
Diffusion

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Fordist production of the Model T was the most important factor in the development of automobile cultures in the interwar period, most spectacularly in the United States but also in neighboring Canada and in Australia and New Zealand. By 1927 there was one car for every 5.3 inhabitants in the United States; the ratio for New Zealand was 1:10.5, for Canada 1:10.7, and for Australia 1:16. The extent of the gap between these countries and the rest of the world in cars per capita is striking. Argentina ranked fifth with a ratio of 1:43; France and Great Britain tied for sixth place with ratios of 1:44. Germany still had only one car for every 196 inhabitants. Americans at this point owned about 80 percent of the world's motor vehicles. The countries of Western Europe did not achieve the ratio of cars to population of 1920s America until the 1950s and 1960s.

Throughout the 1920s Canada ranked second worldwide in motor vehicle production. For the decade 1919–1929 Canada's total production was 1.649 million motor vehicles, versus 1.452 million for France and 1.344 million for the U.K. The Canadian industry had begun on August 17, 1904, when the Ford Motor Company of Canada was incorporated and began production at Walkerville, near Windsor, Ontario, just across the border from Detroit. Ford assembly plants were added at Montreal, Toronto, Winnipeg, and Vancouver. General Motors operations in Canada began in 1910 with the acquisition of 40 percent of the stock of the McLaughlin Motor Company, which manufactured Buicks under license. In 1918 GM obtained full control of the McLaughlin enterprise. Chrysler, too, had Canadian operations by the late 1920s.

Some 83 percent of the “Canadian” automobile industry was American controlled by 1929. This American-owned Canadian industry exported about 42 percent of its output, with more than two thirds of the

exported cars going to other British Commonwealth countries. Canada exported some 101,700 motor vehicles in 1929, versus exports of only 42,200 for the U.K. auto industry. Not only did the American-Canadian industry dominate the market in British Commonwealth countries, but Ford-Canada also took the lead in creating an Australian automobile industry by building a body factory and five assembly plants in Australia in the 1920s. General Motors began assembling cars in Australia in 1923, through a cooperative agreement with Holden Motor Body Builders of Adelaide, a leather firm that had begun to make automobile bodies. GM purchased Holden in 1931.

Australians, New Zealanders, and Canadians vastly preferred American cars over British makes, because American cars were cheaper, more reliable, and better suited to the primitive driving conditions that these countries shared with the United States. As early as 1912, the rugged Ford Model T had captured the Australian and New Zealand markets. By the mid-1920s Ford faced stiff competition down under from GM's Holden operations, and in fact GM came to outsell Ford in Australia. Together GM and Ford dominated the market. For the first six months of 1927, for example, Australian registrations (excluding Western Australia) showed that American cars held 81.4 percent of the market, compared with only 14.1 percent for British makes. Thus, the automobile cultures developing in 1920s Canada, Australia, and New Zealand were tightly integrated with the American car culture, through both manufacturing and marketing.

Contributing to this integration was a shared set of material conditions that permitted Americans, Australians, Canadians, and New Zealanders to actualize the possibilities of mass personal automobility a generation ahead of Europeans. The early automobile cultures developed in countries that had relatively low population densities, great distances to be bridged between small settlements in vast rural hinterlands, high per capita incomes, and equitable income distribution—a combination of conditions that added up to great effective demand for motorcars.

Automobile Ownership and Use: Class and Caste Dimensions

The withdrawal of the Model T from the market coincided with the realization of mature market conditions in the United States. The year 1927 was the first in which NACC statistics showed more new car sales for replacement demand in the United States than sales to first-time owners and multiple car sales combined. By 1927 every American who could afford a car already owned one, and the average life of an American-made

passenger car was, according to the NACC, seven years. United States passenger car registrations then dramatically declined some 10 percent during the Great Depression of the 1930s. The record 1929 production of 5.3 million motor vehicles fell to a low of 1.3 million in 1932, and was not to be surpassed until 1949, when 6.3 million units were produced. United States registrations of motor vehicles dipped from 26.5 million in 1929 to 23.8 million in 1934 before bouncing back to 29.4 million in 1938; during World War II, automobile production for the civilian market was halted and severe restrictions were placed upon automobile use.

The patterns of automobile ownership and use in late-1920s America, then, represent a high point not surpassed until after World War II. Not only were the experiences of Americans vis-à-vis the motorcar very diverse, but at least up to the mid-1950s Americans were far less auto-dependent than has generally been recognized. Whereas 44 percent of American families did not own cars in 1927, 41 percent still lacked personal automobility in the form of the family car as late as 1950. This contrasts with only about 13 percent autoless American households at present.

Motor calculated in 1921 that ownership of a \$600 automobile necessitated an annual income of at least \$2,800 if one lived in a city and at least \$1,936 if one lived in the country. The NACC estimated in 1924 that “the entire field of those receiving under \$1,500 [in income] yearly is still unsupplied with motor transportation.” The NACC thought that “growth in the motor vehicle market depends on the ability of the lower income brackets to purchase used cars, not necessarily new ones,” and that industry policy ought to be “pouring in [new cars] at the top, with the used cars being traded in and going to a secondary market.” By the mid-1920s the industry was plagued with “the used-car problem.” Because each car that was traded in also meant a trade-in when it was sold, several traded-in used cars had to be disposed of—most often at a loss—in order to sell one new model. Still, the income distribution of Coolidge prosperity put the ownership of a \$50 junker beyond the reach of most working-class families. The automobile trade journals were agreed in 1923 that “illiterate, immigrant, Negro and other families” were “obviously outside” the market for motorcars.¹

The pattern of diffusion within the United States, as elsewhere in the world, was determined by the need for personal transportation of an overwhelmingly rural population not adequately served by mass rail transit, and by the distribution of incomes sufficient for the buying and running of cars. By the time the Model T was introduced, the early luxury market for cars among the wealthy in large cities was saturated. Rising farm incomes until the post-World War I recession and declining Model T prices com-

bined to make midwestern farmers yearning to “get out of the mud” the mainstay of the developing automobile market. By the mid-1920s the Model T had become a rural necessity. Few farmers by then remained autoless.

Not only did automobility affect rural families decades earlier and far more deeply than city families, but suburbanites and village residents were affected differently from farm families; and farmers, tenant farmers, sharecroppers, and migrant farm workers were affected differently. “The difference was not necessarily one of car ownership itself,” writes Joseph Interrante. “As many tenants as farmers owned cars: for example 89 percent of the tenants and 93 percent of the farmers in Iowa in 1926 had automobiles. More important than automobile ownership per se was their use of the car.” Both a family’s economic status and the size and character of the nearest village center determined the extent to which the family car could be used for recreation or social activities. And whereas both farmers and tenants used the car primarily to commute to town, “a migrant family’s car was not only a means of consumption, but it was also the necessary basis for the migrant household’s survival as a unit.”²

Both automobile ownership and use progressively declined with extent of urbanization. A survey of car ownership among over 4.1 million American families conducted in 1927 by the General Federation of Women’s Clubs showed slight differences in the percentage of families owning automobiles in cities of various sizes. The range was from a low of 54 percent of families owning cars in cities of 100,000 population and over, to a high of 60.5 percent for towns under 1,000 population. The survey showed overall that 55.7 percent of the 27.5 million families in the United States in 1927 owned automobiles and that 2.7 million of these families (18 percent of those owning automobiles) owned two or more cars.³

Because of the broad categories used, these data underestimated differences. As evidenced, at this time the ownership of automobiles by farmers was nearly universal. In contrast, automobile ownership was rare among the urban working class. Interrante presents data on use, for example, that show that in 1930 motor vehicles accounted for 20 to 30 percent of the daily traffic into the central business districts (CBD) of large cities, as contrasted with 50 to 60 percent in the case of medium-sized cities, while “222 cities with at least 10,000 residents were entirely dependent on motor transportation.” He concludes that “the further one lived from the city the more advantageous car travel became.”⁴

That two out of three Middletown families owned an automobile by 1924 demonstrates that the automobile had become a necessity to the “business class.” Yet in their 1929 study of Muncie, Indiana, Robert and Helen Lynd went beyond their evidence to claim that “a working man

earning \$35.00 a week frequently plans to use one week's pay each month as payment for his car," and that "the automobile has apparently unsettled the habit of careful saving for some families." They also falsely reported that "the mobility afforded by new modes of transportation combines with . . . periodic waves of employment, unemployment, and reemployment to diminish the tendency of workers in a given factory to live together immediately about the plant. This tendency toward decentralization of workers' dwellings means that . . . those with whom one works may have their homes and other interests anywhere from one to two-score miles distant."

