Geography, Korean Geographical Society, No. 27, pp. 91-105, 1983.

The Evaluation of Transportation Network in Lansing, Michigan, 1870~1900

Hae Un Rii*

≪Contents≫

1. Introduction

(1) Statement of the Subject

Transportation networks are of primary significance in present-day America. They are equally significant in the American past, especially before the development of the modern communication system. In American urban history, the development of transportation systems has influenced the diffusion of settlement, the movement of population, the creation of town or cities and their development, and the rate of industrialization.[1)]

The city of Lansing, originally founded as the capital of the State of Michigan, has been served by several modes of transportation throughout its history. In the nineteenth century, main modes of overland transportation in Lansing were horses and buggies, omnibuses, and street car railways drawn by horses and electric power. Also, water transportation by boats through the Grand river was another transportation mode in the late nineteenth century.

The transportation network in this paper is defined as the public transportation, which has been established and operated for the purpose of moving numbres of persons over the routes. The transportation mode owned by an individual like an antomobile in the late nineteenth century is excluded. To evaluate Lansing's transportation network from 1870 to 1900, the evolution of the transportation system during this period will be mainly dealt with. And the growth of the city in terms of the change of spatial and economic structure will also be discussed.

(2) Methodology

Historical geography is the study to find answers to the following questions: where was it?; what was it like?; what did it mean?; what effect has it made up to now? In other words, historical geography as a science deals mainly with space in the past. The definitions of historical geograpraphy by

* Instructor(Ph. D.), Ewha Womans University

1) Brown, Ralph H., 1948, *Historical Geography of the United States*, New York: Harcourt, Brace & World, Inc., Glaab, Charles N. and Brown, A. Theodore, 1976, *A History of Urban America*, 2nd edition, New York: Macmillian Publishing Co., Inc.

geographers are:

"Historical geography is first and foremost an integral part of geography itself. It is primarily concerned with place. Its practitioners attempt to reconstruct the past geographies of particular sites or areas; ..... to trace the changes that occur at particular places through time."[2]

"The real function of historical geography is to reconstruct the regional geography of the past. Historical geography should confine itself to a descriptive geographical account of a region at some past period, ... not endeavour to make the explanation of historical events its main objective."[3]

Therefore, the reconstructruction of the past in the area is the most important thing for the study of historical geography.

The reconstruction of Lansing is thus the first work to evaluate Lansing's transportation network from 1870 to 1900. And the next step is to find the relationship between the changes of transportation network and the growth of the city itself through time on the basis of the reconstuction.

Materials used for the reconstruction and analysis were gathered from a variety of sources. Primary sources were found at the State Archives, the State Library, the Local History Collection of the Lansing Public Library, and the Michigan State University Archives and Historical Collection. Information was derived from maps, original plats, vertical files, photographs, censuses, newspapers and manuals.

Secondary sources were found at the State Library and the Michigan State University Library. These were published histories of Lansing, thesis and research papers. In addition to the above institutes, Lansing City of Public Service Department was visited to get information on changing boundaries and the street map of Lansing. Also, an interview with Mrs. McClary in the Local History Collection of the Lansing Public Library was conducted for the information on the water and land transportation.

There were several limitations in the course of collecting data. First of all, maps of 1880, 1890, and 1900 were not available in any places that the writer visited. The reconstruction time thus could not be divided into ten year period. In this study, the maps used for the evaluation of the transportation network against the growth of the city were instead drawn by the writer based on the maps in 1874, 1888, and 1895 of Lansing. Irregularly published Lansing directories during this period were not much helpful for the study. Both the Federal and the State Census data also did not give much information in detail about Lansing. Statistics on some parts of manufacturing and occupation were not properly illustratrated in both censuses. All in all, the lack of sources before 1900 made it difficult to study this subject.

(3) The Study Area

Lansing, the capital of the State of Michigan, is located south of the geographical center of the Lower Peninsular, at the confluence of the Grand and Cedar rivers. The original site of Lansing was surrounded by the dense forest land and isolated from outside. With the decision of the legislature on Lansing as the capital of the State, however, the forest

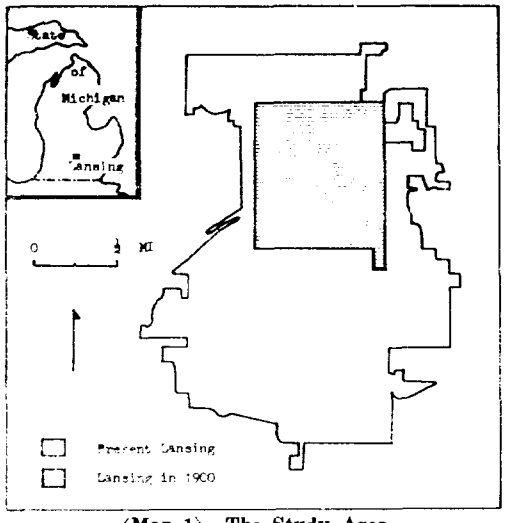
2) Jacobson, Daniel, 1968, "Historical Geography," in *Methods of Geographic Instruction* edited by John W. Morris, Waltham, Mass.: Blaisdell Publishing Company, p. 276.

