San Fernando Valley State College

THE ROLE OF INTERURBAN RAILWAYS IN THE LOS ANGELES AREA

A thesis submitted in partial satisfaction of the requirements for the degree of Master of Arts in Geography

by

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PREFACE

One element in the rapid growth and expansion of the Los Angeles region was the system of electric street railways that began operating in the area in the 1890's. The purposes of this thesis are to identify the part played by street railways in the development of Los Angeles and to analyze the relationship between this form of transportation and urbanization (or suburbanization).

Since the real estate boom of the 1880's was the last major event prior to the appearance of street railways in the area to influence the population distribution, conditions during the boom represented a logical starting point for this investigation. My initial task was to determine whether the interurbans had an influence on the location of the towns that appeared in the United States Population Census following the boom. The influence of the interurbans on the subsequent rate of population growth and on population distribution was then determined. One final task was to evaluate the impact of the interurban system upon other regional characteristics, such as, real estate values, the local economy of towns, and land use.

In order to avoid ambiguity, a few definitions are necessary at the outset. The phrase "greater Los Angeles" is used to refer to the entire area eventually served by the interurbans. The "Los Angeles urban area" refers to the continuous urban area of Los Angeles City as it existed at any particular time. The area of "commuter suburbs" is the region surrounding the city of Los Angeles, extending as far as 25 miles from the center of the city, and comprising individual politically independent communities. The distant suburbs are those outside
of the commuter suburbs and are primarily found in the San Gabriel Valley east of Pomona. The literal definition of an urban railway system is one that is wholly contained within a city limits, in contrast to an interurban system, which crosses city limits and connects two or more independent communities. Because of the rapid areal expansion of Los Angeles many systems that began as interurban lines would technically be urban in nature within a short period after service began. In an effort to establish some consistency the term urban railway is used to refer to the street railways linking the central region of an urban area to the periphery of the same area. An interurban system passes through undeveloped areas to connect two or more urban areas.

The research for this thesis was conducted primarily in libraries. Those providing most of the material were the Huntington Library, in San Marino, the Map Library at San Fernando Valley State College, and the University Research Library of the University of California at Los Angeles.

A most valuable source of information for this work was the collection of Sanborn Atlases in the Map Library at the San Fernando Valley State College. This collection covers the period from the late 1880's to the 1950's, and includes most of the communities in the area concerned. At a scale of 50 foot to an inch, changes through time are easily discernible.
ABSTRACT

THE ROLE OF INTERURBAN RAILWAYS IN THE LOS ANGELES AREA

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Master of Arts in Geography

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During the last half of the nineteenth century Los Angeles was a small but rapidly growing city; it was the center of the region that was served by the interurbans in the next century. Surrounding it were small farming towns in an area of mixed agriculture that supplied the city with much of its food needs. Further out was a region where the relatively new citrus industry of southern California was getting its start.

Onto this scene came the high speed cars of the interurbans. They provided transportation between jobs in Los Angeles and desirable residential areas such as the mountain foothills of Pasadena or the beaches of Santa Monica. The result was the creation of a commuter suburb region surrounding Los Angeles.

In addition to this direct impact upon population distribution the interurbans exerted an indirect influence over other regional characteristics of the area. Increased population resulted in increased real estate values. New population attracted new business and industry. In the newer areas growing up along the interurban tracks the railways exerted considerable influence on land use. But even after 1911, when the Pacific Electric began hauling freight, its in-
fluence on industrial location remained relatively minor when compared to the steam railroads.

Two factors contributed to the subsequent decline of the interurban system. One was the rise of industry in the formerly exclusively residential commuter suburbs created and supported by the interurbans. The other was the increased use of automobiles.
I. HISTORY AND SERVICES OF THE STREET RAILWAYS

From the days of horse cars and housing tracts to the days of high speed interurbans and distant suburbs, land development was an intrinsic part of street railway history. The arrival of rails resulted in increased real estate values. When this gave rise to an increase in population then boom conditions prevailed.

The era of the interurbans was ushered in by Moses T. Sherman and Eli Clark, who pioneered the first two lines, one to Pasadena in 1890 and the other to Santa Monica in 1895. With the turn of the century Henry Huntington took the office of overseer for interurban development, and in 1911 the Pacific Electric Railway became the largest electric railway system in the United States. The number of passengers riding the lines of this system continued to increase until the peak year of 1924 when 109,195,650 passengers were transported by the system. The decade of the 1920's included the best years for the interurbans and was the beginning of their rapid decline.

A HISTORY OF THE STREET RAILWAYS

The first street railway in Los Angeles was built in 1873. It was a horse car line and represented one of the earliest of the 43

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1Report on a Comprehensive Rapid Transit Plan for the City and County of Los Angeles, City Council of the City of Los Angeles and the Board of Supervisors for Los Angeles County, (Los Angeles: no publisher, 1925), p. 51.

2Mable L. Wright, History of the Pacific Electric Railway, (M.A. Thesis, University of Southern California, 1930), p. 3.
street car franchises issued between 1873 and 1887. By 1875 there were four more horse driven railways in Los Angeles. But many of the franchises were not utilized and by 1895 there were only 89.54 miles of horse car lines operating in the city. By that time this mode of transportation was on its way out, and in 1897 the last horse car disappeared. Most of them had been short lines and many were associated with housing tract developments during the boom.

Horse car lines were not limited to Los Angeles. Included in the suburbs was a line on South Fair Oaks in Pasadena, four lines in Pomona, and both Santa Monica and San Bernardino had lines on several streets. The street railway system of Antonia Heights began as a horse car line in 1887.

The cable car era in Los Angeles lasted from 1884 until 1902, and was opened by the Second Street Cable Railway. This first line was soon followed by several others. The rapid spread of cable car lines in the Los Angeles area at a time when they were being replaced in other areas was due to the real estate boom and the dependence of housing tracts on a transportation link to the center of the city. Only 22.5 miles of cable car lines remained in 1895, and by 1900 they had all but disappeared.


5Informative maps of the horse and cable car lines are unavailable.


7Poor's Manual, 17th Annual Number (1884), through 35th Annual Number (1902).
Electric Railways also made their first appearance in Los Angeles during the last years of the nineteenth century. As with the other two street railways this method of transportation was associated with real estate development. In fact the first line was to the "Electric Railway Homesite Association Tract." The name of the line was the "Pico Street and Maple Avenue Electric Railway Company." Founded in September 1886 it began operating on January 4, 1887. The route was from the Plaza in Los Angeles south on Los Angeles Street to Third, down Third to San Julian, down San Julian to Seventh, down Seventh to Maple, down Maple to Pico Boulevard and down Pico to Harvard Boulevard. The line was short lived, plagued with difficulties from the beginning, and finally sold at a sheriff's auction.

With the development of a better trolley, the device which makes electrical contact with the overhead cable, there was a tremendous increase in the number of lines. This can be seen by the issuing of 40 new street railway franchises between February 1889 and July 1893. This was the real beginning for electric railways. Whereas in 1895 there were 64 miles of electric railway track, by 1900 there were 226.5 miles. In addition several miles of track existed in the suburbs.

10Loc. cit.
11Wright, op. cit. p. 6.
12Dumke, loc. cit.
13Poor's Manual, 28th Annual Number (1895), through 33rd Annual Number (1900).
Released from the limitation of horse and cable lines, electric cars could travel much faster and further. It had become possible for commuters to travel from Los Angeles across relatively unoccupied territory to distant suburbs in the time it took a horse car to reach a housing tract on the edge of town. The way was open for the development of high speed interurbans.

Moses T. Sherman and Eli Clark were the first to connect Los Angeles with a suburb by means of an electric interurban. They organized the Los Angeles and Pasadena Railway Company in 1894. The first car ran in May 1895. The success of this venture warranted the double tracking of the line in the same year. Their second attempt in interurban building was an extension to the ocean. They leased the Southern Pacific steam line to Santa Monica, rebuilt and electrified it. Opened on April 1, 1896, the line consisted of two tracks to Santa Monica and a local system in that suburb. Branch lines soon followed with extensions to Santa Monica Canyon, Hollywood, Laurel Canyon, the Soldier's Home, Elysian Park, and in 1897 Beverly Hills was incorporated into the system via a line from Vineyard. When the two men lost control of the Pasadena branch in 1898, the Santa Monica branch was reorganized under the name of the Los Angeles Pacific Railway. In 1902 this company constructed the Venice short line from Los Angeles to Venice. The

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Venice-Inglewood Line was purchased from the Santa Fe Railroad in the same year. During the next three years an extension was made from Culver City via Playa Del Rey and the coast to Redondo. The Westgate Line along San Vicente Boulevard through Northern Santa Monica was built, and the Laguna Line between Venice and Playa Del Rey was built along the coast. With other extensions such as the Brush Canon Line, the Franklin Avenue Line, and the Coldwater Canyon Line, the total length of track in the system in 1908 was 200 miles.  

There were several other street railway systems in the Los Angeles area, including some in the larger and more distant suburbs. Among these was the Pacific Electric. It was obvious from the beginning that the founders of this line planned to make it the dominant one in southern California. The Articles of Corporation filed on October 29, 1901, authorized the sale of $10,000,000 worth of stock. The directors took $452,000 worth with the largest portion of $98,500 worth going to Henry Huntington. With its founding the corporation acquired the Los Angeles-Pasadena Line, the Ninth Street Railway, the Pasadena and Mount Lowe Railway, the Mateo Street Railway, and the Temple Street Cable Railway. The latter was immediately electrified. Plans for the system at this time included tracks along the coast from Santa Barbara to San Diego, and eventually a system of lines was to be built in the San Joaquin Valley to link San Francisco to Los Angeles.

In 1902 the Pacific Electric embarked on the building of its own lines. The first, and one of the more profitable and long lasting

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See Fig. 1, p. 9.