These generalizations were accurate for Middletown's "business class," but they would not hold true for the working class until the 1950s. This is demonstrated by the Lynds' own data, which they badly misinterpreted.

The Lynds secured data on automobile ownership from 123 Middletown working-class families. They found that among the 60 families that owned cars, 41 also owned homes, and that 26 had mortgages on their homes. In comparison, among the 63 working-class families that did not own cars, 40 owned homes and 29 had mortgages on them. "Obviously other factors are involved in many of Middletown's mortgages," understated the Lynds.

The incomes of 100 working-class families studied by the Lynds ranged from \$345 for a family of eight to \$3,460 for a family of five, an extremely wide range. Of the 51 families reporting incomes under \$1,500 a year, only 16 owned automobiles. The combined expenditure for the year October 1, 1923, through September 30, 1924, reported for "purchase, license, gas, and upkeep" among these families ranged from \$25 for a family of seven making \$1,287 and \$45 for a family of three making \$588 to \$345 for a family of five making \$971. Only 7 of the 16 families owning cars reported a deficit. At the other extreme, 6 of the 9 families reporting an income of over \$2,800 owned automobiles. Expenditures on cars among these families ranged from \$110 for a family of four earning \$2,876 to \$777 for a family of four earning \$3,356. Interestingly, the only one of these 9 families to run a deficit was a family of seven earning \$3,198 that did *not* own an automobile, but spent \$1,749 on investment in a home!

Similarly, data collected by the Lynds in 1924 revealed that 27.9 percent of Middletown's workers lived less than one-half mile from work, 27 percent between one-half mile and one mile, and 22.7 percent between one and two miles. Although these distances were measured "as the crow flies" and were consequently lower than actual travel distances, it is clear

nonetheless that the overwhelming majority of Middletown's workers lived within walking distance of their work places.⁵

Such systematic data on car ownership and possible use are lacking in the Lynds' 1937 *Middletown in Transition*. We do know, however, that the ratio of cars to persons in Muncie increased slightly from 1:6.1 in 1924 to 1:5.2 in 1935; that new-car sales collapsed to only 29 percent of their 1929 level by 1932, then began to recover; that some Middletown workers lost their cars in the Depression; and that in the trough of the Depression the dollar volume of gasoline sales in Muncie declined by only 4 percent. The Lynds claimed that workers "do not readily segregate themselves from the rest of the city. They want what Middletown wants so long as it gives them their great symbol of advancement—an automobile. Car ownership stands to them for a large share of the 'American dream.'" The Lynds concluded, "Car ownership in Middletown was one of the most depression-proof elements of the city's life in the years following 1929"; "while . . . people were riding in progressively older cars as the depression wore on, they manifestly continued to ride."⁶ The point missed was that, however much the automobile may have become the "great symbol of advancement" to the working class, the "business class" was doing the bulk of this riding.

In his study of transportation and changing spatial patterns in Pittsburgh from 1850 to 1934, Joel A. Tarr documents both striking differences between middle-class and working-class patterns of automobile ownership and use and the minimal impact of automobilily on the urban working class. In 1934 only 45 percent of the chief wage earners in Pittsburgh owned automobiles, and only 20.3 percent of them drove their cars to work. In the surrounding suburban countryside, 56.7 percent of the chief wage earners owned automobiles and 25.5 percent drove them to work. Yet even these levels of ownership and use were significantly higher than those in predominantly working-class communities. "In the mill-oriented industrial third-class cities," notes Tarr, "even though 38 percent of the wage earners owned cars, only 12.4 percent of them used them to journey to work. Here with homes located close to the mills, 72.6 percent of the workers walked to work." He concludes that up to at least 1934, the automobile "had little impact on the spread of population in those sectors of [Allegheny] county with large mill town populations" and that "it was basically members of the employed middle and upper classes who were able to make the choice between a longer (and costlier) work-trip [by automobile] from the suburbs and lower land costs available on the [city] periphery."⁷

Because the upper and middle classes who could afford to buy and operate automobiles were also overwhelmingly white, urban blacks were

especially disadvantaged by auto-induced urban decentralization. In his pathbreaking case study of the impact of the automobile on Atlanta from 1900 to 1935, for example, Howard L. Preston concludes that since whites “could generally better afford the price of an automobile, it gave them a novel advantage over black Atlantans: greater mobility and an opportunity to act out their racist views by moving away to planned suburban neighborhoods on the north side. Many of these communities were outside the city limits, and once there . . . residents paid no city taxes and could effectively eschew the responsibility of paying to maintain adequate social services for those Atlantans who were less rich and less white. By 1930, if racism could be measured in miles and minutes, blacks and whites were more segregated in the city of Atlanta than ever before.”⁸

Significantly, blacks also were not to share proportionately in the extension of the “American dream” of the automobile commute to a suburban home that was opened to the working class in the post–World War II period through a combination of rising working-class incomes due to the aggressiveness of the industrial unions formed in late 1930s, government guarantees of low-interest home loans to returning veterans, and the innovation of cheaper methods of suburban home construction by Abraham Leavitt in the late 1940s. The pervasive racism of American society continued to confine blacks to rural poverty or to central-city ghettos. “Industries [however] were no longer confined to central urban locations that employees could reach by mass transportation,” Dan Lacy observed in 1972. “Suburban locations were especially attractive to electronic and service industries . . . the most rapidly growing industries, providing the most attractive job opportunities. . . . Consequently, blacks who could not afford to own or maintain cars in the city were hopelessly blocked from employment in precisely those types of plants in which opportunities were largest and most promising.” Additionally, as Helen Leavitt documents, because the cheapest land was sought for their routes, ambitious programs for building urban freeways beginning in the mid-1950s resulted in the massive destruction of once viable poor and minority neighborhoods in order to accommodate the automobility of middle-class, white suburbanities.⁹

Automobility as Social Reform

Both the traditional horse culture and the horse and rail culture that superseded it in late-nineteenth-century America had many drawbacks. It is a moot point whether living conditions were worse in the slums of the metropolis or on the isolated farms of the rural hinterland.

In New York City alone at the turn of the century, horses deposited on the streets every day an estimated 2.5 million pounds of manure and 60,000 gallons of urine, accounting for about two thirds of the filth that littered the city's streets. Excreta from horses in the form of dried dust irritated nasal passages and lungs, then became a syrupy mass to wade through and track into the home whenever it rained. New York insurance actuaries had established by the turn of the century that infectious diseases, including typhoid fever, were much more frequently contracted by livery stable keepers and employees than by other occupational groups, and an appeal to the Brooklyn Board of Health to investigate resulted in the institution of new municipal regulations on stables, compelling more frequent removal of excreta and disinfecting of premises. Medical authorities stated that tetanus was introduced into cities in horse fodder and that an important cause of diarrhea, a serious health problem among city children at the time, was "street dust," consisting in the main of germ-laden dried horse dung. The flies that bred on the ever present manure heaps carried more than thirty communicable diseases, and the unsightliness and stench of the stable meant that most urban owners of horses "boarded and baited" them at public facilities an inconvenient distance from their residences. In addition, traffic was often clogged by the carcasses of overworked dray horses that dropped in their tracks during summer heat waves or had to be destroyed after stumbling on slippery pavements and breaking their legs. About 15,000 dead horses were removed from the streets of New York each year. Urban sanitation departments, responsible for daily cleaning up this mess, were not only expensive but typically graft- and corruption-ridden. A 1908 estimate that tried to take all factors into account concluded that the cost of not banning the horse from New York City was approximately \$100 million a year. Finally, the city at the turn of the century was hopelessly overcrowded. New York's Lower East Side, for example, was estimated by the urban reformer Jacob Riis to have contained some 290,000 persons per square mile in 1890, making it then the world's most densely settled living area.