3) Gilbert, E. W., 1932, "What is Historical Geography?" *The Scottish Geographical Magazine*, Vol. 48, No. 3, p. 132.

vanished. With the elimination of this disadvantage and the advantage of abundant water supply by two rivers, Lansing has grown steadily since 1847.

Lansing is situated in the heart of Michigan and one of the greatest agricultural sections of the United States. Only two hundred and twenty-eight miles from Chicago and eighty-five miles from Detroit, Lansing is in direct contact with the trade and industries of these great cities and finds in their markets a large output for its manufactured products. Lansing is also in close proximity to the other large cities of Michigan such as Battle Greek, Flint, Grand Rapid, Jackson, Pontiac, and so on.

The study area of this research is limited to the city of Lansing from 1870 to 1900. This is different from the present city limit of Lansing (see Map 1).



〈Map 1〉 **The Study Area**

2. The Evolution of the Transportation Network

Public transportation of Lansing in the 1870s was poorly developed. Omnibuses by a private company, Lansing City Omnibus and Hack, were the only mode of the public transportation by the early 1870s. They were operated from a stand at the old "Lansing House," a hotel located on the corner of south Washington Avenue and Washtenaw Street.[4] "Hurdic Coach," an omnibus style, ran regularly from Capital to Miller Dam in North Lansing in the 1870s, and its operation was ended in [1880].[5] Also, the John A. Carr Line of Hacks was established and its business was running in good condition in the late 18 70s.[6] None of these lines lasted long, but the city hack was operated until the early 1890s with the electric street car railways (see Figure 1).[7]

In Lansing water transportation played the most important role in the 1870s due to the fact that a horse-shoe bend of the Grand river, which encircled Lansing, reached most places around the residential area. It was started right after discovering a mineral spring and opening the Mineral Wells Hotel in 1870.[8] Mr. Loomis operated two boats, "Seabird" and Pickwick," and a steamboat, "Minnie Cass," through the Grand River, from North Lansing to the Michigan Avenue bridge, where he could load passengers from trains at the nearby Lake Shore and Michigan Southern depot, thence south to the Mineral

4) Darling, Birt, 1950, *City in the Forest: The Story of Lansing*, New York: Stratford House, p. 121.
5) From an interview with Mrs. McClary.
6) *The State Journal*, March 4, 1913.
7) *Union's Half Century of Progress*, 1886~1936, [Lansing]: Union Building & Loan Association, 1936, n. p.
8) *The State Journal*, October 16, 1960.

〈**Figure 1**〉 **Street Scene, at the Corner of Michigan Avenue and Grand Street in the early 1890s**

Wells Hotel, where most of the train passengers disembarked, thence to the Benton bridge on south Washington Avenue.[9] His advertisement about the boat line in May, 1873 was mainly for the train passengers, who wanted to go the the Mineral Wells Hotel. He advertised that "Boat meets every 30 minutes," and "landing at any point, between North Lansing, the Mineral Wells Hotel and Benton bridge.[10]

In those days, bridges on the Grand and Cedar rivers were important for Laning's transportation. In the Spring of 1875, the most disastrous flood swept away all bridges in Lansing. Thus, the Loomis line of boats became the only mode of the transportation took care of all the city's traffic between the Mineral Wells and the north side of Lansing until new bridges were rebuilt.[11] Each boat could carry about 30 people at a time. The Loomis Line continued to be successful until another onmibus line started to operate, but ended its operation in 1877.[12]

The street car railways were the next step in the development of public transportation system in Lansing during the study period. On January 25, 1886, the Lansing City Railway Company had a franchise from the common council to construct, maintain and operate a street railway on Washington Avenue from the Grand Trunk Railway depot north to Franklin Street (now Grand River Avenue), then east to Ceuter Street, and on Michigan Avenue between Washington Avenue and East street.[13] Also the common council decided on its management:

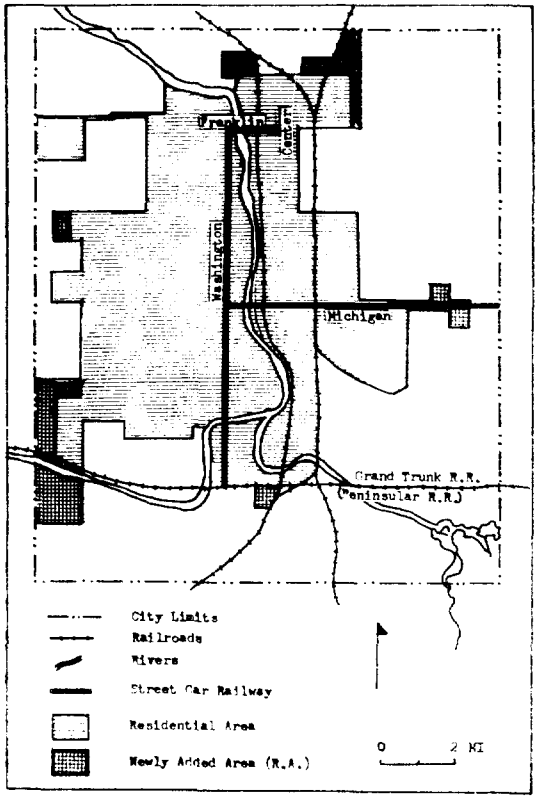
> "... that the cars shall not be required to run for the first five years oftener than every 20 minutes each way, and that they shall be properly warmed during cold weather by modern heating apparatus, and the fare placed at five cents over any part of line. If an extension of the line becemes necessary, the company will not be required to add more that three miles of new track per year."[14]

Thus, the rapid growth of the street car railway was not expected, but there were enough considerations both for the public and the company.