Figure I

LINES OF THE PACIFIC ELECTRIC RAILWAY IN SOUTHERN CALIFORNIA

Copyright in 1912 for the Pacific Electric Railway.
PACIFIC ELECTRIC RAILWAY

WORLD'S GREATEST ELECTRIC RAILWAY SYSTEM

1000 Miles of Standard Trolley Lines

Leading to all Places of Greatest Interest in the Heart of SOUTHERN CALIFORNIA and Traversed by

2700 SCHEDULED TRAINS DAILY

Including Five Trips a Day

To

WORLD FAMOUS MOUNT LOWE

A Climb from SEA LEVEL to CLOUDLAND by Trolley Through America's GREATEST SCENIC WONDERLAND

LINES OF THE PACIFIC ELECTRIC RAILWAY IN SOUTHERN CALIFORNIA
was that to Long Beach. It was opened on the 4th of July, 1902. In 1904 tracks were laid to Glendale, Huntington Beach, and Wilmington. The following year Newport Beach, San Pedro, Santa Ana, and Sierra Madre celebrated the arrival of the interurbans. In 1907 the trackage of the system was about 219 miles. A line through the San Gabriel Valley citrus area was opened to Covina, and an extension to Monrovia and Glendora was completed in that year. By 1910 the Pomona local line, the San Bernardino Traction Company, and the Riverside and Arlington lines were added to the system. Extensions now linked La Habra, Stern, and San Dimas to Los Angeles. The length of track in 1910 reached 572.29 miles. In the following year the interurban tracks passed across the mountains to the San Fernando Valley where they reached the community of Van Nuys.19

In 1910 a deal was made between Harriman of the Southern Pacific Railroad and Henry Huntington. Huntington agreed to exchange his interest in the Pacific Electric for Harriman's interest in the Los Angeles Railway Corporation. Thus, the local lines in Los Angeles became Huntington's, while the Pacific Electric was put under the control of the Southern Pacific. When the final transaction took place in September of 1911 sixty-three lines were involved.20 The Pacific Electric retained ownership of its own interurban lines and acquired


20 Dumke, op. cit., p. 94.
ownership of the interurban lines of such major systems as the Los Angeles Pacific Railway Company, the Los Angeles Interurban Railway Company, the Los Angeles Redondo Railway Company, and the local lines of the outlying towns which it already controlled. It became the largest interurban in the nation, with a total track length of over 600 miles.\textsuperscript{21}

With the merger in 1911 the Los Angeles Railway Corporation became the dominant system for urban type service. However, the Pacific Electric Railway retained the right to perform an urban service along its trunk lines in and out of the city. The result was that the areas along these trunk routes, such as Hollywood, were served primarily by the Pacific Electric. In return the Los Angeles Railway was permitted to cross the city limits in some areas and so provided service to suburbs adjacent to the city limits, such as Inglewood. \textit{Poor's Manual} reported in 1912 that the Los Angeles Railway had a total of 373 miles of track.\textsuperscript{22} Over these tracks the Los Angeles Railway reported that it hauled 158,015,304 passengers in the year ending in June 1912.\textsuperscript{23} The length of track increased to 397 miles in 1925\textsuperscript{24} and the number of passengers in that year to 346,213,241.\textsuperscript{25}

Following the merger the Pacific Electric continued its expansion. In 1912 the Covina Line was extended to Pomona.\textsuperscript{26} In 1914 Riverside and San Bernardino were connected by electric rail line to Los

\textsuperscript{21}Crump, \textit{op. cit.}, p. 90.
\textsuperscript{22}\textit{Poor's Manual}, 45th Annual Number, p. 950.
\textsuperscript{23}\textit{Comprehensive Rapid Transit Plan}, p. 49.
\textsuperscript{24}\textit{Poor's Manual}, 59th Annual Number, p. 957.
\textsuperscript{25}\textit{Comprehensive Rapid Transit Plan}, p. 49.
\textsuperscript{26}Wright, \textit{Pacific Electric}, p. 21.
FIGURE 2

STREET RAILWAY MILEAGE

Based on information obtained from volumes of Poor's Manual of the Railroads of the United States, including 13th Annual Number (1880) through 23rd Annual Number (1940).
Angeles. In 1913 the San Fernando Valley Line was extended to the community of San Fernando and to Owensmouth. One authority asserted in 1930 that the 1,153 single track miles of the Pacific Electric made it the largest electric interurban system in the world.

During the 1920's, when southern California's economy soared to new heights, the electric interurban service in Los Angeles reached its peak. The year 1926 was the year of maximum track length for the Pacific Electric. This decade included periods when approximately 800 cars were in service daily. They maintained a schedule of around 6000 cars daily. In 1924, the peak year for total number of passengers carried, 109,195,650 people were hauled.

However, this decade was also a period of rapid decline for the interurbans. The operating cost had increased from 18.8 cents per car mile in 1916 to 40.3 cents per car mile in 1923. Fares could not be increased proportionally to offset this increase. With the dispersion of industry during the 1920's the number of passengers riding the interurbans decreased. This meant long hauls with practically empty cars much of the time during the 1930's. Also with the rapid growth of automobiles, Pacific Electric right of ways were paved over for streets.

27Wright, loc. cit.
28Loc. cit.
29Ibid., p. 52.
30Crump, Ride the Big Red Cars, p. 156.
31Loc. cit.
32Loc. cit.
33Comprehensive Rapid Transit Plan, p. 51
34Ibid., p. 65.
This decreased the speed limit of street railways through towns and increased their running time to suburbs. During the 42 year period of service from 1911 until 1953 the Pacific Electric made a profit in only eight years. In 1958 the Los Angeles Metropolitan Transit Authority, a public agency founded by the state legislature, acquired ownership of the Los Angeles transportation system along with the interurbans. By 1963 the electric cars had all been replaced by buses.35

LINES AND SERVICE OF THE PACIFIC ELECTRIC

The Pacific Electric Railway divided its system into four territorial based divisions. Of these the Western District had the least competition from the steam lines. With this virtual rail monopoly it became the largest division of the system. Several lines of this district led to Santa Monica and or Venice. The Santa Monica Air Line comprised the old Southern Pacific steam line tracks to Santa Monica, which were electrified by the Los Angeles and Pacific Railway. This was the most direct and fastest line to Santa Monica. A second track, the Santa Monica via Sawtelle Line, followed a route along what is now Venice Boulevard to Vineyard where it turned north to Beverly Hills and then to Santa Monica. Periodically there were also lines to Santa Monica via Hollywood tracks, and at times via the Venice area. The peak period of passenger service to Santa Monica was during the years between 1924 and 1928. B Most of the lines to the city ran a 30 minute schedule during the daylight hours with extra cars during the rush

35The reasons for the decline will be explained further below (see Chapter III).

B See Fig. 3, p. 17.
Based on information obtained from Lawrence R. Versey's article "Pacific Electric Railway Company: A Story of Rail Passenger Service," published in Interubans Special No. 21, dated November 1958.
NUMBER OF FARE PAYING PASSENGERS
BY LINES

IN HUNDRED
THOUSANDS

ALHAMBRA – SAN GABRIEL
MONROVIA – GLENDORA
SANTA MONICA
WESTGATE

PASSENGERS

1910 1915 1920 1925 1930 1935

IN HUNDRED
THOUSANDS

HOLLYWOOD
NEWPORT – BALBOA
REDONDO BEACH
SANTA ANA

PASSENGERS

1910 1915 1920 1925 1930 1935
On weekends the heavy beach traffic forced the addition of several scheduled and unscheduled cars on this line. As the number of passengers declined during the late 1920's some of the lines were abandoned. The schedules were changed to terminate the emphasis on rush hour traffic.

The line to Venice used some of the same tracks as the Santa Monica lines. The peak in passenger service to this area was bimodal with the first peak coming earlier than in Santa Monica and taking place during the years between 1918 and 1922. A second peak occurred during the mid 1930's. This was probably due to the discontinuance of service on some of the lines to the Santa Monica-Venice area, and the combining of the remaining lines into a loop service that included Venice, Santa Monica, and the Hollywood area. The early service to Venice and the later loop line was similar to that of Santa Monica with a 30 minute schedule during daylight hours and an emphasis on rush hours.

The Hollywood, although technically an urban line, was in many ways an interurban line. It was served primarily by the Pacific Electric, and was one of the major lines of the Western District. The peak years came during the mid 1920's. A 15 minute schedule was maintained practically through its life time. Two lines operated into the Glendale-Burbank area. The first was the major one and was strictly

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37 Versey, op. cit., pp. 20-23.
38 Versey, op. cit., pp. 20-23.
an interurban line with no local stops. A second called the Edendale Line, provided local service along the route from Los Angeles. Trains ran to the area from 6:00 A.M. until midnight with rush hour flyers.\textsuperscript{39} As with most of the commuter type of interurban lines Sunday service was less than weekday.

Service on the San Fernando Valley Line varied. In 1913 there were six round trips daily. This was decreased to four in 1916 and increased to 10 trips daily in 1918 then to 13 trips daily in 1920.\textsuperscript{40} Service was reduced again in 1931 and 1933. Although the service fluctuated the number of passengers steadily increased until shortly before service was ended.

The Northern District lines included those to the Pasadena-Altadena area, the Monrovia-Glendora Line and the lines as far east as Pomona. The lines to Pasadena were the most numerous, and oldest. They included the Pasadena Short Line, Sierra Vista Line, and the Pasadena Oak Knoll Line. A 15 minute service with about a 45 minute running time continued until 1928.\textsuperscript{41} The short line was primarily a limited or flyer route emphasizing the rush hours and making the trip in 35 minutes.\textsuperscript{42}

The backbone of the Northern District was considered to be the Monrovia-Glendora Line. Service was hourly during the week and every

\begin{footnotesize}
\begin{itemize}
\item[\textsuperscript{38}] Versey, op. cit., pp. 20-23.
\item[\textsuperscript{39}] Ibid. pp. 13-19.
\item[\textsuperscript{40}] Versey, op. cit., p. 43.
\item[\textsuperscript{41}] Ibid., pp. 47-49.
\item[\textsuperscript{42}] Loc. cit.
\end{itemize}
\end{footnotesize}
half hour on Sunday. The there were no limiteds until 1922, but the line was always non-stop west of El Molino. The peak years came immediately after the opening of the line. The lack of limiteds or flyers on this line and the increased weekend traffic demonstrated the non-commuter nature of the area served by this line. South of the Monrovia-Glendora line was the Alhambra-San Gabriel Line. It had a better weekday schedule, which included limiteds, and reduced evening and weekend service. The number of passengers remained relatively constant until the depression. The Pomona Line ran the furthest east of any line in this district. It used the same tracks as the San Bernardino, and its schedule and service were closely related to the lines of the Eastern District.

The Eastern District was the smallest of the four divisions. The one major line of the area was the San Bernardino. It was the largest and highest speed line of the whole Pacific Electric System. Construction first began in 1906 along the old San Gabriel Valley Rapid Transit right of way. It continued east to Covina, El Monte, and Baldwin Park. In 1910 the tracks reached San Dimas. After that the Pomona-Claremont-Upland section was acquired from the Ontario and San Antonio Heights Railway. The first trains ran to San Bernardino in November 1914. The original schedule of eight trains daily continued

44 Versey, op. cit., p. 6.
until 1920, and remained the minimum amount of service ever scheduled on this line until 1940. Although there were no extra rush hour trains, the trains scheduled during these periods were limiteds and only stopped at Covina, San Dimas, La Vern, North Pomona, Claremont, and Upland. The other trains made local stops. The running time was two hours and 20 minutes for limiteds and two hours and 35 minutes for regular trains. In 1920 two high speed non-stop flyers to Los Angeles were added during the rush hour. In 1931 the first reduction in service occurred when limiteds were made locals. Most of the other lines of this district were local in nature or short run shuttle lines between the communities in the area.