Although these conditions were characteristic in varying degree of all of our large and medium-sized cities, they were not experienced in the daily lives of most Americans, because most still lived in small rural hamlets or on farms. The 1920 United States census was the first to report a majority of our population residing in towns with 2,500 or more people. The residents of the rural hinterland, a majority of Americans until well into the twentieth century, were plagued not by overcrowding and unsanitary conditions but by isolation and lack of access to adequate medical care and to other urban amenities. Such profound differences in the environments of the "city slicker" and the "hayseed" underlay a division in

turn-of-the-century American society based on residence comparable to those based on race, ethnicity, and class.

Norman T. Moline has examined the impact of transportation change between 1900 and 1930 on Oregon, Illinois, a village in the scenic Rock River Valley some 100 miles west of Chicago, its population ranging from 1,577 to 2,376 over the period of the study. In 1900 the local roads were unpaved and impassable by horse-drawn vehicles for much of the year. Three eastbound and three westbound trains stopped each day on the main Burlington line from Chicago to Minneapolis, and additionally there was twice-daily train service to towns to the northwest. Thirteen proposals to extend electric interurban service to Oregon were made between 1894 and 1913. None materialized.

Oregon's rail service was undoubtedly better than that of most villages and hamlets in the Midwest and the West. Still, it left a great deal to be desired. Travel to places not on the main rail line involved lengthy layovers, because the schedules of different railroads did not coincide. Transfers were in general not available. Routes were circuitous, and main-line trains usually passed through small towns such as Oregon at inconvenient hours, because schedules were arranged to provide convenient departure and arrival times at major cities. Fares averaged 2 or 2½ cents a mile in the early 1900s, which "while not extremely expensive, was sufficiently expensive to be a limiting factor for frequent travel by persons with average economic means." Special rates offered by the railroads for holiday and group travel on special occasions "were exceptions and help to prove the point that regular rail travel was more expensive than the average budget could sustain." It took from one and a half to three hours to get 22 miles from Oregon to neighboring Rockford by rail, four and a half hours to return on the 5:15 P.M. train. The trip took four hours by horse and buggy. To get 16 miles from Oregon to neighboring Dixon took an hour and a half by rail, two and a half to three hours by horse and buggy. The result was that "for many there simply was little or no travel."¹⁰

Not surprisingly, a major theme of rural reformers was the extension of city amenities to the village, hamlet, and farm, while urban planners and reformers of the so-called Progressive Era stressed the need to decentralize the city. In densely populated Western Europe, where no one lived much farther than ten miles from a railroad, this critical American problem of homogenizing space was not nearly so important.

The electric streetcar was sanitary, not subject to organic malfunctions, and faster than the horse. However, it was not flexible. If a single trolley got stalled on the tracks, the normal flow of traffic was halted. Most important, an urban transportation system based upon electric-

powered traction required huge expenditures for its rail infrastructure. As construction costs mounted during the 1890s, it began to become questionable whether even in large cities adequate mass-transit rail systems could be built, especially since freight still had to be moved in the central city by horse-drawn trucks, and passengers had to get from the streetcar stop to their ultimate destinations by horse, bicycle, or foot. In any event, the expense of electric-powered rail systems made them seem practical only in areas with high population densities. It did not seem feasible financially to extend them to the sparsely settled outskirts of the city, much less to villages such as Oregon or to the farm. The potential of electric-powered traction both to decentralize the city and to extend city amenities into rural areas was thus severely limited.

The motor vehicle offered an attractive alternative because it combined the flexibility of the horse with the speed of the locomotive or electric trolley, without the costly liability of a system of fixed rails and overhead wires. General adoption of the automobile promised to relieve taxpayers of the high cost of removing tons of excreta daily from city streets and to eliminate huge expenditures for endless miles of track, overhead wires, and networks of elevated platforms and/or tunnels, and with this the graft and corruption that too often seemed to be associated with building urban mass transit systems. It was facilely assumed that the cost of improving city streets for antiseptic automobile traffic would be negligible. Further, it was anticipated that urban traffic congestion and parking problems would disappear, because automobiles were more flexible than streetcars running on fixed rails and took up only half the space of horse-drawn vehicles. According to an 1896 article in *Scientific American*, for example, "The existence of a double line of cars moving on a fixed track and claiming the right of way over other vehicles is a hindrance to traffic and is itself delayed." If these rails were removed, the street asphalted from curb to curb, and the streetcars replaced by motor vehicles that could pass one another at will, "the whole volume of traffic would move with less interruption than at present, and . . . the cars themselves would make faster time."¹¹ The idea of asphalt pavement, too slippery for horses, was obviously predicated on a horseless city.

Not only was the motorcar considered cleaner, safer, more reliable, and more economical than the horse, but it promised to be vastly improved and lowered in price in the near future, whereas the expense and liabilities of the horse seemed unalterable. A horse-drawn rig was capable of a top speed of only 6 to 8 mph, and its maximum range was only about 25 miles before the horses had to be rested. The average life of a dray horse was only two or three years. Safety was a major concern. For example, *Harper's Weekly* noted in 1899 that "a good many folks to whom every

horse is a wild beast feel much safer on a machine than behind a quadruped, who has a mind of his own, and emotions which may not always be forestalled or controlled." Lacking the physical strength to control a spirited, skittish team, women in particular were impressed with the advantages of the motorcar, especially the noiseless, odorless electric car, which did not require one to learn to shift gears. Even the crude brakes on early motorcars were vastly superior to those on horse-drawn vehicles, and it was widely believed that an automobile going 20 mph could be stopped in less space than a horse-drawn rig being driven at a moderate trot. The motor vehicle was also much more maneuverable than the horse-drawn vehicle, requiring considerably less space for turning around because of its shorter length. In addition, it was impervious to weather conditions and fatigue. Countless tests demonstrated to the public that the motor vehicle was cheaper than the horse. It depreciated less rapidly and did about three times the work for the same amount in operating expenses. Physicians, who drove their horses hard on calls, invariably reported that the automobile was more economical as well as more reliable. There was general agreement at the turn of the century that "the displacement of the horse will cheapen living and travel, certainly not increase them."¹²

Henry Ford once phrased nicely the auto enthusiast's program for urban reform: "We shall solve the city problem by leaving the city."¹³ Thus, the facile answer to the slum was that tenement dwellers should buy motorcars and commute to suburbia. Commentators stressed the "autopian" advantages of suburban living. For example, in 1904 William F. Dix wrote in the *Independent*: "Imagine a healthier race of workingmen toiling in cheerful and sanitary factories, with mechanical skill and trade-craft developed to the highest, as the machinery grows more delicate and perfect, who, in the late afternoon, glide away in their own comfortable vehicles to their little farms or houses in the country or by the sea twenty or thirty miles distant! They will be healthier, happier, more intelligent and self-respecting citizens because of the chance to live among the meadows and flowers of the country instead of in crowded city streets."¹⁴

Similarly, the general adoption of the automobile by farmers promised to break down the isolation of rural life, lighten farm labor, and reduce significantly the cost of transporting farm products to market, thereby raising the farmers' profits while lowering food prices paid by city consumers. A writer in *Outing Magazine* predicted in 1902, for example, that with the general adoption of the automobile "the millions of our rural population will be brought into closer relations with the towns and with neighbors, and the loneliness of farm life, which drives so many to the cities, with detriment to all, will no longer retard our agricultural

growth, nor prevent a proper distribution of population for the national welfare.”¹⁵

Mass Motorization in Southern California

California led the nation in 1929 as it had in 1910 in ratio of population to motor vehicle registrations. It remained true as well that the leading regions in motor vehicles per capita were still the Pacific and the West North Central states and that the South continued to lag behind the rest of the country in adopting the automobile. But the gaps among the various regions of the United States already had closed appreciably by 1920. During the decade 1910–1920 automobile registrations increased more rapidly in the Rocky Mountain states and in the South, the early laggards in adopting the automobile, than in the East North Central, Middle Atlantic, and New England states. Although the agricultural states of the trans-Mississippi West continued to be the largest market for new cars, and California remained known as a bottomless pit for automobile sales, regional differences in the diffusion of the motorcar were becoming less significant. With a United States average of 10.1 persons for every motor vehicle registered in 1921, California ranked first with a ratio of 5.2:1 and Mississippi last with 27.5:1. By 1929 the United States average was 4.5:1. California still led the states with 2.3:1, and Alabama ranked last with 9:1. Long-distance trucking and a new mobility of people were beginning to open up the Pacific Coast and the Southwest to commercial development, make specialized regional economies more interdependent, and lessen the distinctiveness of regional lifeways.

