century Limited has been lengthened from 18 hours to 20 hours, the same running time which was given to it when first put into service in 1902.<sup>89</sup> The 18-hour Pennsylvania Special was taken off and the Broadway Limited took its place running on a 20 hour schedule.<sup>90</sup> In order to facilitate the better movement of freight traffic the Broadway Limited has been discontinued at the request

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<sup>87</sup> See Railway Age Gazette, April 28, 1911, p. 1004.

<sup>88</sup> See Official Guide of the Railways, Dec., 1917, p. 250, 251.

<sup>89</sup> Ibid., p. 250.

<sup>90</sup> Official Guide of the Railways, Oct., 1915, p. 456.

The first part of the document is a letter from the author to the editor of the journal. The letter discusses the author's interest in the subject of the article and the reasons for writing it. The author mentions that they have been thinking about this topic for some time and that they believe it is an important one that deserves attention. They also mention that they have done some research on the topic and that they believe their findings are significant. The letter concludes with a request for the editor to consider the author's article for publication.

The second part of the document is the article itself. The article is titled "The Role of the State in Economic Development" and is written in a formal, academic style. The author begins by discussing the importance of the state in economic development and then goes on to discuss the different ways in which the state can be involved. The author argues that the state should play a central role in economic development and that it should be responsible for creating a favorable environment for investment and growth. The author also discusses the importance of infrastructure and human capital in economic development and argues that the state should be responsible for providing these. The article concludes with a summary of the author's findings and a call for further research.

The third part of the document is a list of references. The references are listed in alphabetical order and include a variety of books, articles, and reports. The references are used to support the author's arguments and to provide a context for the article. The references include works by other economists and scholars who have written about economic development and the role of the state. The references are listed as follows:

of the General Operating Committee for the eastern roads.<sup>91</sup> The Pennsylvania's fastest train between the metropolitan cities is now the Manhattan Limited making the trip in 22 hours.

Because of the heavy burden the Pennsylvania must carry due to its large allotment of war order freight its passenger service has been upset more than that of any other road. This road has been forced to take off many trains, including not only local but some of its long-distance, extra-fare trains. On January 6, 1918, there was a reduction of 104 weekday trains and 51 Sunday trains.<sup>92</sup> The Pennsylvania reports that these reductions amount to an aggregate saving of 2,708,212 train miles annually.<sup>93</sup>

The war has also left its footprints on Chicago-St. Louis service. Between these cities there were 15 trains each way daily over the four roads serving these cities. The Director General has reduced this service to 9 trains each way daily and has made local trains out of some of the previous fast trains.<sup>94</sup>

In the transcontinental service the Overland Limited has been made an extra-fare train on a 65 hour and 10 minute schedule between Chicago and San Francisco.<sup>95</sup> It is the only daily extra-fare train between Chicago and the Pacific Coast. The Los Angeles Limited has become an all-Pullman-Car train. The Atchison, Topeka and Santa Fe run their Santa Fe De Luxe once a week in the winter which is the extra-fare section of the California

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<sup>91</sup>Railway Age Gazette, Dec. 7, 1917, p. 1052.

<sup>92</sup>Railway Age, Jan. 4, 1918, p. 91.

<sup>93</sup>Railway Age, Feb. 1, 1918, p. 286.

<sup>94</sup>Railway Age, March 8, 1918, p. 521.

<sup>95</sup>Official Guide of the Railways, Dec., 1917, p. 764.







Limited.<sup>96</sup> By reference to the Official Railway Guide it is found that the only other daily Extra-fare train west of the Mississippi River besides the Overland Limited is the Shasta Limited of the Southern Pacific between San Francisco and Portland, Oregon.<sup>97</sup>

The transcontinental service between Chicago and the Pacific coast has been much increased since the completion of the Chicago, Milwaukee and St. Paul's Pacific Coast extension over which they now operate the Olympian and Columbian trains on their own rails all the way. These trains cover the distance between Chicago and Seattle in about 72 hours.<sup>98</sup> They pass over the long stretch of electrified line over the Rocky Mountains, and the electrification of the mountain grades has been used as an effective means of advertising to build up a traffic for these trains.