Among the lines of the Southern District was the Long Beach Line. This was the greatest single interurban passenger hauler of any division. The pre-World War II peak year of 1924 saw almost four million passengers ride this line. The number of passengers remained high through the depression, and reached an all time high during the war in 1945. Trains ran from 6:00 A.M. until midnight on a 20 minute schedule. The running time was 40 minutes. The first cut occurred in 1920 when regular service as reduced to 30 minutes with rush hour service at 15 minutes intervals. In 1932 the extra rush hour limiteds were ended until the war.

46 Versey, op. cit. pp. 66-68.
47 Loc. cit.
48 Versey, op. cit., pp. 35-37.
49 Loc. cit.
50 Loc. cit.
There were three lines to San Pedro. One was via Gardena and Torrance. Another was further east and ran via Watts, Compton, and Wilmington. The third was a short lived through service to Los Angeles. The running time of these lines was around an hour with an hourly schedule. There was little emphasis on the rush hour service. The time to Santa Ana was one hour and 15 minutes along a line that included Watts, Lynwood, Bellflower, Artesia, Cypress, Garden Grove, and West Santa Ana. In 1911 service was every 55 minutes during the day with 30 minute rush hour service. By 1913 there was only a one hour base service. Shuttle cars ran along this line providing service between the towns located on it.

The Whittier-La Habra-Fullerton Line provided service to the communities of Huntington Park, Maywood, Bell, Los Nietos, and Yorba Linda. An extension to Stern was completed in 1913.51 Service between Stern and Los Nietos was of the shuttle type. The running time to Stern, at the end of the line, was 69 minutes. The extension to Fullerton had nine trains daily through 1919. This was reduced to seven in 1920, and to five in 1921. There were probably never any through trains to Fullerton and connection to Los Angeles was via the La Habra Cars.

The El Segundo Line was established in 1914 after Standard Oil announced it was building a refinery in the area. In 1916 there were seven round trips daily.52 These were all shuttle type from Hawthorne with no direct connection to Los Angeles until 1920 when seven direct

52 Versey, op. cit., p. 12.
cars per day were scheduled during the rush hours. The number of passengers remained relatively constant from 1918 through 1926.

Established in 1912, the Torrance Line cars ran directly to Los Angeles for only four years. In 1916 only two rush hour limiteds provided a direct route to Los Angeles with the remaining service being shuttled to Hermosillo. These limiteds were provided for workers of the Pacific Electric shop in Torrance.

There were several routes to Redondo. One, via Playa Del Rey and the coast, was part of the Northern Division. This route provided 30 minute service in 1911. It was reduced to hourly service with a 30 minute rush hour schedule in 1916. Rush hour extras remained on this line until 1930's. Another of the lines was via Inglewood and Hawthorne. It lasted only a year until 1911. A third line ran via Watts, Gardena, and El Nido to Redondo. It had a 30 minute base service with one flyer during the morning rush hours and at the evening rush hours. The peak years for passengers service occurred during the first five years of the lines.

It is apparent that there were three distinct regions in terms of railroad services. The service of the Los Angeles Railway and that along the urban section of the Pacific Electric Railway were similar. They were urban in nature, with cars scheduled every 15 minutes at least. Service continued through the evening and occasionally into the night. There was usually little or no difference between

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53 Versey, op. cit., pp. 87-88.

F See Fig. 3, p. 17.

G See Fig. 4, p. 25.
weekday and weekend service. This service extended as far as Hollywood, Beverly Hills, West Los Angeles and even to Inglewood.

The interurban lines serving the commuter suburb region provided a different type of service. Lines such as the Los Angeles-Santa Monica, Los Angeles-Venice, Los Angeles-Alhambra and Temple City, Los Angeles-Burbank, Los Angeles-Torrance, and the Los Angeles-Long Beach typically provided service every 30 minutes to an hour. These lines emphasized weekday services and scheduled limiteds or flyers during the rush hours. The transportation provided to the passengers on these lines was a commuter type service. With an emphasis on weekdays and rush hours the intention of the service was to provide the residents with a means of transportation to jobs in Los Angeles. Increased distance from the city meant a longer running time and so the appeal of interurban commuting to Los Angeles declined. The effect of this is seen in the type of service provided to the area outside this region.

Pomona at a distance of 80 to 90 minutes interurban running time was in the transition zone. When service was established in 1912 there was a total of 12 round trips per day. Three of these were rush hour limiteds. These added a commuter touch to the line. However, in 1916 the service was reduced, and the true character of the line, as a hauler of shoppers, visitors, and few businessmen differentiated it from the commuter type. This and the service provided to San Bernardino typified the service to the distant suburb region.

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54 Versey, op. cit., pp. 51-53.
55 Loc. cit.
The number of passengers riding to these various areas is not available for the period prior to the merger of 1911. However, indications are, as would be expected, that the number of passengers on almost every line increased during the first decade of the new century. In the second decade the number of passengers riding the Los Angeles Railway continued its rapid increase. At the same time the number of passengers on the Pacific Electric increased at a very slight rate. The increase that did occur on this system was due primarily to the increased number of passengers on the urban type lines. While the number of passengers on the commuter type lines was remaining constant or declining slightly the number of passengers on the urban type lines was rising rapidly and the number on the lines to distant communities was increasing slightly.

The Pacific Electric was the first electric railway in the United States to develop a freight service. The company began hauling freight into areas where it had a real estate interest. Once started this branch of the company grew rapidly. Much of this growth was due to the use of standard gage track, which allowed the interchange of cars with steam lines. In 1913 the interchanging of cars with transcontinental lines, and the use of through car rates began. During the next ten months the freight business grew 22 percent and represented 13 percent of the entire business. In 1915 the company did $1,203,956 worth of freight business. By 1930 this had increased to about $5 million per year. At that time freight cars outnumbered passenger cars by three to one, and the freight business represented

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H See Fig. 5, p. 29.
FIGURE 5

NUMBER OF FARE PAYING PASSENGERS BY COMPANY

Based on information from Report on a Comprehensive Rapid Transit Plan for the City and County of Los Angeles, which was published jointly in 1925 by the City Council of Los Angeles and the Board of Supervisors of Los Angeles County.
approximately 40 percent of the company's gross income. 56

The "Big Three" freight lines of the Pacific Electric were the Los Angeles Harbor Line, the San Bernardino Line, and the El Segundo Line. The Harbor, or San Pedro Line, ranked first in revenue and number of cars hauled. 57 For many years it was the dominant carrier of the harbor, and hauled up to 51 percent of the goods passing through the area. 58 To eliminate competition among themselves the steam lines pooled their resources to form the Harbor Belt Railroad. As a result of this consolidated line the portion of freight hauled by the Pacific Electric dropped to 26 percent by 1938. 59

The San Bernardino Line was second in revenue. It was primarily a freight line dominated by citrus cargo. 60 Most of the service on this line was shuttle in nature. Cars were delivered to the Southern Pacific at Colton, to the Union Pacific at Poole, and to the Santa Fe at San Bernardino. 61 Other types of freight on this line included cement and gravel that were hauled into Los Angeles, and manufactured products that were carried out from the city. Other profitable citrus freight lines were those to Whittier and La Habra. Citrus in the Santa Ana area was hauled by local steam line freight facilities.

56 Information contained in the above paragraph was compiled from the following sources: Wright, Pacific Electric, pp. 52, 55, 59; "The Operation of the Pacific Electric Railway," Railway Age Gazette,LIX, (August, 1915), 22509; Dumke, Growth of the Pacific Electric, p. 77.


58 Loc. cit.

59 Loc. cit.


61 Loc. cit.
In the Western District there was little rivalry for the Pacific Electric by the steam railroads. The major trunk line for freight in this area was the Santa Monica Air Line. The Hollywood-Sherman Line, using the original rails of the Los Angeles Pacific, hauled most of the freight to the Hollywood area. Most of the freight on these lines consisted of consumer goods moving out from Los Angeles to the suburbs. Separating the Western District from the Southern was the El Segundo Line. This was an oil carrying line, and hauled a larger tonnage of freight than any other single line of the Pacific Electric System.

The rise of freight handling by the Pacific Electric did not enable it to replace the steam lines as the major freight hauler. From nothing in 1900 the amount of freight facilities on the Pacific Electric tracks increased to 13 percent of the total located in the greater Los Angeles area in 1910. By 1925 the portion of freight facilities on the Pacific Electric was 24 percent. Its facilities included manufacturing plants, lumber yards, and oil storage facilities, but most numerous and important were its fruit packing houses.

The Pacific Electric made these gains despite the early advantage of the steam railroads, which had a monopoly on fruit packing houses. To overcome this the Pacific Electric built packing houses of its own. Through these efforts it was able to establish a shuttle service, picking up cars loaded with citrus fruit and delivering them to the steam railroad for through service.

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63 Sanborn Atlas collection at San Fernando Valley State College.
II. THE SETTING: LOS ANGELES PRIOR TO THE INTERURBANS

A necessary prerequisite to an understanding of the influence of the interurbans upon the Los Angeles area is a knowledge of the region prior to their arrival. This chapter will include a brief history of the area to 1890 and a regional account of the area as it existed when the interurbans arrived. A section on early settlement and economic conditions will be followed by a discussion of the impact of the transcontinental railroads on the size of the population. The subsequent real estate boom in turn influenced the settlement pattern of the area as it existed in 1890, and both the real estate boom and the arrival of the transcontinental railroad continued to exercise an influence over the local population distribution for many years. Although this thesis is primarily concerned with the interurban lines, a section of this chapter will deal with the influence of the urban railways upon Los Angeles.

SETTLEMENT

Settlement of southern California began in 1769 with the establishment of Spanish missions. These were soon followed by presidios and pueblos of the Spanish and Mexican period. A total of twenty private land grants were issued by the Spanish government during its regime.\(^1\) Six hundred more were issued during the following Mexican period,\(^2\) but settlers remained few during this time. Los Angeles was the only significant center of settlement in 1850.


\(^2\)Loc. cit.
With statehood many Americans began to flock into California. Most of them settled in northern California and the scarcity of settlers in southern California is shown by the United States Census of 1880. Two communities in the area were incorporated, Los Angeles with a population of 11,183 and Anaheim with a population of 833. Only nine other unincorporated communities were listed in the Census. These were Downey, Orange, Pasadena, Pomona, Santa Ana, San Bernardino, Tustin, and Wilmington. In addition to these there were a few settlements, such as Alhambra, Compton, El Monte, Florence, Healdberg, Monrovia, Ontario, San Fernando, San Gabriel and San Pedro, too small to be regarded by the census. Though the circumstances of their founding and development sometimes differed, the agricultural nature of their economy and poor transportation links with the eastern part of the United States were features common to all.