A lifestyle based on mass personal automobility first developed in Southern California, and nowhere in the world has mass motorization been more pervasive in its impact. “Mass motorization of the region was largely accomplished during the . . . span of the single decade following World War I,” Ashleigh Brilliant relates. “Since the earliest days of motoring, Southern California, with its benevolent climate, attractive scenery, and relatively good roads, had been regarded as a ‘motorist’s paradise.’ Until the postwar decade, however, the automobile was considered primarily as a means of recreation. For more practical purposes there was the Pacific Electric Railway, world famous for the efficiency of its service.”¹⁶

Los Angeles has been called “a city built on transport.” Its first population boom followed the completion of the Santa Fe Railroad line in 1885. Competition with the Southern Pacific reduced the railroad fare from Kansas City, Missouri, to only one dollar, bringing a flood of tourists and fortune seekers. Invalids and retired couples in particular sought the

region's dry air and sunshine. Many came for a winter vacation and stayed on as permanent residents. Midwestern farmers relocated to become citrus growers.

In contrast with the immigrants to eastern and midwestern cities in the late nineteenth century, the immigrants to Southern California were older, overwhelmingly native-born and white, and relatively affluent. The largest proportion came from the rural Middle West, where a highly decentralized residential pattern was the norm. "Americans came to Los Angeles with a conception of the good community which was embodied in single-family houses, located on large lots, surrounded by landscaped lawns, and isolated from business activities," Robert Fogelson points out. "Their vision was epitomized by the residential suburb—spacious, affluent, clean, decent, permanent, predictable, and homogeneous. . . . Here then was the basis for the extraordinary dispersal of Los Angeles."¹⁷

A decade prior to this first population boom, the Southern Pacific had built five lines radiating out from Los Angeles to San Fernando, San Bernardino, Anaheim, Wilmington (near the San Pedro port), and Santa Monica. Reyner Banham observes that this rail system "constitutes the bones of the skeleton on which Greater Los Angeles was to be built, the fundamentals of the present city where each of these old lines is now duplicated by a freeway." He goes on to note that "subdivision of adjoining land proceeded as fast as the laying of rails" and that "commuting began almost as soon as the rails were down. . . . Before 1880 then, the railways had outlined the form of the city and sketched in the pattern of movement that was to characterize its peculiar pattern of life."¹⁸

Horse-drawn streetcars began to connect the Los Angeles business district with fashionable residential areas in 1876, then suburban development began in 1887 when an electric trolley line began to operate from downtown out Pico Street to serve the Electric Railway Homestead Association Tract. This was the first of a number of trolley lines built by real estate developers out to large tracts of land in outlying areas that they subdivided into homesites. Easy access to downtown by trolley was emphasized in advertising the lots. "Often mechanically unreliable, and even more often on unsound financial footings, the street railways rarely turned profits as transportation businesses, though they often contributed to huge speculative profits in real estate," Martin Wachs writes. Building street railways out to low-density population areas was feasible because of these huge profits and because "Los Angeles . . . was just growing to maturity as a city when street railways were introduced and it had never developed a significant commercial and industrial core."¹⁹

Between 1901 and 1911 some 72 separate street railways were merged, reorganized, consolidated, and extended into the Pacific Electric

Railway by Henry Edmunds Huntington, the heir of Southern Pacific magnate Collis P. Huntington. By 1911 this constituted the largest electric interurban system in the United States. Pacific Electric served 56 communities within a 100-mile radius over 1,164 miles of standard-gauge track with its "Big Red Cars." The associated Los Angeles Railway Company operated streetcars over an additional 316 miles on narrow-gauge track within the city of Los Angeles. Proximity to streetcar lines, observes Mark Foster, "continued to be an important prerequisite for successful development until the 1920s. City maps drawn in 1902 and as late as 1919 show few streets more than five or six blocks from streetcar lines."²⁰

Critics of urban sprawl have erroneously blamed the Southern California freeway system for making Los Angeles not a city but a collection of suburbs in search of a city. The unchecked horizontal growth of Greater Los Angeles in fact preceded rather than followed from mass motorization in the 1920s. Wachs notes that by 1910, "largely because of the Pacific Electric System, Los Angeles was functionally integrated with Long Beach, Santa Monica, and San Bernardino. The extent of the metropolitan region has not grown substantially since then, and most of the recent growth has consisted instead of filling in the spaces between outlying areas associated with important stations on the Pacific Electric." The Southern California freeway system closely parallels the 1923 Pacific Electric route map, which, as Banham says, "pretty well defines Greater Los Angeles as it is today." The socioeconomic impact of the Big Red Cars has been most thoroughly examined by Spencer Crump. "Unquestionably," he writes, "it was the electric interurbans which distributed the population over the countryside during the century's first decade and patterned Southern California as a horizontal city rather than one of skyscrapers and slums."²¹

Southern California's second great population boom occurred during the 1920s, when the population of Los Angeles County grew from 1.2 million to 2.2 million. By 1930 only 20 percent of Angelinos had been born in California. At the time, C. Warren Thornwaite characterized this mass movement as "the greatest internal migration in the history of the American people." "Like earlier booms, it was fostered by speculators, bankers, and businessmen," Wachs relates. "In 1921, the 'All Weather Club' was formed to advertise the wonders of Southern California in the East and especially to promote tourism, in the belief that a substantial proportion of those who vacationed in Southern California would be 'sold' on the idea of staying permanently."²²

Whereas earlier affluent vacationers generally had shipped their open touring cars out from the East by rail, the combined effect in the 1920s of improved roads, better tourist services, and the closed car was

that increasingly people came to Southern California in their motorcars. Motorization proliferated much faster than population. Between 1919 and 1929, while the population of Los Angeles roughly doubled, automobile registrations increased 550 percent, from about 141,000 to 777,000. Remarkable city planner Gordon Whitnall in 1930, "So prevalent is the use of the motor vehicle that it might be said that Southern Californians have added wheels to their anatomy."²³ Although ridership on the Pacific Electric System increased into the 1930s, it failed to expand proportionately with population growth as more and more riders switched to motorcars. Significantly, the level of mass motorization, as measured by the ratio of motor vehicles to people, has not greatly increased in over half a century. Los Angeles County had one motor vehicle for every 2.85 persons in 1929 and one motor vehicle for every 1.7 persons in 1979, to lead the nation in automobiles per capita at both dates.

Despite Southern California's highly decentralized settlement pattern, a 1931 traffic study showed that over twice as many motor vehicles entered the Los Angeles central business district (CBD) as entered the CBDs of other large American cities. During identical twelve-hour periods, some 277,000 motor vehicles entered the Los Angeles CBD, while among cities with roughly equal-sized CBDs 113,000 entered in Chicago, 66,000 in Boston, and only 49,000 in St. Louis. Moreover, despite the fact that Los Angeles developed as a post-automobile city, its streets were the narrowest and most disconnected and it devoted the least land area to streets in its CBD of any large city in the United States. For example, in 1924 only 21.4 percent of the Los Angeles CBD was devoted to streets, compared with a range of 29 to 44 percent for other large American cities. This gave Los Angeles the most severe automobile traffic congestion in the world in the pre-World War II period. Downtown traffic snarls were already so bad during the 1919 Christmas shopping season that the city put into effect on April 10, 1920, a ban on street parking during business hours. Business dropped off so sharply that the ban was revised on April 26 to apply only during the evening rush hours.