Other well known and important transcontinental trains are the Oriental Limited of the Great Northern, the North Coast Limited of the Northern Pacific, the Golden State Limited of the Rock Island, the Oregon-Washington Limited of the Union Pacific System and the Scenic Limited of the Gould Lines.

On November 16, 1916, the Illinois Central put the new Panama Limited into service between Chicago and New Orleans on its 23 hour schedule.<sup>99</sup> This is an All-Pullman train and compares very favorably with many of the extra-fare trains although it is not one itself. It is probably the finest train operated between the northern and southern states.

It is thus seen how the special service which has become very firmly established in the East is rather slowly but surely being taken up by roads in the Central and Far West.

<sup>96</sup>Official Guide of the Railways, Dec., 1917, p. 1001.

<sup>97</sup>Ibid., p. 828.

<sup>98</sup>Ibid., p. 737.

<sup>99</sup>See Illinois Central Railroad in Official Guide of the Rys., Nov., 1916.



## Chapter X

SOME PHASES OF THE DEVELOPMENT OF SECOND  
CLASS SERVICE

There are several phases of the passenger service which remain to be considered. These phases deserve mention since in certain sections of the country they are holding a place of increasing importance in the passenger business.

In the states of the Central West east of the Mississippi River, in the New England States and in the Pacific Coast States there has grown up a rather extensive network of electric lines. These lines have undertaken to furnish a service of a local nature for short distances out from cities. Within certain limits, i. e., on an average within an hour's ride of the city, people wish to travel to the city frequently and moreover at all hours of the day. Because of inherent properties of the steam railway's power system it is in general unprofitable to steam roads to furnish this frequent service until it becomes of such proportions as to warrant the establishment of a suburban service.

Electric railways are able to operate small train units economically, and as a result it has been found profitable in many instances to furnish a cheap, frequent, electric service to these people. The prime motive of these travelers is to make a cheap and quick trip. Hence their accommodations are of a character far inferior to those of the traveler on a long-distance, service-de-luxe train, but to them the electric line service is much more convenient. It is not at all uncommon to find electric lines, which connect two or more cities 10 to 75 miles apart, offering an hourly service in each



direction between 5:00 a.m. and midnight. In more thickly populated sections this service will increase to half-hour service and in extreme cases will take the frequency of street car service.

On the Pacific Electric Railway, the largest electric railway system in the world, there are 89 trains daily in each direction between Los Angeles and Pasadena, California, a distance of 14 miles. This system has a total mileage of 613 in Southern California and has a total of 2,600 scheduled trains daily between various points on its lines.<sup>100</sup> Part of the system is four tracked to take care of its heavy traffic.

Some of the more important electric systems are attempting to build up a long distance traffic as competitors of the steam lines. The McKinley Lines in Illinois have established a sleeping car service between Peoria and St. Louis.<sup>101</sup> Many of their limited trains carry well equipped parlor cars.

The Government has requested electric lines to reduce their schedules to save fuel consumed in power houses. This war measure has caused a reduction of as much as forty per cent in their service. Special equipment has for the most part been taken off.

The growth of suburbs around the larger cities such as New York, Chicago, Boston, Philadelphia, and Pittsburgh has created a demand on the railroads to move a large traffic into the city from the suburbs in the morning and from the city back to the suburbs in the evening. To accommodate this traffic the railroads have in several instances established a very extensive

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<sup>100</sup>Official Guide of the Railways, Dec., 1917, p. 657.

<sup>101</sup>Ibid., p. 1024.







suburban service. Here as in the case of electric lines the service desired is that of cheap, quick and frequent transportation. Second class equipment is used for the most part.

Chicago has a typical suburban service. The Illinois Central on its lake shore line has the largest traffic with a total of 275 trains. The Chicago and North Western is second with a total of about 225 trains on its three divisions out of the city. Other roads operating a suburban service are the Burlington with 90 trains, the Rock Island with 80, the New York Central with 40, the Pennsylvania (Ft. Wayne Route) with 25, the Wabash with 10 and the Grand Trunk with 8 trains.<sup>102</sup> This service has been one of continual growth during the last forty years and bids fair to become still larger since the population of the suburbs is growing rapidly.