Although citrus growing predated statehood, it was not the leading horticulture enterprise in southern California for some time. It was not until near the turn of the century that the citrus industry had improved its product sufficiently to dislodge grapes from their leading position. Lewis Vignes had planted orange trees in the Los Angeles area in 1834. In 1856 the Los Angeles town assessor listed

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4 Loc. cit.

5 Sanborn Atlas collection.

only 151 bearing trees. The next year William Wolfskill set out several thousand trees, making his the largest citrus grove in the United States. By 1887 production exceeded local demands, and in that year Mr. Wolfskill shipped the first carload of oranges east.

Increased production was due primarily to the improved quality of the fruit. Lack of experience and the use of a variety not suited to the local environment had resulted in poor fruit. Most of these difficulties were overcome when the United States Department of Agriculture sent Mrs. L.C. Tibbetts of Riverside two seedlings of the Washington Navel Orange. This variety is well suited to southern California and bears a more desirable fruit. The citrus boom was on. By 1882, 450,000 orange trees were growing in the six counties of southern California. Four years later 500 carloads of the fruit were shipped out of the state. The decade of the 1890's began with a million dollar orange industry occupying over 12,600 acres in the six counties.

Agricultural progress was not limited to oranges. The Census of 1882 disclosed the existence in the same six counties of 48,350 lemon trees, 64,380 walnut trees, and 33,000 apple trees. There were

8Loc. cit.
10Dumke, Boom of the Eighties, p. 28.
11Loc. cit.
also orchards of peach, quince, pear, plum, almond, and fig trees. Olives occupied about 1,000 acres.

The San Gabriel Valley was one of the citrus growing centers. The foothills had the proper amount of air drainage and temperature for good citrus production. The nearby mountain streams provided water, and the inclined slopes provided suitable drainage. The agricultural emphasis of the area changed from vines, grain, and cattle grazing to citrus. A second citrus region was centered around the city of Santa Ana, where a somewhat similar environment was conducive to citrus production.

Although citrus orchards spread rapidly into these areas other crops remained important. Grapes continued to be a major crop for the duration of the century. Grain, primarily alfalfa, was also widely grown. In some areas citrus trees were rare. El Monte township remained a walnut, celery, tomato, and sugar beet center. The Los Nietos Valley was called the corn growing region. The major community of the area was Downey, which had been settled in the 1880's by 30 families from Texas. From this town came over 4,000,000 pounds of freight between October 1887 and January 1888. Nearby Compton was a grain growing center with seven grain storage facilities in 1900. Burbank remained primarily a vine and grain growing area. Chino had a sugar beet processing factory serving the surrounding beet

13 Dumke, Boom of the Eighties, p. 28.
area. Sugar beets were also raised in the Los Alamitos region to the south of Los Angeles.

The local economy of some communities was not completely dependent on agriculture. Long Beach had started out as an agricultural colony but failed and was becoming a growing resort center by the turn of the century. Santa Monica and Redondo served as both port and resort areas. Redondo had a large lumber wharf and hauled much of the building material for the new towns of the area. San Pedro and Wilmington also benefited from their port facilities. At this time the major population center of the area was Los Angeles. However, there were smaller centers such as San Bernardino, Pomona, and Santa Ana in the citrus regions of the San Gabriel and Santa Ana valleys that served as trade and service centers for local hinterlands.

Until 1876 transportation from southern California to the eastern sections of the United States was by horse and wagon or by sea around South America. In 1876 rails of the Southern Pacific reached the Los Angeles area. This link had come from San Francisco where connections were made for points east. The railroad continued construction eastward from Los Angeles and reached Yuma in 1882. There it connected with the Texas Pacific System, which offered a direct route to New Orleans.

During the 1870's and 1880's local railroads began to serve the southern California area. The Los Angeles Independent Railroad ran to Santa Monica. The Terminal Railroad gave a direct route to the Wilmington area. Redondo was served by the Redondo Railroad in 1887.

In 1883 the San Gabriel Valley Railroad was incorporated and by 1885 it had tracks to Pasadena.\(^\text{17}\) Construction of this line continued east down the San Gabriel Valley in an effort to serve the citrus producing region. By 1886 the total track mileage in Los Angeles County was 200.76 miles.\(^\text{A}\)

The monopoly of one transcontinental line was ended in 1887 with the arrival of the Santa Fe Railroad. This line had arrived in the area in 1885, but not until its purchase of the California Central Railroad in 1887 did it have a line of its own to the city of Los Angeles. Rapid expansion of the line followed. By 1887 the community of Redondo had facilities on both the Redondo Railroad and the Santa Fe.\(^\text{18}\) The coastal route to San Juan Capistrano was finished in 1891. \(^\text{19}\) By 1887 Santa Fe trains stopped at the following towns along its San Gabriel Valley route: Sycamore Grove, Highland Park, Garvanza, Lincoln Park, South Pasadena, Raymond, Pasadena, Olivewood, Lamanda Park, Huntington, Sierra Madre, Arcadia, Monrovia, Duarte, Azusa, Gladstone, Alosta, San Dimas, Lordsburg, Palmomares, Claremont, Ontario, Magnolia, Cucamonga, Etiwanda, and San Bernardino.

The competition of a second transcontinental line resulted in a rate war that began in 1886 when the Santa Fe withdrew from the Trans-

\(^{17}\)Langsdorf, op. cit., p. 11.

\(^{A}\)See Fig. 6, p. 39.


\(^{19}\)Dumke, Boom of the Eighties, p. 130.
FIGURE 6

STEAM RAILROADS

Based on the California railroad commission's Map of Railroads in California, published in 1922 at Sacramento. Located at the Huntington Library.
continental Traffic Association. The normal fare between Missouri River points and southern California was from $100 to $150. The first reduction came in 1886, reducing the price to $84. By March a ticket from Missouri to Los Angeles was down to $15. On March 6th the fare from Kansas City to Los Angeles dropped to $12, then to $8, to $6, to $4, and finally to $1 for a brief period during which 40 tickets were sold. This was also a period when southern California was receiving a tremendous amount of publicity. Along with the Chamber of Commerce and Board of Trade there were private real estate promoters, returning tourists, returning gold seekers, newspapers, and finally the railroads themselves that were all promoting southern California. Urged on by this publicity, people took advantage of the reduced fares and came to California by the thousands.

Two authorities have put forward the theory that the increase in population brought on by the rate war was a major, if not the major, cause of the following real estate boom. During the years 1886, 1887, and 1888 in Los Angeles County alone there were filed 1,700 tract maps, subdivisions or replots. The bulk of this material was for the territory adjacent to the cities of Los Angeles and Pasadena, with the former having a clear majority. Some of the large tracts

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21 Langsdorf, op. cit., p. 14
22 Langsdorf, loc. cit.
23 Dumke, Boom of the Eighties; Langsdorf, Real Estate Boom of 1875, p. 9.
24 Dumke, Boom of the Eighties, p. 69.
in the immediate vicinity of Los Angeles City were: Dalton Tract, Dana Tract, Dayton Heights Tract, Electric Homestead Tract, Konlerl Frohling Tract, Longstreet Tract, Maron Tract, Park Villa, University Tract, Waverly Tract, and Wolfskill Tract. In addition to these over 100 towns were laid out in Los Angeles County alone. Many of these towns existed on paper only and were never occupied. Some contained only a few residents. But eleven grew sufficiently to appear in the census of 1890. With the availability of thousands of acres of nearby vacant land at a fraction of the price paid for lots in towns, many of which existed on paper only, the whole concept of the boom was illogical. When this was realized in the final years of the 1880's the boom came to an end.

However, the influence of the steam railroad and the real estate boom was not to end here. Including the 20 or so communities that existed prior to the boom there was a total of 42 settlements in the greater Los Angeles area in 1890. Over 50 percent of the communities were thus founded during the boom. Since all of the communities were located on a steam railroad line it is clear that this method of transportation continued to be an important factor in determining the population distribution.

FUNCTION OF EARLY STREET RAILWAYS

The expansion of Los Angeles was accompanied by an associated growth in local transportation. In most cases the real estate developments and transportation extensions were linked together. The transportation system was normally owned by the land developer. The typical promotion followed a pattern: the land developer brought a
tract of desirable land, subdivided it, built a street railway and advertised it, and finally auctioned off the lots. At first this occurred only in Los Angeles, but soon Pasadena, Pomona, Ontario, Santa Monica, and San Bernardino had horse car lines to new housing tracts. However, these enterprises were not limited to lines powered by horses. Cable cars, steam dummies and electric trolleys were eventually used. Although the first electric street railway in Los Angeles ran to the Electric Homestead Tract the life of this particular project was very short as a result of faulty equipment.

In many cases the primary motive of the joint enterprise was the realization of quick profits through the sale of real estate. Transportation lines were owned by a front company that built the lines on borrowed capital. The result was a poorly constructed line and the declaring of bankruptcy once the real estate profits were made. This type of enterprise was not limited to the short urban type lines that ran to nearby suburban housing tracts. This method was also applied to more truly interurban type lines. One system that exemplifies how this principle was applied using first an urban line and then an interurban line is the Rosecrans Rapid Transit Railway Company and its successor, the Redondo Railway Company. The first was an urban type line in that it was built to an unoccupied area for the purpose of developing it. Its successor was an interurban in that it was built to areas already settled. Indications are that in both cases the motivation was to a great part the realization of a

25Steam dummies were small steam engines disguised as trolley cars.

profit from the increased value of real estate brought on by the improved transportation facilities.

Examining this example we find that during the real estate boom promoters laid out a town site near the Rosecrans Rancho in Los Angeles County. In order to make their undertaking a success they obtained a franchise from the County Board of Supervisors. A steam dummy line, the Rosecrans Rapid Transit Railway, was built and began operating in October 1887.27 The price of lots rose from $50 to $240 and the size of the town soon doubled. Owned by a front company the railroad was heavily financed. Once the boom was over and the line had served its purpose, it was of little use to the land promoters. At this point in their history most such railways would declare bankruptcy and be sold at a sheriff's auction or they would be purchased by a more stable transportation orientated company.

The Centinella-Inglewood Land Company, which had interests in both Redondo and Inglewood, purchased the Rosecrans Railway and extended it to their holdings in Inglewood. Renamed the Redondo Railway this line, in addition to fulfilling the function of influencing real estate values, became a profitable passenger and freight hauler. Many of the new Inglewood residents commuted to Los Angeles. In addition the Centinella-Inglewood Land Company went into the lumber business. A wharf was constructed at Redondo and the tracks extended to the wharf.