The street car railways were pulled by a horse or sometimes by span of mules, and ran on the established track. It was a much better node than omnibuses to travel since the street was muddy at that time. The lines of the street car railway were extended to Cedar Street on Franklin Avenue and to the city limit on Michigan Avenue by 1888 (see Map

9) *Ibid.*
10) *The State Journal*, May 24, 1959.: The State Journal Company, *Lansing and Its Yesterdays*, Lansing: The State Journal Company, 1930, p. 79.
11) *The State Journal*, March 4, 1913; October 16, 1960.
12) *Ibid.*, March 4, 1913.
13) *The State Republican*, January 26, 1886.
14) *Ibid.*

2).[15] The extension of the line on Michigan Avenue could be explained in relation to the existance of the Agricultural College in East Lansing. In 1889 the line was 6.5 miles long and the company owned forty-four horses and eleven cars; in 1890 there were 7.5 miles of the track, thirty-seven horses and nine cars.[16]

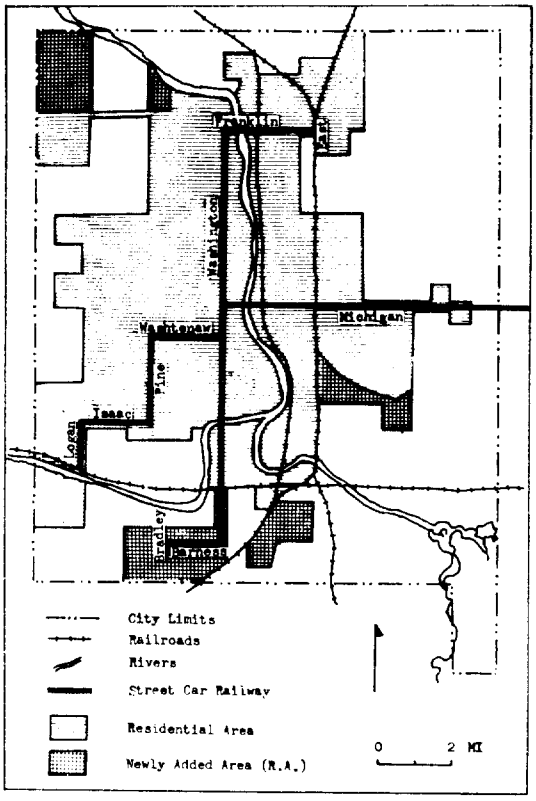


〈Map 2〉 **Lansing in 1888**

The year of 1890 marked a great event in the history of Lansing's transportion network. The Lansing City Railway Company was purchased by H. L. Hollister and M. O. Skinner in 1890, and they changed to an electric railway, digging up the old wooden track with the strap-iron nailed on top and laying a new one of heavier iron.[17] Then, on August 26, 1890, two electric street cars were made a trial trip on Washington Avenue with recording the first official operation of the electric street car railway.[18] These cars were pulled by a "...mammoth 80 horse power electrical generator..."[19] And, all horse-drawn street cars were replaced by the electric street cars by the end of 1890.

The electric street car lines were extended to three directions by 1895: from the Grand Trunk depot south to Barness Street, and west to Bradley Avenue; from the corner of Washington Avenue and Washtenaw Street west to Pine Street, south to Isaac Street, west to Logan street, and south to the Peninsular Railroad; from the city limit on Michigan Avenue to east to the west entrance of the Agricltural College (see Map 3).[20] The third line extended to the new terminal on the campus of the college in 1898.[21] In 1898 the track was recorded 10 miles and the Lansing City Electric Railway Company had eighteen cars; in 1899, 10.5 miles, and fifteen cars; in 1900, 10.5 miles, and seventeen cars.[22]

15) Appleton, William, 1888, *Map of the City of Lansing, Michigan*, Chicago: Wm. Wangersheim.
16) Poor, Henry B., 1889, *Poor's Manual of the Railroads of the United States*, Vol. 22, New York: Poor's Publishing Company, p. 51.; Vol. 23, 1890, p. 1206.
17) Cowels, Albert E., 1905, *Past and Present of the City of Lansing and Ingham County, Michigan*, Lansing: The Michigan Historical Publishing Association, p. 95.
18) *The State Republican*, August 27, 1890.
19) *Ibid.*
20) *Standard Atlas of Ingham County, Michigan*, Chicago: George A. Ogle & Co., 1895; Beal, W. J., *History of the Michigan Agricultural College and Biographical Sketches of Trustees and Professors*, East Lansing: The Agricultural College, 1905, pp. 472-73.
21) Beal, *op. cit.*
22) Poor, *op. cit.*, Vol. 31, 1898, p. 1131.; Vol. 32, 1899, p. 1152.; Vol. 33, 1900, p. 1210.