The excursion business has been fostered by many American railways whose lines reach prominent resorts, and they have built up a considerable traffic of this kind. The Pennsylvania has a large excursion business to the New Jersey seaside resorts including Atlantic City. The Chicago and North Western directs the attention of those whose favorite sport is fishing to the lake region in Northern Wisconsin and Michigan. Extra equipment is furnished on all regular trains from Chicago and Milwaukee to the lakes during the summer and in addition a special train called the "Northern Lakes' Special" is run daily from Chicago from the middle of June to the first of September.<sup>103</sup> This is a luxuriously equipped train of Pullmans which leaves the metropolitan terminal at a convenient hour in the evening and by morning has arrived in the "Fisherman's Paradise".

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<sup>102</sup>See Official Railway Guide of Chicago, May 19, 1917, pages 33, 34, 42, 43, 54, 16, 21, 61, 64, 68.

<sup>103</sup>For schedule of this train see Chicago & North Western Ry. "Complete Passenger Schedules", Aug., 1917, p. 27.



Once a week in the summer the Chicago and North Western and the Union Pacific System offer a special train for people patronizing their Personally Conducted Tours to and through the Yellowstone National Park. This is likewise an all Pullman car train and is operated as a section of either the Los Angeles Limited or the Oregon-Washington Limited.<sup>104</sup>

The impressive feature of the modern excursion business is that it is tending to lead away from the old form of excursion with its dirty and dusty cars that were only used once or twice a year and packed with people like immigrant trains when they were used. The new forms of excursions are such as those mentioned which offer service equal to, if not better than, the regular first class service.

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<sup>104</sup>See "Summer Tours" distributed by the Department of Tours, Chicago, Union Pacific and North Western Line.



## Chapter XI

## CONCLUSION

In conclusion, we find the development of passenger schedules in America has been of two general kinds. One kind of development has been that of the number of schedules in effect. The other kind of development has been that of an increase of average speed or a decrease of the time required to operate trains between specified terminals.

It has been shown that as new railroad lines have been built and opened for operation passenger service has been established. As a result we have had in the total number of schedules in effect a continual increase simultaneous with the increase of mileage operated. In addition there has been an increase of what we may call schedule density. Schedule density is the number of schedules in effect daily over a specified operating unit of main line, usually a district. An illustration of this latter phase of development is found on the New York, New Haven & Hartford between New York and New Haven. In 1850 the schedule density on these 72 miles of railroad was eleven. On this same road in 1917 the schedule density was 65 if we disregard all suburban schedules and those to, from, or between intermediate points. If these latter schedules were taken into account, the above density figures would be more than doubled. An increase in schedule density is commensurate with the increase of population in a section of the country served by a railroad, provided that this railroad connects places between which there is an effective demand for passenger transportation. It is true the demand for transportation may be created by the railroad itself, but in so far as schedule density is concerned the effect is the same as if an increase in population had brought about the increased demand. It is to be





expected then, that those railroads having a strategic location will enjoy an increase of schedule density as the population increases in the sections of the country served by those roads. The increase of schedules due to the opening of new mileage is becoming negligible with possible exceptions in the Far West, but the increase of schedule density is almost unlimited in its possibilities.

The other kind of development, that of increased average speed, has certainly been the more spectacular of the two, but whether or not it has been the more important economically and socially is another question. The shortening of schedules between large terminals has undoubtedly played an important part in the development of our commercial life. It appears that the most strenuous efforts in the development of high average speeds have been made by the railroads primarily to accommodate business men. This has been especially true of the 18 and 20 hour service between Chicago and New York.

It is of interest to follow the development in average speed from early days to the present time on a few of the typical and best passenger routes. The tables here included give the average speed of the fastest schedule only, for different years between the terminals named. We note that on each of these representative through passenger routes the average speed has been approximately doubled during the period of years shown.