In some cases the lines were owned from the beginning by an enterprise interested in both land promotion and continued profits from the street railways. Henry Huntington was the best and most success-

27 Raymond Lyon, untitled article found in Historical Data, (Edwin Lewis' scrapbook collection of articles) located in the Huntington Library's collection on the Pacific Electric Railway.
ful example of the head of such an organization. His success was due in great part to his practically unlimited financial backing, which enabled him to make large land investments and build a sound transportation system. This gave him a great advantage over his competitors both in the real estate business and in the transportation business. In 1898 he organized the Los Angeles Railway Company, and during the next few years acquired many of the city lines. In addition to his interest in urban lines he was the chief single builder of interurban lines. With the merger in 1911 Huntington retained ownership of the Los Angeles Railway Corporation, which controlled the urban lines in the city.

By providing transportation to the fringe areas of cities, the urban street railways contributed greatly to their rapid areal expansion. The influence of these lines can be summarized as follows. The lines penetrated out from the more or less settled districts of the city to new residential tracts. A linear extension of residential area would soon follow. This in turn would be followed by a similar occurrence near by and ultimately by the filling in of the area between them. Although some of these lines were essentially interurban lines during their early history, they soon became urban in nature as the area in which they operated was engulfed by the expanding city of Los Angeles. These urban type railways thus contributed to the expansion of the city, but due to their failure to expand much beyond the periphery of the occupied regions of the city.


BSee Figs. 7, 8, pp. 46, 48.
Based on Sanborn Atlases and various historical works cited in the Bibliography.
TEMPEL ST. CABLE RAILWAY
1887

CIVIC CENTER

SCALE IN MILES

0 1/8 1/4

= OCCUPIED AREA

= CABLE RAILWAY
FIGURE 8

TEMPLE ST. CABLE RAILWAY 1894

See Fig. 7 for sources.
they had little influence on the overall population distribution or areal outline of the city. With the development of reliable high speed electric cars the street railways expanded out of the city to nearby communities and thus became truly interurban in nature.

REGIONAL SUMMARY

Shortly before the interurban railways arrived in the Los Angeles area three important events had occurred that had a tremendous impact on the character of the region. The first was the development of a citrus industry. The second was the arrival of the transcontinental railroads. These brought many new residents to the area and precipitated the third event, the real estate boom. The influence of the railroad lines did not end here: the real estate boom temporarily scattered settlements over the area, but the success of an individual boom town depended in part on its location on one of these lines. Thus, all of the 42 or so settled areas that existed in 1890 were on a steam railroad line.

The greater Los Angeles area as it existed in 1890 centered around the city of Los Angeles. Thousands of new residents had pushed the city limits out at a rapid pace. Rising from a population of 11,183 in 1880 the 50,000 mark was passed by 1890. The assessed valuation of the city rose from $7,259,598 to $49,320,670 during the same period. The city remained primarily an agricultural center, although it had an annual industrial output of around $8 million by the turn of the century. Encircling the city was an area of mixed crops.

CSee Fig. 9, p. 51.
FIGURE 9

LOS' ANGELES AREA 1890

Based on information compiled from: the U.S. Census, the Sanborn Atlas collection at San Fernando Valley State College and various historical works cited in the bibliography.
Along the coast still other types of settlements existed. Santa Monica, Long Beach, and Redondo were beach resort towns. Most of these also provided port facilities for the Los Angeles area. Thus, in 1890 the greater Los Angeles area was made up of a central urban area, surrounded by an area of small towns and scattered farms. Further out were smaller trade and service cities that served their own agricultural hinterland. This was the region where Mexican labor was to lay the rails and ties over which the interurbans would carry millions of passengers back and forth between Los Angeles and the surrounding communities.
Here orchards shared the farmland with vines, grain, and vegetables. Towns had at most one fruit packing house. Grain storage facilities, wineries, and food processing facilities were located on rail spurs. This was especially true in the west where lemons occupied the hills of Hollywood, but non-citrus crops occupied most of the area. Since Los Angeles provided overwhelming competition, few service or trade facilities existed. Consequently, few of the newer towns in this area survived the end of the boom.

Further away from the city of Los Angeles were several smaller market and service centers. Cities as San Bernardino, Anaheim, Pomona, Santa Ana, and Orange provided a service to a local hinterland similar to what Los Angeles provided for the greater Los Angeles area. These were the collecting and distributing centers for the surrounding agricultural area. With the rapid rise of citrus orchards, the establishment of railway connections, and the increased number of residents accompanying the real estate boom, the market and service facilities of these cities increased. Also scattered down the San Gabriel Valley were many surviving boom towns, which continued to function because of their packing house facilities, which were an integral part of the local citrus economy. Most were little more than residences for the citrus growers and the few employees of the packing facilities. Most had a couple of small retail stores and a railroad spur on which was built one or two fruit packing houses. Few of these towns existed in the Santa Ana Valley, where settlement remained concentrated in the older communities. The economy here remained more diversified than the citrus dominated San Gabriel Valley. Grapes and wine producing remained an important part of the economy.
III. INFLUENCE OF THE INTERURBANS

The rapid population growth of southern California during the real estate boom was temporarily interrupted by the recession of the 1890's. But social and economic changes accompanied the coming of the new century and population began to increase rapidly again. The result of this continued growth was the appearance of several new towns in each decennial census report. When the location of these towns and the areas of high and low population increase are plotted the influence of the interurbans on population distribution is revealed. The recognition of this influence facilitated the appraisal of the indirect effects on the interurbans upon other phenomena such as real estate values, land use patterns, and local economic conditions. The imprint of the interurbans was apparent in the character of the region that emerged.

IMPACT ON POPULATION DISTRIBUTION

During the last decade of the nineteenth century the real estate boom came to a halt and the rate of population increase slackened. Early in the twentieth century, however, rapid growth revived. Agricultural expansion, the discovery of oil, the opening of the Panama Canal and the rise of the movie and aircraft industries precipitated a rapid growth of the Los Angeles region that has continued to the present time. The region of highest growth rate during the boom of the 1880's was the city of Los Angeles itself, but with the development of the interurbans the highest rate of population increase shifted from the city to the surrounding areas, regions that are appropriately designated as commuter suburbs.
Only 25 of the 42 settlements that were located in the area eventually to be served by the interurbans had appeared in the census by 1890. Most of these 25 were the older communities of the San Gabriel and Santa Ana Valleys and only four were boom towns founded during the previous decade. During the recession of the 1890's four towns grew sufficiently to be added to this list. Three of these, Azusa, Covina, and Corona, were on a steam railroad line. Only one, Hollywood, was on an interurban. For locations see Figure 10, page 57.

During the first decade of the twentieth century the interurban lines expanded rapidly. Tracks extended out to a radius of about 25 miles from the civic center. Thirty-six more communities were linked to Los Angeles. Eighteen of these had already appeared in the census, and in 1910 seventeen new towns of the greater Los Angeles area were added to the list. Of these, 13 or about 75 percent were located on an interurban line. An equivalent proportion of the new towns in the 1910 Census was located on a steam railroad line. Thus, whereas in 1890 the success or failure of a town depended upon whether or not it was on a steam railroad line, by 1910 the interurbans and the steam railroads were of equal importance in determining the future of a town.

During the second decade of the twentieth century the interurbans extended along the San Gabriel Valley as far as Redlands. This ten year period saw the completion of most of the lines that were

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COMMUNITIES APPEARING IN CENSUS

The track routes are based on information in Interurbans Special No. 16. A five part special publication of the Interurban serial that gives a very detailed block by block street routing in textual form of the many street railway lines. The data for cities came from appropriate U.S. Census volumes.
eventually to be the basis of the system. In the 1920 Census\textsuperscript{2} eleven more towns of the greater Los Angeles area were added to those appearing in the census. All of these were located on a line of the Pacific Electric. Only five, or less than 50 percent, were located on a steam line. Interurbans had evidently replaced steam railroads as a major factor determining population distribution. Only two of the eleven towns were located on the new street railway extension completed during the second decade. The remaining nine were located on the interurban lines built during the previous decade. Thus, most of the towns in the greater Los Angeles area that made their first appearance in the census either in 1910 or 1920 were located within 25 miles of Los Angeles.

The influence of the interurbans on population distribution was not limited to the area outside Los Angeles. As was noted earlier (see Chapter II, above), urban type street railways influenced the expansion of the occupied region of the city by pushing local linear extensions of population into relatively unoccupied areas surrounding the city. With the development of interurban lines, which penetrated out of the occupied region of the city and transversed the sparsely populated area on their way to nearby suburbs, these extensions of population were much larger in scale. The greater length of these lines and their accompanying population projections were sufficient to influence the overall shape of the city.

The Pacific Electric had a marked effect upon the rate of popula-

FIGURE 11

STREET RAILWAYS AND POPULATION DISTRIBUTION 1924

This map shows the population distribution with reference to the street railways for the urban area of Los Angeles in 1924.

This is a compilation of maps appearing in Report on a Comprehensive Rapid Transit Plan for City and County of Los Angeles. This report was made for the City Council and the County Board of Supervisors.
STREET RAILWAYS AND POPULATION DISTRIBUTION 1924

EACH DOT REPRESENTS 100 PEOPLE

SCALE IN MILES

PACIFIC ELECTRIC RAILWAY

LOS ANGELES RAILWAY
lation increase. The 1900-1910 rate of population increase was included as part of the census data for 19 of the greater Los Angeles area communities appearing in the 1910 Census; of these, eleven were located on an interurban line. Only eight of the 19 communities had a rate of increase above that of the county as a whole,$^A$ and all eight were located on an interurban line. In the following census of 1920 the percent of population increase appears for 33 of the communities in the greater Los Angeles area. All but two of these were on an interurban line. And ten of the eleven communities that experienced an increase above that of the county during this decade were located on an interurban line.

The influence of distance from Los Angeles also becomes apparent in the census of 1920. Eighteen of the 21 communities with a rate of increase of 50 percent or more were located on interurban tracks that had been built during the first decade of the twentieth century. Thus most of the towns appearing in the census were not only located on an interurban track, but were also near Los Angeles. And the towns with the fastest growth rates were also those near Los Angeles.

The influence of interurban tracks and distance to Los Angeles on population distribution is revealed on Figures 13, 14, 15, and 16.$^B$ Figure 13 shows that in 1900 the population of the surrounding communities was rather evenly distributed over the Los Angeles basin, the San Gabriel Valley, and the Santa Ana Valley. Figure 14 discloses

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$^3$Thirteenth U.S. Census.

$^A$See Fig. 12, p. 63.

$^B$pp. 65, 67, 69, 71.
FIGURE 12

PERCENT OF POPULATION INCREASE

For actual values of population figures and the year of the arrival of an interurban railway see the Appendix.