〈Map 3〉 **Lansing in 1895**

The street car railways were mostly connected with railroad depots, especially when they were first established in 1886. They were virtually nothing but a modified railroad for the intra-city need. However, they became an important public transportation medium with the advent of the electric street car railways which formed a new mode of transportation network in Lansing. Citizens, especially busy shoppers, cheered the opportunity to ride the electric street cars at twenty miles per hour instead of the seven or eight miles per hour that the hourse-drawn cars had previously maintained.[23] However, newly established the Lansing City Electric Railway Company in 1892 operated the railway for about nine years without making repairs of much account, and the cars and all of the equipment became in a run-down and dilapidated condition.[24] As a result, "Lansing gained a reputation of having the poorest street car service in the state: if not in the nation."[25]

3. The City of Lansing Between 1870 and 1900

During the period between 1870 and 1900, Lansing changed and developed greatly with its population growth. Also, the growth of the city was related to the changes of the spatial structure within the city. Often the city boundary was enlarged with its growth, but, in case of Lansing, it did not occur. For thirty years there was the only one annexation in the southeastern part of Lansing in 1893 (see Map 1).[26] This added area was so trivial that it is hard to explain that the annexation was related to the growth of the city. This area neither became the residential area nor had the extended street car railway lines(see Map 3).

The population growth of Lansing during the study period was remarkable. The population of 1900 was more tripled than that of 1870 with around 215% of change (see Table 1). The percentage change varied by each period, with peak periods of growth between 1870 and 1874, and between 1884 and 1890. The period from 1894 to 1900 recorded both

23) Elliott, Frank N., 1959, *Transportation in Lansing Prior to* 1905, Paper read before the Historical Society of Greater Lansing, p. 11.
24) Cowels, *op. cit.*, p. 95.
25) *The State Journal*, May 24, 1959.
26) *City of Lansing* about additional annexation with date and area from Lansing City of Public Service

〈Table 1〉 **The Changing Population in Lansing, 1870~1900**

Year	Population	# of increased	% of increased
1870	5,241	—	—
1874	7,445	2,204	42
1880	8,319	874	12
1884	9,774	1,455	17
1890	13,102	3,328	34
1894	15,847	2,745	21
1900	16,485	638	4

Source: *Census of the State of Michigan*, 1874; 1884; 1894; *Twelfth Census*, 1900; *Thirteenth Census*, 1910.

the lowest percentage change and the smallest increase of the population during the whole study era.

The city of Lansing in 1870 was a small town, which had around 5,000 people, no pavement on the streets, some wooden sidewalks, and few bridges to link between eastern and western parts of the city on the Grand and Ceder rivers. In 1874 the number of population reached to 7,445 with the increasing rate of 42%, which was the highest percentage change during the study period. The reasons for this remarkable change were the operation of the railroads and the decision of erecting the new permanent capital building.

The advent of the railroads from and to six directions made the city the center of manufacturing and trade in Michigan. Distant markets were easily reached by these railroads, and the large rural hinterland around the city became the area of booming farms. Thus, Lansing became the largest wheat market in Michigan by the middle of 1870s.[27] And there were a large number of fine stores on Washington Avenue, for a small size of Lansing like a town.[28]

Erecting the new capital was another factor the development of Lansing. Before 1871, many a threat was heard to relocate to a more permanent and civilized capital city elsewhere. This rumor impeded the growth of the community, as did the poor roads, lack of public transportation, and general isolation from the rest of the state.[29] After the construction of the building was decided, started, and continued, the citizens began to invest in business, improve their homes and generally fix up the town.[30] Thus, the city started to grow.

Therefore, the city of Lansing in 1874 showed its potential growth with newly established manufactures and the increasing population. There were no street car railway lines, but omnibuses and boats were operated as a means of public transportation. The stores and residential areas were more distributed from the north to the south than from the east to the west of the city with well-developed streets (see Map 4). Many farms were developed between these areas and the city limit.

From 1874 to 1880, the rate of population growth slowed somewhat, and the number of population growth also slowed. For four years from 1880 to 1884, the growth rate was still low but the increasing number of population and the rate were greater than

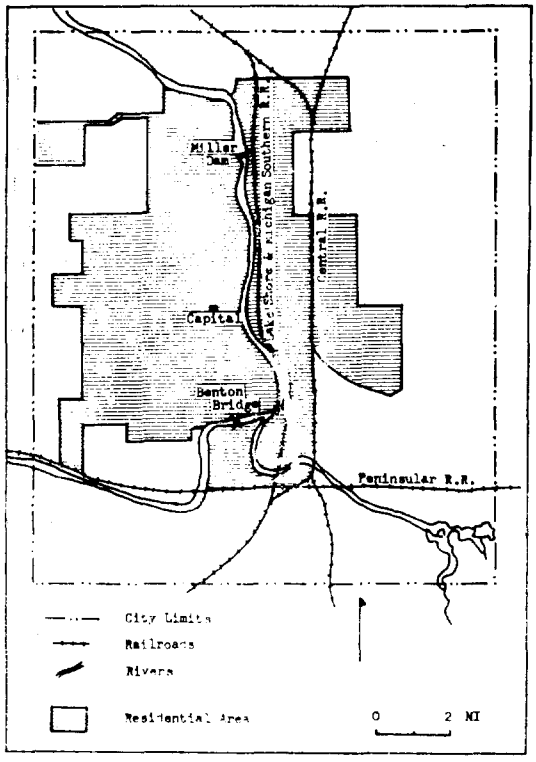
Department.