Plate I

New York Central Railroad

Route of the Twentieth Century Limited

Chicago - New York

Av. Speed in Miles per Hour - Fastest Train

1860 1870 1880 1890 1900 1910

Years

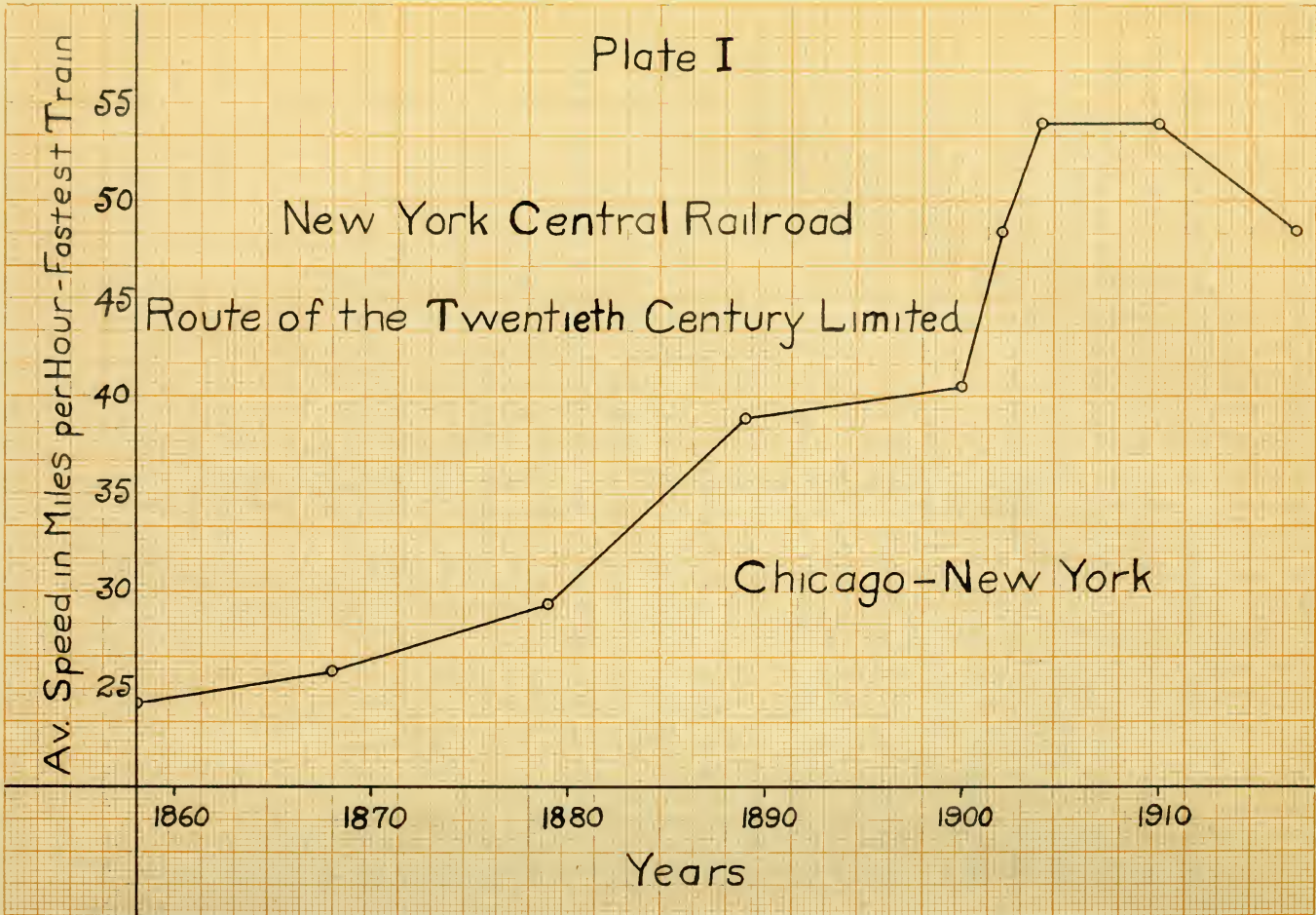




Plate II

Av. Speed in Miles per Hour—Fastest Train