Compiled from U.S. Census.
## PERCENT OF POPULATION INCREASE

**(CITIES RANKED BY PERCENT)**

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<tbody>
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<td></td>
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<tr>
<td>Ontario</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Alhambra</td>
<td>403</td>
<td></td>
<td></td>
</tr>
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<td>365</td>
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<td></td>
</tr>
<tr>
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<td></td>
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<tr>
<td>Santa Ana</td>
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<td>Glendora</td>
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<tr>
<td>Arcadia</td>
<td>220%</td>
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<td></td>
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</tr>
<tr>
<td>Fullerton</td>
<td>155%</td>
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</tr>
<tr>
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</tr>
<tr>
<td>Newport Bh.</td>
<td>100%</td>
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<tr>
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<td>Whittier</td>
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<tr>
<td>Ontario</td>
<td>70%</td>
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<tr>
<td>Orange</td>
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<tr>
<td>So. Pasadena</td>
<td>66%</td>
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<tr>
<td>Azusa</td>
<td>66%</td>
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<tr>
<td>Redondo Bh.</td>
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<tr>
<td>Compton</td>
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<tr>
<td>Claremont</td>
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<tr>
<td>Monrovia</td>
<td>54%</td>
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<tr>
<td>Pasadena</td>
<td>49%</td>
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<tr>
<td>Hemet</td>
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<tr>
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<td>48%</td>
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<tr>
<td>Pomona</td>
<td>32%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vernon</td>
<td>30%</td>
<td></td>
<td></td>
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<tr>
<td>Elsinore</td>
<td>30%</td>
<td></td>
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<tr>
<td>Riverside</td>
<td>27%</td>
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<td>Redlands</td>
<td>-8%</td>
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<td></td>
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<tr>
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<td>Elsinore</td>
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<td>Monrovia</td>
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</tr>
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<td>Whittier</td>
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<td>La Verne</td>
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<td>Pasadena</td>
<td>67%</td>
<td></td>
<td></td>
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<tr>
<td>Orange</td>
<td>65%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upland</td>
<td>62%</td>
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<td>Azusa</td>
<td>58%</td>
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<td>Claremont</td>
<td>57%</td>
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<td>Pomona</td>
<td>54%</td>
<td></td>
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<tr>
<td>Riverside</td>
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<td></td>
</tr>
<tr>
<td>Redlands</td>
<td>48%</td>
<td></td>
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<tr>
<td>Glendora</td>
<td>36%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chino</td>
<td>31%</td>
<td></td>
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</tr>
<tr>
<td>Vernon</td>
<td>25%</td>
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</tr>
</tbody>
</table>
The track routes are based on information in Interurbans Special No. 16. Data for population distribution came from U.S. Census and Sanborn Atlases.
FIGURE 14

POPULATION DISTRIBUTION AND INTERURBAN LINES 1910

For sources see Figure 10.
POPULATION DISTRIBUTION & INTERURBAN LINES
1910

- = 200 PERSONS
○ = 10,000 PERSONS
● = 25,000 PERSONS
●○ = 300,000 PERSONS
INCLUDES ONLY THOSE LIVING IN COMMUNITIES

SCALE IN MILES
0

PACIFIC OCEAN

SANTA MONICA
PASADENA
WHITTIER
LONG BEACH
SANTA ANA
POMONA
ONTARIO
SAN BERNARDINO
REDLANDS
RIVERSIDE
FIGURE 15

POPULATION DISTRIBUTION AND INTERURBAN LINES 1920

For sources see Figure 10.
POPULATION DISTRIBUTION & INTERURBAN LINES
1920

- = 200 PERSONS
○ = 10,000 PERSONS
□ = 40,000 PERSONS
● = 500,000 PERSONS

INCLUDES ONLY THOSE LIVING IN COMMUNITIES
The communities with a high rate of population increase, represented by the square symbol, had a rate of population increase in either 1910 or 1920 to place them in the highest one third of all the local communities appearing in that census. The communities in the mid-range, represented by the larger circles, had a rate of population increase in either 1910 or 1920 that placed them in the middle third of the communities. The communities with a low rate of population increase, represented by the smaller circles, had a rate of population increase small enough to place them in the bottom one third in both the 1910 and 1920 census.

Based on U.S. Census data.
that by 1910 the greater Los Angeles area was becoming the location for most of the population of the region. The influence of the interurban lines on population increase is also observable in this figure. In Figure 15 both of these are obvious. Figure 16 the influence of distance to Los Angeles is graphically portrayed. Figure 17, 18, 19, and 20 show the impact of the interurbans on individual communities.

From Figure 17 it appears that the arrival of the interurbans at Pasadena and Santa Monica had little effect during that decade. However, with the end of the recession during the 1890's and the coming of a new period of prosperity, the population of the two communities grew rapidly while that of the more distant communities of Pomona and Riverside continued on their steady even growth and appeared unaffected by the arrival of the interurbans two decades later. Orange, on the periphery of the commuter suburb region shows a very moderate response to the arrival of the interurban line in 1908.

A variety of responses is demonstrated in Figure 18. The full and immediate impact of the interurban arrival is shown by Alhambra. The response of South Pasadena is almost as great. Ontario's rapid growth during the first decade is an indication of the linkage of that community to Pomona by a local interurban. Monrovia and Redondo also show a response to an interurban connection with Los Angeles. The failure of San Gabriel to respond may be credited to the shadow effect of Alhambra. Newer residents to the area appear to have selected the town closest to Los Angeles so that the growth of San Gabriel was temporarily delayed.

Cp. 74, 76, 78, 80.
FIGURE 17

POPULATION HISTORY FOR SETTLEMENTS THAT EXISTED PRIOR TO THE BOOM OF 1880's

Compiled from U.S. Census data.
POPULATION HISTORY
FOR SETTLEMENTS THAT EXISTED PRIOR TO THE BOOM OF 1880'S

YEAR INTERURBAN ARRIVED

ORANGE
PASADENA
POMONA
RIVERSIDE
SANTA MONICA

IN THOUSANDS
50
40
30
20
10
0

1870 1880 1890 1900 1910 1920 1930 1940
FIGURE 18

POPULATION HISTORY FOR TOWNS AND CITIES THAT APPEARED IN THE U.S. CENSUS FOR THE FIRST TIME IN 1890

Compiled from U.S. Census data.
POPULATION HISTORY

FOR TOWNS AND CITIES THAT APPEARED IN U.S. CENSUS FOR FIRST TIME IN 1890

IN THOUSANDS

ALHAMBRA
MONROVIA
ONTARIO
REDONDO
SAN GABRIEL
SOUTH PASADENA

1890 1890 1900 1910 1920 1930 1940
FIGURE 19

POPULATION HISTORY FOR TOWNS AND CITIES THAT APPEARED IN THE U.S. CENSUS FOR THE FIRST TIME IN 1910

Compiled from U.S. Census data.
POPULATION HISTORY
FOR TOWNS AND CITIES THAT APPEARED IN U.S. CENSUS FOR FIRST TIME IN 1910

<table>
<thead>
<tr>
<th>Year</th>
<th>Arcadia</th>
<th>Fullerton</th>
<th>Hemet</th>
<th>Hermosa</th>
<th>Vernon</th>
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<td>1</td>
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</tr>
<tr>
<td>1920</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1930</td>
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<td>1</td>
<td>1</td>
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<td>1</td>
</tr>
</tbody>
</table>
FIGURE 20

POPULATION HISTORY FOR TOWNS AND CITIES THAT APPEARED IN THE U.S. CENSUS FOR THE FIRST TIME IN 1910

Compiled from U.S. Census data.
POPULATION HISTORY
FOR TOWNS AND CITIES THAT APPEARED IN U.S. CENSUS FOR FIRST TIME IN 1910

IN

THOUSANDS

50

40

30

20

10

0

POPULATION

1900 1910 1920 1930 1940 1950

CHINO
CLAREMONT
GLENDALE
HUNTINGTON PARK
INGLEWOOD
Figure 19 compares the responses of five suburbs: Arcadia located near Los Angeles, Fullerton, at a moderate distance away, Hermosa, a beach suburb, Hemet, a community where the interurbans never arrived, and Vernon, the unusual characteristic of which is particularly explained by the fact that the area became a railroad yard where the building of new dwellings was forbidden by law. In Figure 20 further comparisons can be made between a distant community, Chino, which the interurbans never reached, and closer suburbs on the interurban lines.

Thus, we can see that by providing a link between desirable residential areas, such as the mountain foothills at Pasadena or the beach at Santa Monica, and offices or factories in Los Angeles, the interurbans exercised a great influence over the population distribution.

IMPACT ON LAND USE

The rapid increase in population induced by the arrival of the interurbans brought about several kinds of change. Increased population resulted in increased real estate values, new business activity, and in some instances the beginning of industry.

Fluctuations in real estate values that followed the arrival of the interurbans typically followed one of two courses. In both an increase in sale and prices would be brought on by the announcement that an interurban track would be laid to a particular suburb. This boom would reach a peak when service was actually begun. If this was followed by an immediate increase in population the increase would grow into a full scale boom as prices and sales soared. If on the other
hand the population increase lagged several years behind the beginning of interurban service the increase in sales and prices would soon taper off. In this instance there would frequently be a boom some years later, when the population eventually began to grow rapidly.

By examining Figure 21D we can see various examples of how the assessed valuation of a community was affected by the interurbans. Hemet, a community outside the area of interurban service, experienced a steady increase in land values unaffected by interurbans. Compton, however, represented an example of the latter course of fluctuating real estate values. This community was linked to Los Angeles by interurbans in 1903, but real estate prices did not show a rapid upswing until around 1920 when the population also experienced a rapid increase. Burbank represents a similar example. Although interurbans arrived in 1904, population and real estate values did not began to climb until the second decade of the century.

South Pasadena demonstrates the effect that the interurbans had on most of the towns of the commuter suburb area and represents an example of the first pattern described above. The arrival of interurbans brought people and increased real estate values within the same year. Although data on assessed valuations are unavailable for most of these communities before 1910, extrapolation of data from 1910 to 1915 to the preceding few years indicates in almost every instance that the beginnings of the increase came in the same year as the arrival of the interurbans and the beginning of the population increase.

In the few communities where the assessed valuation is avail-
FIGURE 21

ASSESSED VALUATION

ASSESSED VALUATIONS

BURLINGTON
COMPTON
HEMET
SOUTH PASADENA
RIVERSIDE

1908 1910 1912 1914 1916 1918 1920 1922
FIGURE 22

ASSESSED VALUATION

Compiled from Taxpayer's Guide issued by the Los Angeles County auditor in 1930.
able for a longer period, the influence of the arrival of the interurbans is indicated directly. For example, in Santa Ana the arrival of the interurbans resulted in a moderate increase in property values. This increase was proportionate to the moderate increase in population produced by the arrival of the interurbans. Riverside, a community outside the area of influence of the interurbans, shows no response to the arrival of the interurbans.