27) Kestenbaum, Justin L., 1981, *Out of a Wilderness: An Illustrated History of Greater Lansing*, Woodland Hills, Ca.: Windsor Publications, p. 51.

28) *Ibid.*, p. 52.

29) Jacobson, Helen and Wilson, Jane, 1975, *Lansing: A Look to the Past*, For St. Paul's Episcopal Church, Heritage Fair, pp. 12-13.

30) *Ibid.*, pp. 13-14.



〈Map 4〉 **Lansing in 1874**

those in the past six years. Thus, the city's population increased slowly both in the number and the growth rate during the decade between 1874 and 1884. Besides this, there were no evidences of significant events for the growth, but Lansing grew continuously with the improvement of the city itself.

The new capital was completed in August, 1878, and the dedication of the capital took place on January 1, 1879.[31] The first pavement was done on a section of Washington Avenue with round ceder blocks in 1878. On Capital Avenue from Ottawa Street to Allegan Street, and on Michigan Avenue from Capital Avenue to the Grand River, the roads were paved with the same materials.[32] It was laid two rods wide in the middle of the street and the curbs and gutters, on either side of the street, were paved with cobble stone. The iron bridges, essential in a city trisected by two meandering rivers, replaced old wooden bridges after the flood of 1875 and some of them were built on newly selected places, so that people could use them without difficulty.[33] In addition, the telephone service started in Lansing in 1880.[34] Puplic services in all parts improved gradually from 1874 to 1884.

There was another peak time in the population growth between 1884 and 1890. The number of population in this period increased (3,328) more than the increasing number of population in each of the periods from 1870 to 1880 (3,078), and from 1874 to 1884 (2,329). This was the largest number of population growth in the study period. For the six years from 1884 to 1890, there were significant events in the history of Lansing's growth. The operation of the street car railway starting in 1886 was the most important and significant event in Lansing. It was running through the middle part of the city from the northern part of the city to the end of southern residential area of the city. Electric lights replaced gas lights for the streets and oil lamps for the public from 1884.[35] And the city water works began operation in 1885.[36]

31) Jacobson and Wilson, *op. cit.*, p. 14.
32) Wernette, D. L., and Clark, R. S., 1920, *An Analysis of the Pavements of Lansing, Michigan*, thesis, Michigan Agricultural College, pp. 6-7.
33) Edmonds, J. P., 1944, *Early Lansing History*, Lansing: Franklin DeKleine Company, pp. 63-72.
34) Kestenbaum, *op. cit.*, p. 182.
35) Cowels, *op. cit.*, pp. 74-75.
36) *Ibid.*, p. 74.

In 1888, the spatial distribution of the city changed from that in 1874 (see Map 2 and 4). One was in the appearance of the street car railway; the other, in the enlargement of the residential area. By 1888, the street car railways were extended to the east of the city. Especially the extension of the line to the city limit on Michigan Avenue was a big change from the original lines of the street car railways. The newly added residential areas were the south-western part of Lansing around the Grand Trunk Railway depot, the northern part of the city along the railroads, and the eastern part of Lansing along the street car line on both sides of this. Therefore, the street of Lansing in 1888 showed a horse-drawn street car and its track, wagons for loads, omnibuses, electric wires with poles and lights hanging over the streets, and clean streets with the pavement (see Figure 2).

After 1890, the rate and the number of the population growth slowed down, especially after 1894 (see Table 1). However, the growth of Lansing itself was remarkable in the technological improvement and the economic development. The technological improvement made: the electric street car railway replaced the horse-drawn street car railway in 1890; the first brick pavement were laid on Capital Avenue from Ottawa Street to Shiawassee Street in 1894, and later all streets were getting paved; and the horseless carriage, an automobile, appeared as a new mode of transportation in 1897 with better condition than the first one in 1886.[37] with the introduction of the street car railways and the automobile, the economic structure in manufacturing changed greatly. The automobile industry was newly established, carriages and wagons manufacturing grew continuously, and more capital was invested in manufacturing. However, Lansing was not the manufacturing city and the characteristics of Lansing were diversity as a regional center with administrative, social and economic functions.

〈**Figure 2**〉 **Street Scene, North Lansing in 1888**

The spatial distribution of Lansing in 1895 was shown in Map 3. The electric street car railways were stretched two ways in the southwestern section of the city. A extension line of the trolley was followed to the already existing streets in the southwestern part, and another line stretched to the south and then westward with creating new residential area. Also, the residential areas were added in the southern section of Lansing. Another enlarged area was in the northwestern section. These enlarged areas were distributed along the trolley line and the railroads. Hence, the extension of the street car line was related to the expansion of the residential area. Truly the street car railway was the chief agency which encouraged cities to expand before appearance of another new mode of transportation network.[38]

The population growth of Lansing by decade

37) Grainger, Helen E., 1976, *Pictorial Lansing Great City on the Grand*, Lansing: Wellman Press, p. 11.
38) Bartholomew, Harland, 1921, *The Lansing Plan*, Lansing: Lansing Plan Commsision, p. 38.

shows the same aspects as shown in Table 1. Each of the decades in the 1870s and 1880s experienced the population growth rate, 59% and 57% respectively. In the decade of the 1890s, the rate of population growth dropped to 26%, but the increased population (3, 383) was more than that in the 1870s (3, 078). Therefore, the population growth was closely related to the introduction of new transporation modes both in internal and external networks. It is because the railroads started to operate from and to six directions in 1870s, and because the street car railways were introduced and improved in the operation in the 1880s.