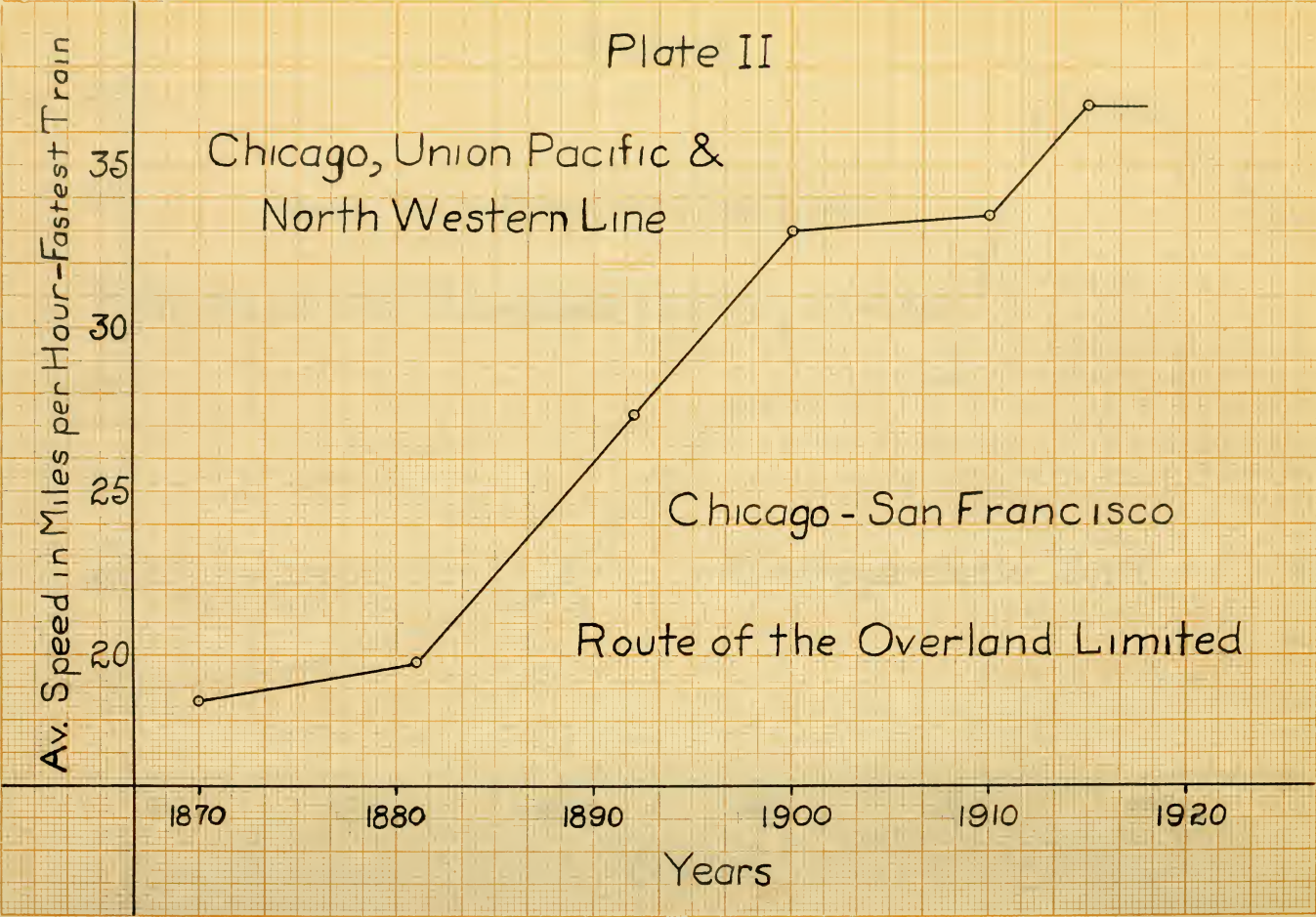
Chicago, Union Pacific &  
North Western Line

Chicago - San Francisco

Route of the Overland Limited

1870                      1880                      1890                      1900                      1910                      1920