The change in land use that accompanied population increase was another indirect response to the interurban street railways. A distinction between the response in Los Angeles and that in the suburbs is recognizable. In the immediate vicinity of Los Angeles urban lines were built out from the center of the city by piecemeal additions of short extensions to new housing tracts at the periphery of the city. The interurban lines passed through the urban part of the city and across the surrounding farm land on their way to the suburbs. Both the urban and interurban types were followed by linear extensions of occupied territory expanding down the lines. Although the size of the extensions resulting from urban lines was much smaller than those of the interurbans, they were similar in that retail businesses soon followed the population. This contributed to making the routes of the interurbans the major transportation arteries in and out of the city of Los Angeles. The end result was that such streets as Santa Monica Boulevard, Third Street, Pico Boulevard, Washington Boulevard, Adams Boulevard, to name only a few, were lined with retail businesses while one block away on either side were residential areas.  

4Information in the above paragraph was based on the Sanborn Atlases.
In the suburbs where communities already existed when the interurbans arrived, the sequence was different. When the interurbans arrived they were usually routed down the main street or, if the community was large enough, the main line by-passed the center of town and a local urban type service was established if none existed. The preexisting patterns of land use were not affected. Thus, when the tracks went through a residential area the area remained residential as the town continued its expansion. This development was illustrated by the course of the Oak Knoll Line of Pasadena and the Pacific Electric route through Upland.5

Where the main line of an interurban, or an urban branch, had been laid through the business district, any later or continued expansion of the community usually pushed the business section further along the route of the street railway. In Alhambra, for example, a branch line of the Pacific Electric went down East Main Street, crossed into San Gabriel, and continued to its terminal in Temple City. As the number of retail businesses increased in the city they spread along West Main. In 1930 almost every business in town was located on this street.

The Main line of the Pacific Electric passed through the residential section of Alhambra on its way to Arcadia, Azusa, and Glendora. The area remained residential in nature, and as in Los Angeles expanded along the tracks. Thus, it can be said that the interurbans contributed indirectly to the linear expansion of retail business districts as they followed population along interurban tracks into un-

5 Information in the above paragraph was based on the Sanborn Atlases.
developed areas. However, in established areas the interurbans did little to change the established pattern of residential or retail business districts. ⁶

The influence of the street railways on industrial location was exercised in two ways. Prior to 1910 when the Pacific Electric began hauling freight its influence was limited to that of a transporter of workers to factories and workshops. In 1900 this factor seems to have been of little importance in determining the location of industry in the suburbs. San Bernardino, Riverside, and Redlands respectively furnished examples of a rope works on the Santa Fe Line, a fruit canning company on the Santa Ana and Los Angeles Railroad, and a machine shop and foundry on the Santa Fe. Although these examples do not include all of the industrial facilities outside of Los Angeles they are typical of their location with respect to transportation facilities. It is reasonable to conclude that the location of the steam railroad was of far greater importance than the location of the local street railway services. ⁷

Although the Pacific Electric possessed 22 percent of the industrial rail freight facilities and although industry was proportionally distributed between towns with and towns without steam railroads facilities, the role of the Pacific Electric Railway as a location determinant over industrial location was secondary to that of steam railroads. Examining the location of rail freight facilities we find that both those of the Pacific Electric and those of the steam

⁶Loc. cit.
⁷Information in the above paragraph was based on the Sanborn Atlases.
railroads existed in the established industrial districts that had been served for many years by the steam railroads. And only in those areas served exclusively by the Pacific Electric did this system exercise much influence.

The relationship between the steam railroad lines, the interurban lines, and the industrial regions in Los Angeles proper was similar to their relationship in most of the suburbs. Figure 23E shows this relationship. It is obvious that the larger manufacturers were centered around the steam railroads. Only one of the manufacturers employing over 1000 people was served exclusively by the Pacific Electric. Since the manufacturing area around the civic center predates the interurban freight service and even the interurbans themselves, its location cannot be ascribed to the influence of the interurbans. However, the penetration of industry along the major east-west lines of the interurbans indicates that this system did have some influence. Whether this was due to population expansion along the lines or the freight services or both is difficult to determine.

Both passengers and freight services probably contributed to the development of this alignment along the route of the tracks. The passenger service contributed to population growth in the regions they served, both along the trunk lines coming out of Los Angeles and in the suburbs which they passed through. The increased population resulted in the growth of retail businesses and other types of services. Some of these new suburban areas had sufficient desirable characteristics to attract industries to locate in or near them.

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E P. 92.
FIGURE 23

INDUSTRIAL AREAS OF LOS ANGELES 1924

This map shows the distribution of industry with reference to both steam railroads and street railways in the urban area of Los Angeles.

This is a compilation of maps appearing in Report on a Comprehensive Rapid Transit Plant for the City and County of Los Angeles. This report was made for the City Council and the County Board of Supervisors.
INDUSTRIAL AREAS OF LOS ANGELES

SCALE IN MILES

- STEAM RAILROAD TRACKS
- PACIFIC ELECTRIC TRACKS
- INDUSTRIAL AREAS

⊙ = MANUFACTURERS EMPLOYING OVER 1000 PEOPLE
The desire of industrial enterprises for freight facilities resulted in the creation of industrial sections within communities near the railroad tracks. This was true both before and after the interurban began hauling freight. However, in some areas such as Santa Monica, Venice, or the western side of Los Angeles City, the interurbans had a monopoly on rail freight facilities. In these areas the influence of this system as an industrial location determinant was greater.

REGIONAL SUMMARY: 1920

Significant changes accompanied the spread of interurbans over the Los Angeles area. In the distant communities these changes were slight and were primarily a consequence of the general population increase that encompassed the whole state. Nearer to the city changes were more substantial. What was an area of small towns and scattered farms in 1890 was to be converted into a residential area linked to Los Angeles by means of commuter services.

Interurban construction to Pasadena and Santa Monica in 1890 put mountain foothills and beach homes within commuter distance to Los Angeles. During the next ten years it became possible for persons living within a 25 miles radius of the city to commute to jobs in Los Angeles.

Three industrial regions were emerging by 1920. The city of Los Angeles had within its boundaries most of the industry of the whole greater Los Angeles area. In the commuter suburb region industry was only beginning. Outside of this region in the distant suburb area industry was primarily limited to a few food processing plants. Pomona produced $3,754,153 worth of manufactured products in 1920.
Riverside produced $2,354,476 worth and San Bernardino $7,473,789 worth. In all these the greatest portion was from food processing. Closer to Los Angeles Alhambra had 17 manufacturing plants; most of these were metal works such as foundries and machine shops. Burbank had a soap manufacturing company, a motor truck company, a metal products company, a chinaware company and several food processing companies. Glendale made baskets and boxes for nearby fruit packing facilities and also produced motion pictures. On the west side Culver City was an industrial center that produced motion pictures in addition to the products of small industries as engineering companies, glass companies, and food processing companies. Huntington Park with two foundries, a pump company, and a hardware company represented a second metal industrial center in the area outside of Los Angeles City. Industries other than, or in addition to the food processing industries, were also present in the communities of Anaheim, Compton, Fullerton, Inglewood, Huntington Beach, Orange, and Whittier. 8

None of the above communities were completely dependent on industry as a support of their local economy. In 1920 the value of manufactured products produced in Los Angeles County amounted to $445 per person. For the surrounding counties of San Bernardino, Riverside, and Orange, which depended even more on the agricultural section of their economy, the value per person was $380, $215, and $376, respectively. For the city of Los Angeles the value of manufactured products per person was $507. In no suburb did the value exceed $350

8 Information in the above paragraph is from, The Fourteenth Census of the United States, Manufacturing; the Sanborn Atlases.
and in most of them it was much less. 9

Azusa, Colton, Covina, Downey, Garden Grove, Glendora, La Verne, and San Fernando had local economies that depended almost completely on agriculture. Orange, Pomona, Redlands, San Bernardino, Santa Ana, Van Nuys, and Whittier were important as trade centers within agricultural areas. The economies of other communities apparently had little to do with agriculture; towns of this type included Arcadia, Bell, Bellflower, Hawthorne, Huntington Beach, Monrovia, Newport Beach, Santa Monica, and Sawtelle, all of which had relatively large populations. These were inhabited by commuters who worked in Los Angeles. Undoubtedly, almost all the towns included some commuters in their population, but these seem to have been primarily communities of commuters. 10

In 1920 Los Angeles was surrounded by rapidly growing commuter suburbs. The suburbs had been farming centers in 1890 but many of the communities now had mixed economies. Agricultural packing and processing facilities persisted in most but this segment of their economies had generally experienced little growth during the 30 years between 1890 and 1920. In some of them industry had established itself although it remained a small part of the local economy. In all the population had soared. This paradox of a non-expanding economic base and an exploding population can be explained by the role of the interur- bans. These were commuter suburbs.

9 Information in the above paragraph is from, The Fourteenth Census of the United States, Manufacturing.

10 Information in the above paragraph is based on the Sanborn Atlases.
East of the commuter suburb region in that part of the San Gabriel Valley that lay more than an hour by interurban from Los Angeles was the heart of the citrus district. As population had increased and as the citrus industry had expanded, the trade and service centers of this region had become cities. The small communities of 1890, which were typically little more than a cluster of houses around a packing house, had grown to be towns in 1920. These were not only residential areas for the citrus growers but in addition to the three, four, or more packing houses located in each they provided some services and trade facilities. Such communities, with viable economies and established freight facilities prior to the arrival of the interurbans, and located over an hour from Los Angeles by interurban, were little influenced by the Pacific Electric.

The Santa Ana Valley possessed some features of the commuter suburb area and some qualities of the more distant communities of the San Gabriel Valley. Agriculture persisted as the basis of the local economy. But the area was also on the edge of the commuter suburb region and had some inhabitants who commuted to jobs in Los Angeles. Although, the southern end of the valley was five miles further away from Los Angeles than the northern end, the interurban travel time was five minutes less. This was because connection between Los Angeles and the northern part necessitated the use of shuttle service. In spite of this the northern portion was more commuter in nature than the southern portion.

DECLINING INFLUENCE OF THE INTERURBANS

During the 1920's rapid industrial growth took place in south-
ern California. Since it was possible for people to reside in attractive suburbs and commute to jobs in Los Angeles, suburbs of commuters began to develop on a large scale. As these commuter suburbs grew in size they in turn attracted industry. They afforded a large labor pool, good transportation facilities, and relatively low cost farm land for conversion to industrial uses, features that facilitated the dispersal of industry to these suburbs.