On the other hand, the great influence of the street car railway could be proved. To examine this aspect, the study period was divided into two periods; from 1874 to 1884, and from 1884 to 1894. In the period between 1874 and 1884, the city developed slowly with poor conditions of water and land transportation modes. Unlike this period, in the decade between 1884 and 1894, the street car railway drawn by the horse power started to operate and later the electric trolley replaced it. The population growth rates from 1884 to 1894 and from 1874 to 1874 were 62% and 31% respectively, whereas the number of population growth were 6, 073 and 2, 329 respectively. These figures show the great differences between two periods in terms of the population growth. Based on these aspects, therefore, the introductions of modern public transportation in the city of Lansing was directly related to the population growth.

4. The Economic Development in Lansing

The econmy of Lansing developed rapidly from 1870 to 1900. The value of products increased up to $2, 942, 300 in 1889 from $524, 700 in 1873, marking 461% of the growth rate (see Table 2). According to the table, remarkable growth of manufacturing in terms of the number of employees occured in the decade between 1884 and 1894. The number of the employed in manufactures in 1894 was increased by 694 (254%) from that in 1884. Moreover, the percentage of workers in manufactacturing over total population changed from 4. 6% in 1884 to 7% in 1894, whereas it was reduced from 5. 5% in 1874 to 4. 6% in 1884. In 1900 Lansing was not an industrial city, although its economy developed sharply from 1870 to 1900. This fact is explained when the statistics in manufactures of Lansing are compared with that of an industrial city at that time, like Detroit. Detroit recorded $88, 366, 000 in the value of products (almost triple that of Lansing), and 54, 000 workers employed in manufactures (almost forty times that of Lansing) with 19% over total population (8% in Lansing) in the same year.[39]

Lansing's economy in the post Civil War periods developed based upon the manufactures related to the natural resources and environmental characteristics of the city. Lansing

〈**Table 2**〉 **Statistics in Manufactures, Lansing, 1874~1900**

Year	the value of products ($)	# of employed in manufacture	% of workers in manu. over pop.
1874	524, 700	412	5. 5
1884	—	452	4. 6
1894	—	1, 146	7. 0
1900	2, 942, 300	1, 399	8. 0

Source: *Census of the State of Michigan*, 1874, pp. 274~392.; 1884, pp. 312~491.; 1894, pp. 510~868.; *Thirteenth Census*, 1910, pp. 708~9.

39) *Thirteenth Census*, Vol. Supplement for Michigan, pp. 696-698.

still had the magnificent forest of hardwood trees around the city, so wooden products prevailed in the manufacturing scene.[40] These were included planning and turning mill, sash and blind, stave, furnitures, etc. After most of the forest in Lansing had cleaned away, farming became the major occupation in this area.[41] This aspect encouraged the wheat products and agricultural implements industry. And four railroads connected Lansing with rural hinterland and distant markets. Hence, Lansing was the trading center of wheat products, and flouring mills and agricultural implements became important industries in the early 1870s. In 1874, therefore, top ten industries based on the value of products were, flouring mills, planning and turning mills, and sash, door and blind, stave, heading and hoop, woolen and cotton, saw mill, furniture, wagon and carriage, agricultural implement, foundaries and machine, and breweries.[42]

Agricultural implement, flouring mill, foundaries and machine, saw mill, and wagon and carriage were five major industries of Lansing in 1884.[43] None of them were newly established industries, and the different thing from 1874 was the rank among manufactures in terms of the value of products. Agricultural implement and flouring mill became major industries in Lansing, and the products of wagon and carriage increased repidly with the foundation of another wagon company in 1881, the Lansing Wagon Works.[44] The products of foundaries and machine included the products of steam eigines and boilers.

From 1884 to 1894, there was a remarkable growth in manufacturing, in spite of the panic of 1893. The number of workers engaged in manufacturing reached to 1,146(153 %). This figure was much greater than the rate of population growth (62%) in the same decade. Hence, the growth of manufacturing was faster than the population growth between 1884 and 1894. Top five industries based on the number of the employed in manufacturing in 1884 were, planning mills with sash, door and blind, wagon and carriage, printing and publishing, engine and machine, and cigar.[45] In addition to these manufactures, agricultural implement was still an important manufacture in Lansing with the markets all over the country.[46] With the introduction of the street car railways into Lansing, the products of carriages increased greatly. For example, only one of the firms produced about 5,000 carriages annually by 1890.[47] A newly introduced industry was cigar manufacturing during this period. The company was founded in 1893, and became the largest producer of cigars in Michigan beside Detroit.[48] Thus, the cigar industry became a bright spot in the city's economy, as the depression depened.[49] Also, the wheelbarrow industry was another newly established one in Lansing in 1885. The products increased gradually and produced about

40) Jacobson and Wilson, *op. cit.*, p. 24.
41) *Ibid.*, p. 25.
42) *Census of the State of Michigan*, 1874, pp. 274-392.
43) *Ibid.*, 1884, pp. 312-391.
44) Jacobson and Wilson, *op. cit.*, p. 25.
45) *Census of the State of Michigan*, 1894, pp. 510-868.
46) Kestenbaum, *op. cit.*, p. 63.
47) *Ibid.*
48) Jacobson and Wilson, *op. cit.*, p. 26.
49) Kestenbaum, *op. cit.*, p. 66.