Years





## NEW YORK CENTRAL RAILROAD

Chicago-New York		
Years	Hours Required	Average Speed in Miles per Hour
1858	40	24.3
1868	37 $\frac{1}{2}$	26.0
1879	33	29.4
1889	25	38.8
1900	24	40.5
1902	20	48.5
1904	18	54.0
1910	18	54.0
1917	20	48.5

TABLE I

## CHICAGO, UNION PACIFIC &amp; NORTH WESTERN LINE

Chicago-San Francisco		
Years	Hours Required	Average Speed in Miles per Hour
1870	129	18.6
1881	121	19.8
1892	87 $\frac{1}{2}$	27.4
1900	72 $\frac{3}{4}$	33.0
1910	71 $\frac{2}{3}$	33.5
1917	65 $\frac{1}{6}$	36.9

TABLE II

Plate III

Av. Speed in Miles per Hour - Fastest Train

Chicago & Alton Railroad

Route of the Alton Limited

Chicago - St. Louis

1860

1870

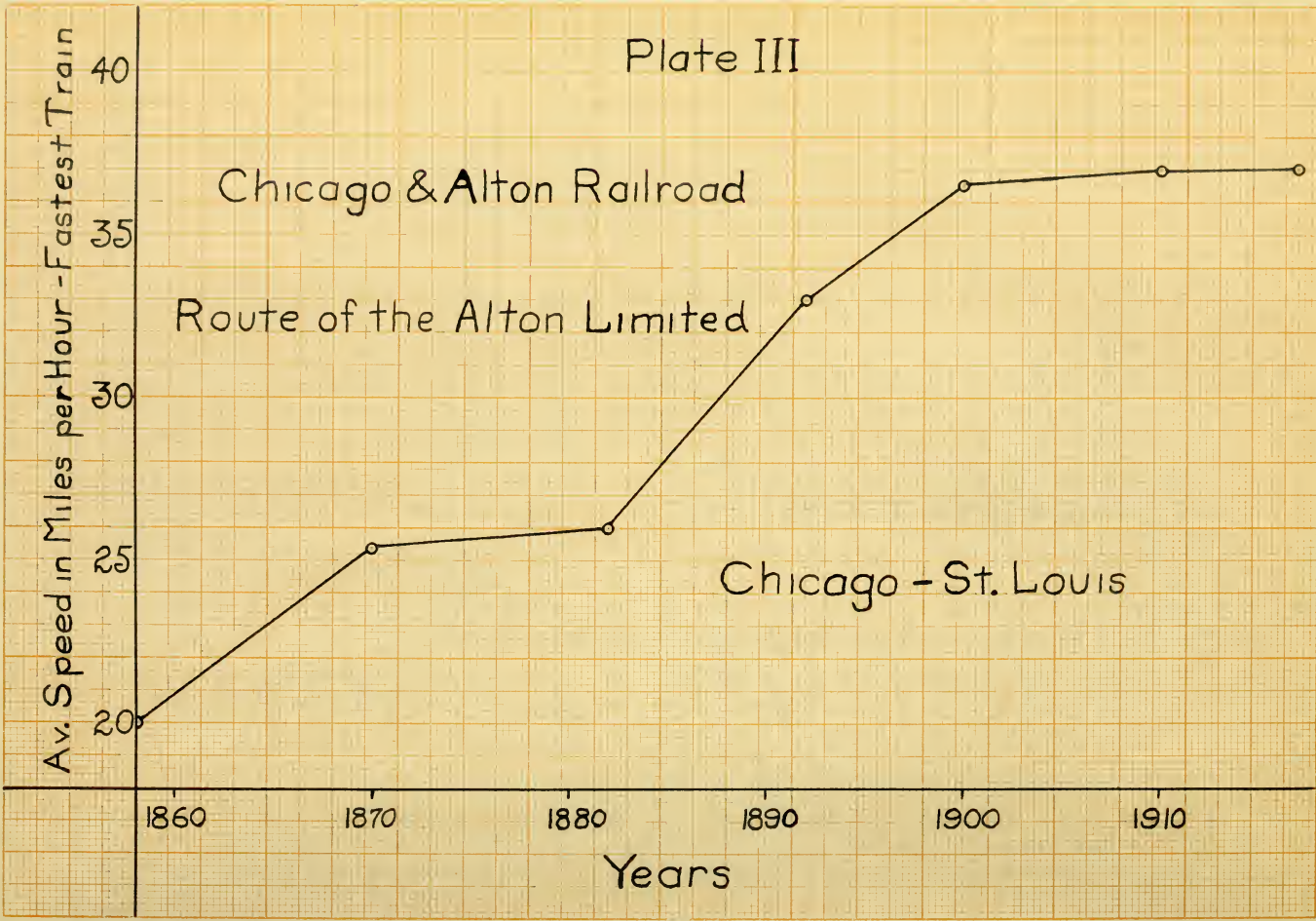
1880

1890

1900

1910

Years





## CHICAGO &amp; ALTON RAILROAD

Chicago-St. Louis*		
Years	Hours Required	Average Speed in Miles per Hour
1858	14	20
1870	11	25.4
1882	10 11/12	26
1892	8 1/2	33
1900	7 3/4	36.5
1910	7 2/3	37
1917	7 2/3	37

TABLE III

\*Figures for 1858 and 1870 are from Chicago to East St. Louis only.

On the accompanying plate is a graph constructed from the contents of Table I. An important fact emphasized by the graph is that there has been a decrease of average speed since the year 1910. A graph for the Pennsylvania between these same terminals would show similar facts because it has been from an early date a very strong competitor of the New York Central and has kept its service and schedules balanced with theirs as closely as possible. On these two passenger routes we find the greatest extremes of average speed over long distances. There are examples of higher average speeds for short distances. For instance, on the Royal Blue Line there is a train scheduled between Jenkintown, Pennsylvania, and Jersey City, a distance of 79.4 miles, in 1 hour and 18 minutes or an average of 61 miles an hour, but this distance is only one-twelfth of the distance between Chicago and New York.



The average speed in transcontinental service, Table II, has been held at a low figure. The primary reason for this fact is unquestionably the severity of grades and curves thru the Rocky and Sierra Nevada Mountains. In so far as roadbed and equipment are concerned this line is not excelled even by the eastern trunk lines. It is also possible that there has not been the same pressing demand of business men for fast transportation between Chicago and San Francisco that there has been, for example, between Chicago and New York. We observe, nevertheless, that the Overland Limited "saves a full business day" the same as the Twentieth Century Limited.