The value of manufactured products produced by the four counties served by the interurban steadily increased after 1890. Until 1920 it increased at a rate faster than the rate of increase in population, with the result that the value of manufactured products per person steadily increased. During the following decade the value of manufactured products continued to increase but at a slower rate, with the exception of Los Angeles County. Because the rate of population increase in all four counties remained high the net result was that in all but Los Angeles County the value of manufactured products per person began to decline.

Until 1920 most of the industry had been located in the larger communities. Los Angeles City, San Bernardino, Riverside, Orange, Long Beach, Pasadena, Pomona, and Redlands comprised the list of communities that had appeared in the manufacturing census\textsuperscript{11} by 1914. The per capita significance of manufacturing varied and was rather small in some of these places; in many instances the large size of the community rather than its industrial character was the primary reason for its production of a volume of manufacturing output sufficient to war-

\textsuperscript{11}United States Census, Manufacturing, 1900 through 1914.
rant its appearance in census reports. The rapid increase in population during the 1920's unaccompanied by a proportionate increase in manufacturing output resulted in a decline in the per capita value of manufactured products in these cities.

It should be noted that within the only county in the area which the value of manufactured products per person increased, Los Angeles, the major industrial center, Los Angeles City, was one of the cities showing a decrease in the per capita value of manufacturing. The increase in the county as a whole reflected changes in the area outside of the city. Thirteen of the new communities appearing in the manufacturing census for the first time in 1930\textsuperscript{12} were located outside the city but within the county.\textsuperscript{F} Many of these were more industrial in character than were some of the older communities appearing in the census.

The rapid growth of industry in these communities was accompanied by an accelerated rate of population growth. The average rate of population increase for the communities in Los Angeles County that made their first appearance in the manufacturing census in the year 1930 was 490 percent. This can be compared to 136 percent for the county as a whole. Ten of the 14 communities with a rate of population increase above that of the county were listed in the manufacturing census, eight for the first time.

The steam railroads continued to play a major role in determining the location of industry. Most industrial districts were close to

\textsuperscript{12} Fifteenth Census of the United States, Manufacturing, Department of Commerce, Bureau of Census, (Washington: G.P.O., 1931).

\textsuperscript{F} See Fig. 24, p. 100.
FIGURE 24

VALUE OF MANUFACTURED PRODUCTS

Compiled from U.S. Manufacturing Census.
steam railroads. In 1920, 12 out of the 13 new communities in the manufacturing census had steam railroad facilities. Eleven of the 13 were also served by the Pacific Electric, but only one was served exclusively by the interurban.

A major consequence of this dispersal of industry was a decline in the number of Pacific Electric passengers traveling between these areas and Los Angeles. Figures 3 and 5 show that the number of passengers on the urban type lines continued to increase during the 1920's while at the same time the number of passengers riding the lines to the commuter suburb area decreased.

In addition to the rapid growth of industry the 1920's were characterized by the rise of the automobile. By 1915 there were 164,795 automobiles in the state. An increase of 220 percent during the next decade brought the total to 532,934 by 1920, and the number rose to 1,941,969 by 1930. This represents a change from about 17.8 persons per car in 1915 to 6.1 persons per car in 1920. By 1924 there were 3.3 persons per car and by 1930 there was one car for every 2.8 persons.13

This increase in autos is reflected in the amount of road mileage in the state. From 1904 to 1915 the length of road increased from 46,653 miles to 48,069 miles for only three percent in 11 years.14 In

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G pp. 17, 29.
H See Fig. 25, p. 103.

13 Statements in the above paragraph are based on information from California Motor Vehicle Statistics, the California Highway Patrol, (Sacramento: no publisher, 1933), pp. 13, 17.

FIGURE 25

POPULATION PER AUTOMOBILE STATE: OF CALIFORNIA

Compiled from California Motor Vehicle Statistics issued by the Department of California Highway Patrol, 1933.
1920 there were 61,039 miles of road for a total increase of 27 percent in only five years.\textsuperscript{15} The influence of autos during the next ten years is best reflected in the increased amount of surfaced road to which autos were better suited. During the eight years between 1920 and 1928 surfaced roads increased from 13,000 miles to 25,082 miles, which was almost a 100 percent increase.\textsuperscript{16}

Both the increased use of automobiles and the expansion of the road network contributed to the decline of the interurbans. The rising demand for new highways and streets resulted in the paving over of interurban private right of ways and the creation of many new railway crossings. The loss of interurban right of ways and the slower speed limits imposed by communities, because of the proliferation of railway crossings, inevitably prolonged running times for the interurbans. This further encouraged the shift from interurban commuting to commuting by auto.

The impact of these changes on the interurbans was drastic. There was no increase in the number of passengers riding the interurbans to the commuter suburbs after 1915 even though population was increasing. In the commuter suburbs where the population increase was especially high, the increased availability of local jobs provided by the growth of local manufacturing and the increased number of autos eliminated the possibility of an increase in the number of interurban passengers. In the beach type commuter suburbs, where the population increase was much less, there was little industrial-

\textsuperscript{15} \textit{Statistical Abstract of the United States 1920}, p. 357.

\textsuperscript{16} \textit{Statistical Abstract of the United States 1930}, p. 375.
ization, but there the increased number of autos alone was sufficient to cause a decline in interurban passengers. The beach lines were also affected by the rising use of autos for trips to the beach on weekends, a type of traffic that had provided much of the business on the lines to the coast.
IV. CONCLUSION

Prior to the appearance of the street railways two important events had occurred which exercised much influence on the greater Los Angeles area. The first was the arrival of the transcontinental steam railroads. Improved transportation facilities with other parts of the nation resulted in a rapid population increase. The subsequent rate war between the Southern Pacific and Santa Fe drastically reduced the costs of transportation from the east into southern California and thousands flocked into the greater Los Angeles area.

The second event was the real estate boom that was precipitated by the sudden increase in population in southern California. Between 1886 and 1888 over one hundred towns were founded in the greater Los Angeles area, and over one thousand tracts were filed in the region around Los Angeles and Pasadena. Many of the boom towns were laid out near the railroad lines because contemporaries believed that the success or failure of a town depended on the presence of railroad facilities. The validity of this belief was borne out in the years that followed the boom, since most of the 40 boom towns that were to grow into large towns or cities were on a railroad line. This was especially true in the San Gabriel Valley where a combination of good citrus growing conditions and advantageous railroad transportation facilities contributed greatly to the success of the local economy of the towns. The net result was that by the time the interurbans came to greater Los Angeles all of the 42 settlements of the area were served by a steam railroad.
During the first decade of the twentieth century the steam railroads continued to be important, but the influence of the interurbans became much more significant. As factors in determining the location of new towns the interurbans and railroads were apparently of approximately equal importance during this ten year period. But by the next decade the interurbans were far more influential than the steam railroads. All of the new towns in the greater Los Angeles area that made their first census appearance in the 1920 Census were on an interurban line, while less than half were on a steam railroad line. Only one of the new towns had been founded in the earlier real estate boom and only two had been founded prior to the boom. Most were products of the twentieth century.

The interurbans also influenced the distributions of variations in rate of population increase. With but very few exceptions the communities with the highest rates of population increase were located on interurban routes. The areas of highest rates of population increase shifted from the city of Los Angeles to the commuter suburb region, in the district where the interurbans played a major role. The commuter suburb region extended out from Los Angeles to a distance within one hour of travel time by interurban, or about 25 miles. Beyond this was the distant suburb region that was beyond practical commuting distance to Los Angeles and hence virtually unaffected by the interurbans.

In exerting a direct influence upon population distribution the interurbans also exercised an indirect influence over other regional characteristics. Increased population resulted in new demands for real estate. Increased population also resulted in new business.
In areas where interurbans were carrying population into relatively unoccupied regions these businesses tended to concentrate along the railway tracks. In already established communities the influence of the interurbans on the location of retail businesses was less.

The commuter suburbs produced by the interurbans were characterized by rapidly growing populations and local economies that experienced only slight growth during the 30 years from 1890 to 1920. The lack of economic activities was a reflection of their exclusively residential character. But this purely dormitory function did not last long. The commuter suburbs became increasingly desirable as locations for many new industries that were developing in southern California in the 1920's. The result was that in this decade the area of most rapid industrial growth shifted from Los Angeles to the suburbs in the same way that the area of most rapid population growth had shifted during the previous two decades. But although the proportion of commuters in the population of these suburbs became smaller, many of their residents continued to commute to Los Angeles.

The rise of industry in the suburbs provided local jobs for residents of these communities and resulted in a decline in the number of commuters to Los Angeles. The rise in the use of autos during this period and the increased running time also decreased the number of commuters. The increase in operating costs contributed to the problems of the interurbans. After 1925 fewer and fewer people rode the Pacific Electric Railway and its services became progressively poorer. The result was a rapid decline in the influence of this mode of transportation.
During most of the nineteenth century the expansion of Los Angeles was in the form of simple extension outwards from the center of the city. During the last decade of the nineteenth century and the first decade of the twentieth century street railways precipitated a different growth pattern; urban railways extended across unoccupied areas to new housing developments, and settlements subsequently followed the route of the tracks. The interurbans accentuated the new growth pattern and created a new element, the rapidly expanding commuter suburb.

Sometime after World War II the commuter suburbs and the expanding core of the city merged. Continued expansion resulted in a re-enactment of the same process but this time the scene was the distant regions hitherto unaffected by the interurbans. And by the mid twentieth century freeways had replaced interurbans as the major means of transportation.

The earliest studies of the relationship between street railways and urban development were initiated by city governments concerned about local transportation conditions. Rising operating expenses, increased taxes, and governmental regulation of fares had generally forced the railway systems to operate at a loss, and many of the systems were then taken over by the cities themselves. The early studies stemmed from the desire of city governments to find a way of operating streetcars at a profit.

The earliest studies by academicians were written by economists and they too were primarily interested in the financial circumstances of street railways. Subsequently, as economic geographers, and more recently urban geographers, turned their attention to the influence
of transportation upon cities, a few studies of the influence of street railways on urban development began to appear. But attention has been focused on urban railways and the role of interurban systems has been neglected.

The fact that this thesis has been concerned exclusively with Los Angeles, combined with the lack of studies of the influence of interurbans upon urban and suburban growth in American cities, eliminates the possibility of establishing generalizations or making comparisons. But there is reason to believe that the part played by the interurbans in Los Angeles was unique. Their most-important role was to facilitate the development of commuter suburbs, and their performance of this function was in large measure due to their appearance on the scene immediately after the real estate boom of the 1880's had paved the way for a remarkable proliferation of independent communities capable of being merged into one expanding metropolis in all but administrative terms.


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Addendum to Bibliography


APPENDIX

The following tables were compiled from: U.S. Census, various issues of the publication *Interurbans*, Lippincott's *Gazetteer*, and several of the historical works cited in the bibliography.
## CITY DATA

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