10,000 wheelbarrows annually by 1890.[50] In addition, there was an important event in the history of the Lansing's industry. It was the beginning of gasoline engine shop by R. E. Olds in 1885. He first manufactured gasoline engines, and later the first horseless carriage in 1887 and the second horseless carriage in 1892.[51]

According to the census, the important manufactures in Lansing in 1900 were, agricultural implements, beet sugar, carriages and wagons, display fixture, furniture, stoves, and wheelbarrow.[52] All of them were the important industries of Lansing from the 1870s or the 1880s. Thus, the Lansing's industry developed gradually from 1894 to 1900 without great differences. Only the significant event in the history of Lansing's manufactures during this period was made by Olds. He established Olds Motor Vehicle Company in 1897 and started to produce automobiles. This was the first company organized in Michigan for the manufacturing of automobiles.[53] And it made Lansing one of the important automobile industry centers.

Generally speaking, Lansing's industary in 1900 was diversified with many largest factories in the state and even in the world. For example, E. Bement's Sons was one of the largest manufacturers of agricultural implements and stoves in the United States; Olds Gasoline Engine Works, the largest exclusive engine factory in the world: American Cut Glass co., the largest manufacturer of cut glass in Michigan: Hugh Lyons & Co., the largest manufacturers of store fixtures, show cases and wax figures in the world; etc.[54] Also, the characteristics of Lansing in 1900 could not be defined by one function, rather Lansing had functional complexity.[55] It was because there was occupational diversity in Lansing because of the growth of manufacturing and good communication in addition to the original function. It was also because Lansing offered the best professional and personal services, and ample educational opportunities.

As a summary, the economic growth in Lansing from 1870 to 1900 took place mainly based upon the circumstances of Lansing itself. Rural hinterland made the development of flouring mills and agricultural implement. The rich forest was the base of planning mill, stave, furnitures, etc. Omnibuses affected the development of the carriage and wagon industries, and the operation of the street car railways encouraged the rapid development of the carriage manufacturing. And the foundary and machine industries from the earlier days became a basis of an automobile industry and developed with it.

5. Conclusions

The city of Lansing changed and developed from 1870 to 1900. The city's growth was accompanied with the changes and developments of public transportation network, and the economic development. Also its growth made the changes of the spatial distribution within the city, and the function of the city was diversified. Therefore, Lansing in 1900

50) *Ibid.*, p. 63.
51) *Ibid.*, p. 182.
52) *Twelfth Census*, 1900, p. 417.
53) Edmonds, *op. cit.*, p. 146.
54) Cowels, *op. cit.*, pp. 89-92.
55) Malik, Jahan Are, 1960, *Historical Geography of Ingham County, Michigan*, Ph. D. dissertation, Michigan State University, pp. 146-148.

had a modern transportation medium— the electric street car railway, and many major industries in the state, in the nation, and even in the world. And Lansing was a regional center in the State of Michigan with political, economic, social and cultural functions.

The transportation networks operated in Lansing during the study period were water transportation in the 1870s and land transportation throughout the period. When land transportation did not share the Lansing's traffic, water transportation by boats played a very important role, running through the Grand River. The mode of the early land transportation was omnibuses. The omnibus was not a good medium of the public transportation, although it was operated until 1900. It was because it could not carry a large number of people at a time, and because it was less attractive mode than water transportation in the 1870s and the street car railways after 1886. However, omnibuses were the only means of public transportation from 1877 after the operation of boats was ended, to 1886 before the operation of the street car railways was started. In 1886, the street car railways pulled by the horse power were introduced. They ran through the main part of the city and became the most important transportation mode. These were replaced by the electric street car railways in 1890. Hence, the modern and fast transportation— the electric street car railways—took care of the Lansing's traffic. On the other hand, four railroads established before 1874 were another important transportation network connecting Lansing to outside the city toward six directions.

The changing boundary of Lansing was not related to the public transportation. There was the only one annexation in 1893, but there was no evidence about the relationship between the extension of the street car railway and the enlargement of the city area. However, the population growth of Lansing was strongly related to the improvement of the transportation network. The population growth induced new transportation systems during each of the peak periods; the introduction of the railroads from 1870 to 1874 and the street car railways from 1884 to 1890. The population increased most (6,073) from 1884 to 1894 when the horse-drawn trolley was introduced and later replaced by the electric one during the study period.

The distribution of the residential area changed gradually (see Map 4, 2, and 3 in time sequence). In 1874, the residential area mainly was distributed along the railroads and the rivers. This residential pattern was changed a little in 1888 with the introduction of the horse-drawn street car railways. The residential area was enlarged along the newly established street car lines and existing railroad lines, The map of 1895 also showed the role of the transportation network. The electric street car railway extended its line to the existing residential area and to the newly created residential area. Therefore, the growth of the transportation network influenced the spatial pattern of the residential area.