Mass motorization fit hand in glove with a Southern California economy that necessitated the dispersion of business locations. For good reasons, a commercial-industrial core never developed in Los Angeles. To begin with, fear of earthquake damage led after 1906 to a 150-foot limitation on the height of downtown buildings, which remained in effect until the mid-1950s. Citrus growing, the movie industry, and later the aircraft industry required large tracts of land available only in the suburbs. The petroleum industry, central to the local economy, located facilities where oil was found or near the port from which it was shipped. As petroleum exports mounted, by 1930 the port of Los Angeles had come to rank third

in total commerce and second in tonnage in the United States. The port facilities and related commercial activity were located along forty miles of waterfront in the Long Beach, San Pedro, and Wilmington areas, whose northern edge was about twenty miles distant from the traditional commercial core of the city. New residential communities sprang up between downtown Los Angeles and the port area. Wachs notes that although manufacturing industries grew, the segment of the work force engaged in manufacturing declined from 28 percent in 1920 to 22 percent in 1930. "Los Angeles was increasingly described as a 'white collar' town; real estate, finance, and tourism expanded most prominently."²⁴

Thus, mass motorization neither caused the dispersion of economic activities nor changed the form of residential patterns in Southern California. However, the motor vehicle permitted decentralization that went well beyond what had been possible with electric traction. And this created a new urban lifestyle in Southern California that uniquely combined big-city amenities with low population density, single-family housing, and unparalleled individual mobility and access to outdoor recreation.

In areas close to the central business district that were served well by streetcars—such as Hawthorne, Inglewood, and Gardena in the South Bay area—mass motorization had little impact. There was a substantial increase, however, in the number of new subdivisions opened as mass motorization enabled real estate promoters to develop tracts of land remote from streetcar lines. The development of the San Fernando Valley was the prime example. The number of new subdivision maps recorded soared from 346 in 1920 to peak of 1,434 in 1923. With this new suburban construction, the amount of land converted to urban use in the Los Angeles area increased from 14.2 percent in 1924 to 24.4 percent a decade later. Construction of single-family residential dwellings accounted for 75 percent of this urban land use in the area between 8.6 and 10.3 miles from downtown Los Angeles.

The 1930 United States census revealed that 93.7 percent of the dwelling units in Los Angeles were single-family homes—the highest proportion of any American city—and that population density in the Greater Los Angeles area was only 2,812 persons per square mile. This contrasted with densities of over 23,000 persons per square mile in New York City, nearly 18,000 persons per square mile in Boston, and nearly 17,000 in Chicago. Single-family residences accounted for less than 53 percent of the dwelling units in all three of these cities.

The movement of population outward plus traffic congestion led to the rapid decline of downtown Los Angeles, as businesses and professional offices located outside the central business district. Between 1920 and 1930 the proportion of banks located outside the CBD increased from 45 per-

cent to 89 percent, theaters from 26 percent to 80 percent, dentists' offices from 16 percent to 55 percent, and physicians' offices from 21 percent to 67 percent. The proportion of residents living within a ten-mile radius of the CBD who entered it daily declined from 68 percent in 1924 to 52 percent in 1931.

"The impact of the automobile upon Los Angeles's urbanization process compared to that in other cities is distinguished chiefly by its magnitude," Foster concludes. "Both critics and defenders of Los Angeles's decentralization generally concede that by 1930 the city was in many respects the prototype of the mid-twentieth-century metropolis."²⁵ This is most forcefully demonstrated by an examination of the parallel impact of the automobile on southern cities during the 1920s.

The Automobile Revolution in the New South

A combination of notoriously poor roads and a per capita income less than half the national average discouraged car makers from developing southern markets until demand began to be met in other regions. Southern interest in the automobile was first sparked by the 1909 National Association of Automobile Manufacturers show in Atlanta—the first national auto show held outside New York or Chicago—then stimulated by Glidden reliability tours from New York City to Texas (1910) and to Jacksonville, Florida (1911). Urban businessmen in the South were particularly enthusiastic promoters of the motor vehicle, perceiving its potential both to bring more customers into downtown commercial districts and to make outlying areas accessible for commercial and residential expansion. "General community sentiment," observes Blaine A. Brownell, "was that the motorcar contributed to 'progress' and to the prospects for material prosperity. An era marked by widespread automobile travel was welcomed as one both modern and affluent."²⁶

Brownell sketches the impact of motorization on southern urban areas in the 1920s. Even though the South lagged behind the rest of the country in adopting the automobile, "the motorcar's overall influence on the South was massive. The region's transportation system was probably revolutionized to a greater extent by the motor vehicle than was the case elsewhere, and the traditional provinciality of the rural South was radically altered by new highways." By 1929 the percentage of retail businesses listed in the automobile category by the Bureau of the Census for major southern urban areas ranged from 14.2 in New Orleans to 20.7 in Birmingham. "[The automobile's] total economic significance is virtually impossible to compute with precision, but it would probably be measured

in the billions of dollars in major southern cities alone.” Sunday blue laws gave way to automobility, and problems caused by the automobile became the most time-consuming item on the agendas of southern city councils.²⁷

Howard Preston believes that automobility “has influenced all of southern life and played a leading role in producing the modern South.” In his study of Atlanta during the period 1900–1935, he documents “the impact of this new means of horizontal mobility on a relatively young, not yet fully developed, American city, whose spatial and demographic characteristics were in the process of being determined.” In 1903 Atlanta was at a similar stage of development to that of Los Angeles. Atlanta had a somewhat smaller population (96,550 versus 116,420), covered a much smaller area (11 square miles versus 42.8 square miles), and consequently had a much higher population density (8,777 persons per square mile versus 2,719). In contrast to Los Angeles, Atlanta was a biracial, bicultural city, with about 43 percent black residents in 1903, the overwhelming majority of whom were poor. Atlanta in 1903 had about a third of the street railway track that Los Angeles had per square mile (0.092 mile versus 0.268), slightly more inhabitants per mile of street railway track (805 versus 795), and an even higher proportion of unpaved streets (68.36 percent versus 50.22 percent). Like Los Angeles, Atlanta was “a progeny of transportation,” having been founded in 1837 as a terminus for the Western and Atlantic Railroad. But it was a railroad terminus in the nonindustrial, cotton-dependent, Civil War–devastated South, which had not yet recovered fully from Sherman’s march to the sea. Consequently, in sharp contrast with booming Los Angeles, turn-of-the-century Atlanta “was well behind even moderately sized American cities in its development, and with such a slow rate of growth there was little reason to expect the first few decades of the twentieth century to be any different.”²⁸

Turn-of-the-century Atlanta was a “walking city,” where more attention was given to the construction and maintenance of sidewalks than of streets. Its circumferential shape and land area roughly approximated Boston’s a half century earlier. Not one of Atlanta’s 22 public schools was located more than a mile and three quarters from the central business district, and about half of its 121 churches were located within a mile of the CBD. Some 59 percent of Atlanta’s grocery stores were located within one mile of the city’s center, with another 37 percent located within two miles. Atlanta’s streets radiated in a grid pattern at right angles from the railroad tracks that ran through the city into its central business district. New grid patterns were attached to the original railroad-oriented one by street railways in the late nineteenth century.

The city grew outward in a star-shaped pattern along streetcar lines.

However, the impact of electric traction in dispersing Atlanta's population was minimal. The reason was that, as in all southern cities except Memphis, far fewer people per track mile were served by streetcars in Atlanta than in northern cities.

Because they were conceived as adjuncts to real-estate speculation rather than as profit-making transportation companies, the street railways and electric interurbans in Southern California were able to disperse a population only about a third as dense as Atlanta's over a land area four times as large. Elsewhere, however, expansion depended on making profits from ridership. Compared with Atlanta's 805 persons per mile of street railway track in 1903, New York had 2,809 persons per mile of track, Boston 2,413, and Chicago 2,026.