For some time there has been little increase in average speed in Chicago-St. Louis service as shown by Table III. Moreover, the present average speed is relatively low. The question naturally arises, why is the average speed of the fastest trains between these important terminals so low? The reason is not because of grade or curve interference as is true on the transcontinental lines, nor is it because of poor roadbed and equipment for these are of the best. These roads are double tracked and this fact reduces to a minimum the interference of opposing traffic.

All the competing roads except the Illinois Central operate their "noon" trains in each direction on a 7 hour and 40 to 50 minute schedule. Furthermore every one of these trains makes at least 10 and some make as high as 17 stops between terminals. The "midnight" stopless trains are given the same running time as the "noon" trains. If a train is operated between terminals only 290 miles apart and makes at least 10 stops and another train is operated between the same terminals in the same length of time and makes no intermediate stops, it is evident at least that no attempt is made to maintain a high average speed for the stopless train. The reason is probably



that travelers must spend the night in transit, and it is a matter of indifference to them whether they arrive at terminals at 6, 7, or 8 o'clock in the morning. The Illinois Central trains do not leave terminals at the same hours of the day as on other roads but this road observes the same minimum running time. As a matter of fact the Alton Limited or Banner Limited could easily make the trip in 7 hours, at an average speed of approximately 40 miles per hour. This figure is relatively low when higher average speeds between these cities are known to be both possible and practical. To prove this fact we need only to note that the Chicago and Eastern Illinois operates a mail train with no accommodations for passengers on a  $6\frac{1}{2}$  hour schedule in each direction over the 290 miles by this route. The only explanation that can be given for the low average speed in Chicago-St. Louis service is simply that the roads agree that they will not operate passenger trains between these cities on a schedule less than 7 hours and 40 minutes. Business men do not urge the establishment of faster schedules between Chicago and St. Louis because of the proximity of the two cities. It is not a question with them of saving a business day if trains were operated on a  $6\frac{1}{2}$  or 7 hour schedule instead of a  $7\frac{3}{4}$  hour schedule. Under present conditions they can leave either city in the evening and arrive in the other city in time for the next day's business and this accommodation is all they ask. If they desire to travel during the day, in so far as business hours are concerned, that day is lost no matter whether they make the trip in  $6\frac{1}{2}$ , 7, or  $7\frac{3}{4}$  hours.