The development of the manufacturing was directly related to the growth of the city. During the study period, the economy of Lansing was improved so greatly that the value of products increased 461%. The number of workers engaged in manufacturing also greatly increased during the period between 1884 and 1894. It was the same period that the largest population increase occured and the products of carriages increased sharply with the introduction of the street car railway in Lansing.

In sum, the evolution of the transportation network was related to the growth of Lansing itself during the study period between 1870 and 1900. It had a direct relationship with the population growth and an influence on the diffusion of the residential area, although there was no relationship between the growth of the transportation and the changing boundary. Finally, internal and external transportation systems were related to the development of the economy of Lansing.

美國 Lansing 市의 交通體系에 대한 評價 : 1870~1900

李 惠 恩*

交通制度는 現 美國社會에서 매우 重要하게 여겨지고 있다. 이는 通信施設이 發達하기 以前의 過去社會에서도 現代와 마찬가지로 重要하였다. 이렇게 重要한 交通制度는 Lansing의 發達에 어떠한 影響을 미쳤는가에 대해 硏究하였다. 本 硏究에서의 交通手段은 大衆交通만으로 限定하였으며 個人 所有의 交通手段 즉 自動車 등은 제외되었다.

Michigan州의 行政首都로서 세워진 Lansing은 硏究期間인 1870年부터 1900年 사이에 많은 發展을 하였다. Lansing의 成長은 大衆交通의 發達과 經濟發展에 隨伴되었다. 또한 都市의 發達은 都市內에서 空間分布의 變化를 이룩하였으며 都市의 機能을 多樣化 시켰다. 따라서 1900年의 Lansing은 電車(electric street car railway)가 運行되고 있었으며 많은 重要한 産業이 發達되어 있었다. 또한 Michigan州의 政治, 經濟, 文化의 中心地였다.

硏究期間동안 Lansing의 交通은 陸上交通과 河上交通으로 나눌 수 있다. 배(boat)를 利用한 河上交通은 陸上交通이 제대로 活躍하지 못하던 1870年代 Grand River를 따라 Lansing의 主要 部分을 連結시켜주는 重要한 役割을 하였다. 初期 陸上交通手段이었던 omnibus는 1877年 河上交通이 사라진 後 1886年 street car railway의 運行이 始作되었을 때까지 都市內 唯一의 交通手段이었으며, 1900年까지 運行되었으나 Lansing의 交通問題를 解決하지는 못 하였다. 이는 omnibus의 크기가 너무 작아 한번에 많은 사람을 運送하지 못했기 때문이었다. 1886年 馬이 끄는 street car railway가 運行되기 始作하였고, 이는 곧 Lansing의 重要한 交通手段이 되었다. Street car railway를 끄는 動力은 1890年 馬에서 電氣로 완전히 바뀌었으며 電車는 가장 現代的이고 빠른 大衆交通手段으로 Lansing의 交通問題를 解決하였다. 한편 1874年 以前에 모두 完成된 4개의 鐵道는 Lansing을 外部와 여섯 方向으로 連結시켜주는 또 다른 重要한 大衆交通手段이었다.

1893年에 있었던 都市의 境界擴張은 street car railway 路線의 增設과는 無關하였다. 그러나 Lansing의 人口增加는 交通의 發達과 密接한 關係가 있었다. 즉, Lansing의 人口가 가장 많이 增加된 두 時期(1870~1874, 1884~1890)에 새로운 交通手段인 鐵道와 street car railway가 導入되었다. 또한 Lansing의 人口는 硏究期間中 처음에는 馬에 의해, 후에는 電氣에 의해 street car railway가 運行되었던 1884年에서 1894年까지의 期間 동안 가장 많이 增加하였다 (6,073).

Lansing의 住居地域은 1874年 鐵道路線과 河上交通의 근간인 江을 따라 分布하였다. 이는 1888년 新設된 street car railway 路線과 旣存의 鐵道路線을 따라 擴大되었다. 더우기 1895年에는 電車의 路線이 旣存 居住地에 깊숙이, 그리고 새로 擴張된 居住地域까지 分布하는 등 交通의 發達과 住居地域의 分布와의 相關關係를 잘 나타내고 있다. Lansing의 經濟는 硏究期間 동안 總生産額이 461%나 增加하는 커다란 發展을 보였다. 특히, 10年間(1884~1894)에 Lansing의 勤勞者 數는 急增하였고, 이 期間은 Lansing에 가장 많은 人口增加를 記錄했으며, Carriage의 生産이 急增했던 時期와 一致한다.

結論的으로, 硏究期間 동안 Lansing의 交通發達은 都市成張과 밀접한 關係가 있었다. 비록 都市境界의 變化에는 影響을 미치지 못하였으나 Lansing의 人口增加와 居住地域의 擴大를 促進시켰다. 또한 street car railway와 더불어 鐵道는 都市의 經濟發展에 運送의 媒介體로서 커다란 貢獻을 하였다.

地理學, 第27號, pp. 91~105, 1983年 6月 30日

* 梨花女子大學校 師大講師(Ph. D.)