Yet even with such high densities of potential riders, electric traction could only decentralize the walking city to a very limited degree. For example, the land area of Boston at the turn of the century was about 43 square miles. In his now classic 1962 study of the impact of street railways on Boston's growth, Sam Bass Warner, Jr., credits the electrification of street railways in the 1880s and 1890s with bringing "convenient transportation to at least the range of six miles from City Hall. The rate of building and settlement in this period became so rapid that the whole scale and plan of Greater Boston was entirely made over." He goes on to modify this claim, however: "By 1900 the expansion of crosstown street railway service had carried the band of lower middle class construction to a position 2.5 to 3.5 miles from City Hall. The gross area of this band was about equal to the area of the old walking city." The gain was so minimal that in 1900 even an area this close to City Hall still "had been only partially built upon" and possessed "large suburban lots." Warner further observes that "the costs of new construction were such as to exclude at least half the families of Boston." Awareness of these limitations on the democratic dispersal of population by electric traction leads him to conclude that the automobile "allows a less rigid class arrangement and less dense housing than was possible under streetcar transportation."²⁹

As in Los Angeles, the automobile displaced the streetcar as the predominant means of transportation in Atlanta during the 1920s. Of the 20,363 motor vehicles registered in 1920 in Fulton County, 8,525 were registered in Atlanta, a ratio of one car for every 22 people. The population of Atlanta more than doubled from 1903 to 1920, then increased another 34 percent to 252,398 by 1930, while the number of motor vehicles registered in Fulton County tripled to 64,243. Up to the mid-1920s streetcar service in Atlanta was relatively good, and there was a steady increase in streetcar patronage. By the mid-1920s, however, the great expansion of Atlanta's population and the commercialization of its central

area had created a severe housing shortage. The combination of low prices for lots in outlying areas, low interest rates, and the automobile consequently led to “an unprecedented wave of suburbanization” in Atlanta. “The inability of the street railway to serve a growing suburban area then became wholly apparent,” Preston writes. “Streetcar tracks did not extend into the new outlying areas under construction, and with the automobile by then in use, the decision on whether or not to construct additional lines into these suburban areas was crucial.”³⁰

The reason that the lines were not extended is that it did not seem profitable to do so. The Georgia Railroad and Power Company began to show losses on its street railway operations in 1921. By 1923 the company earned an average of only 5 cents a car mile and showed losses on eleven of the twenty-three lines it operated. Even were business to turn profitable, the Georgia Public Service Commission, a state regulatory agency, limited the company’s annual profits to 8 percent of capital investment, meaning that the most the company could hope to make each year on a risky \$1-million investment was only \$80,000.

Suburbs were planned to attract residents able to afford housing within certain price ranges beginning at middle-income levels. And historic patterns of discrimination in education and employment resulted in the close correlation of income with race and ethnicity in the United States. Consequently, whether movement to the suburbs occurred by streetcar or by motorcar, in Los Angeles or in Atlanta, the result was bound to be further segregation of the population into increasingly homogeneous neighborhoods. Mass motorization simply permitted this to happen faster and on a far greater scale than electric traction.

Despite white flight by automobile to the suburbs, the racial composition of Atlanta’s population did not change during the 1920s. Thirty-four and one-tenth percent of Atlantans were black in 1920, 33.5 percent in 1930. There was a dramatic change, however, in the racial composition of neighborhoods within the city with the outward movement of population. Ward 1 near the city’s center went from 56.8 percent black in 1900 to 66.5 percent in 1910, 78.4 percent in 1920, and 96.1 percent in 1930. The newer wards on the outskirts of the city, in contrast, were virtually all white. Blacks comprised only 0.18 percent of the 19,531 Atlantans residing in Ward 12 and Ward 13 in 1930.

In 1917, although only 10,000 motor vehicles were then registered in Fulton County, the *Atlanta Constitution* estimated that automobile-related businesses were annually grossing between \$40 and \$50 million and that the combined annual salaries of some 5,000 persons employed by them was between \$7.5 and \$8 million. An annual \$50 million of Atlanta’s bank clearings was attributed to retail automobile sales. By 1920 there were

80 automobile dealers in Atlanta and 236 other automobile-related businesses, such as gas stations, garages, and accessory dealers. In 1922 there were 153 garages alone. More than 100 new buildings had been constructed to house these new businesses, and an “automobile row” sprang up on formerly fashionable Peachtree Street between Ellis Street and Ponce de Leon Avenue, creating many new jobs.

The economic impact of the suburban construction boom was tremendous. A slump in new housing construction saw only 552 single-family dwellings built in Atlanta in 1920. Between 1921 and 1929, however, 12,768 new single-family homes were built, not even counting those in automobile suburbs outside the city limits. Before motorization, property values had been highest along streetcar lines. With motorization, suburban land values soared.

White flight beyond the city limits occurred in part because of lower property taxes, and had as one result the loss of Atlanta’s middle-class tax base, at the very time that the dispersal of population within the city and accommodation to motorization necessitated expanded services. Not only was Fulton County assessment pegged at 70 percent of Atlanta assessment at an 0.5 lower millage rate, but Atlantans were required by law to pay both city and county property taxes. Translated into dollars and cents, this meant that the annual tax on a \$10,000 single-family home was \$209.10 in Atlanta but only \$101.80 outside the city limits. Yet suburban commuters profiting from these lower property taxes daily drove to work over city streets and were dependent on other city services. By 1937 Atlantans living within the city limits were paying five sixths of Fulton County’s taxes. “This meant,” notes Preston, “that Atlantans within the city limits, one third of whom were black, were subsidizing the necessary municipal services of unincorporated Fulton County residents, who were overwhelmingly white and, as a whole, better able to afford the price of police and fire protection, public health care, sewage, and street repairs than those Atlantans living inside the city.”³¹

The decline of Atlanta’s downtown and the decentralization of business followed in the 1920s from a combination of the outward flow of population and traffic congestion in the CBD. Gas stations and retail food-related businesses led in following customers out to new neighborhoods. In 1918, 8 of Atlanta’s 14 gas stations were one mile or less from the city center; only 64 of its 321 stations were within one mile in 1930. Food-related businesses on Whithall Street, one of the most important downtown retail thoroughfares, declined from 24 in 1902 to 13 in 1916 to only 4 in 1930. Conversely, the proportion of retail grocery stores over two miles from the city center increased from 9.7 percent in 1916 to 25.9 percent in 1930. A typical CBD casualty was Thomas H. Pitts’s drug and sundries

store, operated at the Five Points intersection of Edgewood Avenue and Decatur Street since the turn of the century. Pitts closed his doors on October 1, 1926. “I think the real thing that did it was automobiles and more automobiles,” he explained. “Traffic got so congested that the only hope was to keep going. Hundreds used to stop; now thousands pass. Five Points has become a thoroughfare, instead of a center. . . . A central location is no longer a good one for my sort of business.”³²

In 1930 the Bureau of the Census ranked Atlanta as a “metropolis,” an urbanized area in which “all adjacent and contiguous civil divisions [had] a density of not less than 150 inhabitants per square mile.” Population in the area outside Atlanta’s city limits grew during the 1920s at about twice the rate of population within the city, with the result that by 1930 some 100,554 of Metropolitan Atlanta’s 370,920 people lived outside the city limits. “By 1935 existing governmental boundaries bore little relationship to the pattern of human settlement,” Preston concludes. Completion of the Dixie Highway in 1929 “marked the rebirth of Atlanta as a regional metropolis and redefined the city in terms of interstate travel by motor vehicle rather than by rail. Years later, with the automobile as America’s primary means of mass transportation, Atlanta became the crossroads of the Southeast—the point at which converged three major southeastern highways: I-20, I-75, and I-85.”³³

Megalopolis

The trends observable in Los Angeles and Atlanta were typical. By the outbreak of World War II, mass motorization had reorganized American urban and rural space into what the President’s Research Committee on Social Trends in 1933 called “metropolitanism.” “By reducing the scale of local distance,” the committee pointed out, “the motor vehicle extended the horizon of community and introduced a territorial division of labor among local institutions and neighboring cities which is unique in the history of settlement. The large [urban] center has been able to extend the radius of its influence. . . . Moreover, former independent towns and villages and also rural territory have become part of the enlarged city complex.”³⁴

As early as 1922, some 135,000 suburban homes in 60 cities were already wholly dependent on automobile transportation. During the 1920s, suburbs grew twice as fast as did the cities they encircled, and by 1940 some 13 million Americans lived in communities lacking public transportation. Industry, too, began to move to the suburbs, and every city with a population greater than 100,000 experienced a severe decline in

industrial employment in the period from 1920 to 1940. With suburbanization the nineteenth-century “star” pattern of urban development along “rays” paralleling streetcar tracks was transformed into the development of constellations of interdependent centers within metropolitan regions, and these regions began to fuse into one another.