It is well to consider the circumstances which have made higher average speeds possible and at the same time reasonably safe. There are at least two important reasons: first, an increase in the number of miles between consecutive stops; and second, better roadbed and equipment. It is outside







the scope of this thesis to show in detail how the distance between stops has been increased for express trains. That there has been such development, however, needs no proof. The fact that express trains today run a greater distance without stopping than they formerly did enables them to make a higher average speed without increasing the maximum speed at any point, other things being equal.

Simultaneous with the demand for faster trains with fewer stops has been the demand for finer equipment with which to increase the comfort of those making long journeys. The railroads have complied with this demand by furnishing the better equipment. At the same time this equipment lends itself readily to safe operation at higher maximum speeds. The tendency toward greater mechanical perfection in locomotives, braking equipment, automatic block signals, and a better roadbed have made possible the operation of trains with great safety at much higher maximum speeds than formerly were practical. When we consider together the increase in distance between stops and the increase in maximum practical speeds we then account for the marked increase in average speeds. While each of the tables show that there has been approximately 100% increase in average speed on that line, one must bear in mind that these tables can not be compared one with the other because of different operating conditions. The average number of stops per mile and the average grade conditions between terminals have a controlling influence on the average speed, We should note that for the present between New York and Chicago an apparent practical speed limit has been reached, and that now there is a slight reaction. After a thorough trial the 18-hour trains were pronounced unsafe, especially during the winter, and were taken off at the request of the traveling public. It does not seem that the highest possible



average speed has been reached, but it does seem that with our present system of train operation a practical maximum speed limit has been reached.

The demand of the American public for finer equipment and facilities has resulted in the development of a large traffic of a class above that of the standard first class. This traffic patronizes the special service or service de-luxe trains. We have developed this super-class to a greater extent than any other people. In all other important countries the tendency is for traffic to move not to the service de-luxe class but from higher to lower classes. The situation in America has resulted in an increased proportion of service de-luxe trains which are, as a rule, handled on fast schedules. A passenger supplied with a first-class ticket but not with special service tickets may be compelled to wait at New York or Boston several hours for a train which will accommodate him to Chicago. While he waits, as many as four to six trains may leave for Chicago and he is not entitled to ride upon any of them because they have no accommodations for coach passengers.

The war has put a temporary check on the advancement of special service schedules and trains, but this present curtailment is not expected to be permanent. Service de-luxe trains such as the Pennsylvania's Broadway Limited have been taken off not because there is no longer a demand for them, but because these trains interfere more than any other passenger trains with the operation of freight trains. The necessity for prompt movement of war materials demands that every action practical be taken to facilitate the movement of freight trains. To reduce the interference of high speed passenger trains with freight movements it has therefore been necessary to eliminate the fastest schedules and to lengthen others.

It has become the custom over the entire country to operate either



observation parlor or observation drawing room cars on all trains of any importance. Many roads are now temporarily setting aside part or all of their parlor, club, and dining cars. The purpose of this action is to reduce the number of trains and cars to the number absolutely necessary to carry the passengers so as to release locomotives and traincrews for freight service. The action is strictly a war measure. All kinds of special service equipment will no doubt be placed back in service after the war.

In general the growing demand of America's traveling public for passenger transportation over long distances has brought about an increase in the number of schedules, density of schedules, distance between stops, average speed, and maximum speed. Concurrent with this development is that of equipment and special services. As a result the railroads of the United States have developed the finest and most elaborate thru passenger service to be found.







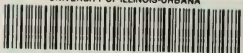
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