By 1937 the National Resources Committee could characterize the whole east coast from New York City to Philadelphia as “a single ‘conurbanized’ band of metropolitan settlement.” In 1961 geographer Jean Gottman described the eastern seaboard from southern New Hampshire to northern Virginia as “Megalopolis,” a densely inhabited band of interconnected and interdependent settlements “more the size of a nation than of a metropolis.” He found that in Megalopolis the traditional distinctions between “rural” and “urban” were no longer meaningful.³⁵

Associated with this revolutionary transformation of traditional settlement patterns by the motor vehicle was the massive restructuring of institutions. “Among the many factors which contributed toward the expansion of local taxes [between 1913 and 1930], probably no single one, price inflation aside, exercised a more potent influence than did the automobile,” reported the President’s Research Committee on Social Trends. Staggering highway expenditures, the bulk of which came directly out of motorists’ pockets in use taxes, accounted for only part of this increased tax burden. The committee found that it “was not merely in its influence on highway costs that the automobile affected the size of the tax bill. Its use in cities created serious problems of traffic congestion and increased crime. Motorized police and traffic control became important items of increased expenditure.” The spreading out of the population into new suburban communities “helped to swell the volume of local taxation, since schools and other public facilities had to be provided anew in these outer areas, despite the under-utilization of such facilities in older areas where population declined.” Concluded the committee: “Since the changes which came with the motor era are inextricably bound up with other types of change, it is impossible to state in dollars and cents just how much the automobile has cost the taxpayers of the country.”³⁶

City planners and politicians largely ignored the needs of the autoless for better public transportation, while undertaking a massive restructuring of American cities at public expense to accommodate middle-class motorists. As early as 1916, the editors of *Automobile* were expressing concern over “the parking problem,” which “every day in big cities . . . grows more acute. . . . We are facing something which was never foreseen in the planning of our towns, a thing which has come upon us so swiftly that there has been no time to grasp the immensity of the problem till we are almost overcome by it.” By 1923 the automobile trade journals

considered the urban traffic problem caused by automobiles “one of the great problems of the day.” Articles in *Motor* warned “Stop! You Are Congesting the Streets,” and asked “Will Passenger Cars Be Barred from City Streets?”³⁷

Urban officials sought an answer in city planning—“a concept that was advanced as a virtual panacea for a whole range of urban ills, but was always fundamentally tied to the demands posed by motor vehicles,” Blaine Brownell observes. “The ultimate failure to significantly ease the impact of the automobile occurred even though the response of city governments and local leaders to the automotive challenge was in the best American pragmatic tradition. As the numbers of automobiles mounted, so did the governmental response: new taxes, improved roads, expanded parking facilities, extensive surveys, and a vast system of regulations enacted to guarantee the auto’s operation in the public interest and welfare.” Probably the main reason why planners almost totally neglected the needs of the urban working class and the poor for better public transit is that planning commissions were dominated by commercial civic elites. Robert Walker’s 1939 study of urban planning in thirty-one of the largest American cities, for example, revealed that more than half of the members of planning commissions were businessmen or realtors, whereas only one percent had any university affiliation.³⁸

“In 1925 Middletown youngsters, driven from street play to the sidewalks, were protesting, ‘Where can I play?’” the Lynds reported. “But in 1935 they were retreating even from the sidewalks.” Jane Jacobs, in *The Death and Life of Great American Cities*, documents the destruction of the urban neighborhood as a community by the decentralization and segregation of activities encouraged by automobility and by the longer blocks, combined with widened streets and narrower sidewalks, that accommodation to the motorcar demanded.³⁹

In contrast, automobility conferred substantial benefits while revolutionizing rural life. Not only was the country general practitioner better able to make his rounds to see patients, but the mass adoption of the automobile by farmers made accessible to them city hospitals and medical specialists. Public libraries in cities also were made accessible to farmers. Rural Free Delivery (RFD) mail routes were reorganized in 1915, taking advantage of automobility to improve service. And in the 1920s the daily bus trip to a consolidated school began to replace the long walk of farm children to inferior ungraded schoolhouses. Jacked up and used as a mobile power plant, the farmer’s car made many chores easier. The Saturday trip to town in the Model T to market dairy products and garden crops, then shop and socialize, became an institution. By making available a far wider range of recreational possibilities and social contacts, the automobile ended

rural isolation. In the “‘new’ rural America,” Michael Berger writes, “everything was more complex. No longer did one choose friends, leisure activities, or the family doctor merely on the basis of proximity. The new associations included people from geographically separate units, and interest rather than location became the primary tie among them. . . . Time ceased to be the barrier it had once been.”⁴⁰

Notwithstanding these great benefits, the cityward migration of farm youth continued. Indeed, the family farm was being killed off by automobile. Although improved roads and the Model T got rural America out of the mud in the 1920s, motorization was also in large part responsible for the depressed condition of agriculture, which involved a ruinous combination of overproduction of staple crops and higher operating expenses for equipment and chemical fertilizers. Along with the farmer’s automobile came the widespread displacement of farm horses by the tractor, which necessitated a switch to artificial fertilizers, encouraged the use of other expensive machinery to increase productivity, displaced farm workers, and usually involved a mortgage on the family farm. This combination of circumstances made the small family farm obsolete. As the Hoover Committee on Recent Economic Changes pointed out in 1929, “the most dramatic and probably the most significant single factor which has entered into the productive situation of agriculture within the last few years has come with the increased mechanization of the farm, primarily as a result of the internal combustion engine.” The number of tractors in use on American farms had increased from 147,600 in 1919 to over 825,900 by 1929. It was obvious that “the introduction of the tractor implies and necessitates a sweeping revision of the whole character of our agricultural industry and of our ideas with reference to farm organization and management, land values and other phases of rural economy. . . . We are coming slowly to perceive that it sets a new pace and rather than fitting itself unobtrusively into our agriculture, creates a demand that agriculture be quite drastically readjusted in accordance with its needs and potentialities.” The committee concluded that the tractor “permits enormous economies in the production of staple agricultural products, but its effective utilization demands larger operating units and a more specialized type of economic organization; it permits also of a considerable release of manpower.”⁴¹

Just as the “city problem,” in the words of Henry Ford, was “solved” for the white middle class by flight from the city, so too the “farm problem” perceived at the turn of the century was in the main “solved” by the mass movement of rural folk off the soil. One conspicuous example of this was the mass migration of blacks from the rural South into northern urban ghettos that began just prior to World War I and accelerated

into the post–World War II period. Another was the great “Okie” migration to California of the 1930s. Less dramatically, the movement affected the overwhelming majority of small farmers and agricultural laborers, regardless of race or region, as agribusiness, dominated by multinational corporations headquartered in the metropolis, came to supersede the family farm. The magnitude of the resulting displacement of people is compellingly summarized by John L. Shover: “Between 1926 and 1965 more than 30 million people moved away from American farmlands. . . . Spanning just three and a half decades, this mass outpouring represents one of the great migrations in history, greater in scope and numbers than the great exodus of Europeans and Asians to the United States in the 140 years from 1820 to 1960. An estimated 47 million migrated to the United States during these years, and 22 million returned, leaving a net increment from foreign migration of about 25 million.”⁴²

Motorization also profoundly changed the character of the small town. Ogle County, Illinois, for example, in 1900 had 79 horse-related service establishments and no automobile-related ones. But by 1930 automobile-related businesses outnumbered horse-related ones 86 to 21; the town of Oregon alone had 10 automobile dealers and 3 filling stations. By 1930 a round trip from Oregon to Rockford in an automobile took only as long as the train ride one way. So shopping trips to nearby Rockford and Dixon increased for Oregon families that owned cars from only once or twice a year to every two or three weeks. More and more out-of-town businesses began to advertise in the Oregon newspapers. And as the automobile greatly expanded trade areas in the 1920s, delivery service from local stores declined. In short, writes Norman Moline, as a result of automobility “persons in rural areas as well as those in towns increasingly had options as to where they could do their shopping. Trading habits which previously had been quite rigid became slightly blurred.”⁴³

By opening up much larger trading areas, automobility killed off the village general store and lessened deposits in small local banks. The big mail-order houses—Sears, Roebuck and Montgomery Ward—were forced to assume the new business risks involved in opening chains of retail stores. Before the advent of the automobile, the mail-order houses had catered to the isolated rural population. The Sears, Roebuck catalog was placed alongside the Bible in farmhouse parlors and so defined the material universe for farm children that it was used as a primer in one-room schools. Other retailing “had been concentrated into the center of cities and towns into which all avenues of transportation funnelled.” Robert E. Wood, the former general merchandise manager at Montgomery Ward who became vice-president of Sears, Roebuck, explained, “When the automobile reached the masses it changed this condition and made shop-

ping mobile. In the great cities Sears located its stores well outside the main shopping districts, on cheap land, usually on arterial highways, with ample parking space.”⁴⁴ Downtown merchants in medium-sized cities as well as proprietors of small-town general stores consequently saw business move to the periphery of town or to the metropolis and were forced to specialize in a single line of goods.

These developments in retailing completely unsettled wholesale trade. Competition became much sharper among wholesalers, and many firms found that they could no longer operate economically in the expanded trading areas brought about by mass motorization. The Hoover Committee reported as early as 1929 that “relatively few wholesale firms have as yet readjusted their methods for dealing with the new conditions.”⁴⁵

The decentralization of business into larger trading areas slowed during the Great Depression and World War II, then accelerated in the post-World War II period with the building of “shopping centers” to accommodate suburban consumers. The electric trolley had decentralized retail businesses outward from the central business district in “taxpayer strips” that developed along streetcar lines. The automobile not only tremendously expanded this decentralization along main routes of travel to suburban residential neighborhoods, but brought about the proliferation of suburban shopping centers with off-street parking for customers. The first regional shopping mall was Country Club Plaza, built on the outskirts of Kansas City, Missouri, in 1922; the first regional shopping center complex, planned as a unified commercial development with its stores turned away from the access street, was the Highland Park Shopping Village, built in Dallas in 1931. A massive shift of retail trade from central business districts to outlying shopping centers occurred after the innovation was brought off on a grand scale with the building of Northgate in Seattle in 1950 and of Shoppers’ World in Framingham, Massachusetts, in 1951. Each provided parking for several thousand cars. With the rapid proliferation of such shopping centers in the 1950s and 1960s, the downtowns of medium-sized cities came to be crime-ridden wastelands of vacated stores.

The economies of the smallest villages and hamlets probably underwent the most profound change. Chana, Illinois, a village about 8 miles from Oregon that was not near any major highway, stopped being a general trade center and became more an agricultural supply center as trade shifted to Oregon. But Grand Detour, 10 miles from Oregon on Illinois Route 2, became a popular point for automobile tourists to stop for services. This typified the trend articulated by Joan Halloran in her 1937 study of changes in business services in Iowa agricultural villages over

the years 1920–1935: “In many villages the most conspicuous features are no longer those services that cater extensively or chiefly to the resident agricultural population, but the filling station, the garage or repair shop, the restaurant and tavern—types of business that serve an outside world of transients coming and going by automobile.”⁴⁶

What happened in the long run to small agricultural communities is documented by John Shover in two case studies—of Ostrander, in Scioto Township, Delaware County, Ohio, and of Bedford County, Pennsylvania. The number of farms in Delaware County declined from 3,073 in 1910 to 2,647 in 1945 and to 1,389 in 1969; only 757 of the latter were full-time operations with gross annual sales over \$2,500. “Ostrander’s business block about 1920 contained a livery stable, two grocery stores, two restaurants, two barbershops, the bank, a drugstore, the opera house, a pool room, a bakery, a small hotel, a machine shop, the railroad station, and the new grain elevator that towered over the village. At least one physician practiced. Hence, about fifteen economic functions were being performed.” Although Scioto Township’s population of 1,598 remained at about its 1890 level in 1970, the services provided by Ostrander had been cut drastically. “The residents were serviced [in 1970] by a branch bank, a filling station, a post office, a restaurant, a barbershop, a grocery store, and a general equipment chain store that had taken over the old elevator site. There was no physician in the township. For supermarkets, medical service, hardware supplies, or the movies, the county seat is less than fifteen minutes away by car.” An eight-grade elementary school remained in Ostrander, but one of twenty-two school buses in Delaware County bused older students to a consolidated high school 15 miles away. Retired people formed a large percentage of Scioto Township’s residents, and its new residences were trailer-type homes. “Only one of Ostrander’s businesses in 1973 (the general equipment store) functioned to service farmers, for there was little need. Driving up and down the dusty road, one soon loses count of the weed-grown yards and rotting houses with broken windows that mark the sites of abandoned farm homes.”⁴⁷

The number of farms in Bedford County peaked at 3,627 in 1910, then declined to 3,184 in 1930, and continued to decline to only 1,292 in 1970. By that time, although 92 percent of the county remained classified rural, only 7 percent of its work force was engaged in farming, and more than half of these were part-time workers. Agriculture remained the principal economic activity of Bedford County until the opening in 1938 of the Pennsylvania Turnpike, which transects the county and passes 2½ miles north of the city of Bedford. Tourism then became the county’s “economic lifeblood.” In 1973 Bedford County’s 266 tourist-related businesses

employed over 2,000 people and pumped over \$15.6 million into the local economy.

The bulk of the economic activity occurs within a two-mile-wide belt along the turnpike, particularly at “Turnpike City” around Exit 11 and at the Breezewood Exit ten miles further east. In 1973 Turnpike City had six motels, the two largest owned by national chains, and Pennsylvania Route 220, which runs south into Bedford, was “lined with ramshackle garages with spare tires and assorted truck parts strewn along their fronts and sides.” The larger Breezewood Exit complex is located at about the midpoint of the turnpike, where it is intersected by Interstate 70, a main route south to Baltimore and Washington, D.C. The motorist coming off this exit in the early 1970s plunged onto a 300-yard-long “Million Dollar Mile” composed of 17 gasloine stations, 9 restaurants, and 21 motels. “Breezewood on a summer night may accommodate up to 4,000 overnight guests,” Shover observes. “Every now and then a bit of authentic Bedford County topsoil breaks the sea of concrete behind the service stations—it’s the place you walk your dog. Nearly every billboard advertises some national franchise, but most of the managers and employees would be listed in the rural non-farm category that now makes up the vast majority of the county’s population.”⁴⁸

With only minor variations, Breezewood is replicated in thousands of tourist traps at limited-access-highway exits across the United States. One can travel by automobile from coast to coast sleeping at a constant temperature in similarly decorated rooms and eating convenience food from the same menus. Home, too, is now much the same for middle-class suburbanites wherever they find it.

The Family Car

9

Beginning in the 1920s for the middle class and in the 1950s for the working class, automobility revolutionized the lifestyle of the typical American family. Despite the development of rudimentary automobile cultures in the advanced capitalist countries of Western Europe and in Japan in the post–World War II period, the family car remains a uniquely American institution; in the words of French sociologist Jean-Jacques Chanaron, “Except for North America, the automobile [still] is not integrated into the banality of daily life.”¹

Family togetherness was a major benefit anticipated by early proponents of automobility. “Next to the church there is no factor in American life that does so much for the morals of the public as does the automobile,” E. C. Stokes, a former governor of New Jersey and the president of a Trenton bank, claimed in 1921. “Any device that brings the family together as a unit in their pursuit of pleasure is a promoter of good morals and yields a beneficent influence that makes for the good of American civilization. If every family in the land possessed an automobile, family ties would be closer and many of the problems of social unrest would be happily resolved. . . . The automobile is one of the country’s best ministers and best preachers.”²

Intergenerational Conflict

Contrary to Stokes’s widely shared expectations, by the end of the decade it was evident that any tendency of automobility to bring the family together was ephemeral—although an increasing number of people did find the Sunday drive a preferable alternative to attending church. “No one