The Triumph of the Automobile

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If the industrialized countries of Eastern Europe are now experiencing the automobile revolution largely as a matter of highway transportation by trucks and buses, far less affected by the motor vehicle are the nations of the Third World. At the extreme, the People's Republic of China in 1980 had only one motor vehicle for every 1,135 persons, one passenger car for every 18,673 persons. Fully 88 percent of the world's motor vehicles are owned by the 17 percent of the world's population living in its most affluent countries. "In most of continental Asia today, and in much of Africa and Central and South America, the likelihood of owning a car must seem as remote to the average man as it was beyond the dreams of the farm labourers in nineteenth-century Europe," write Julian Pettifer and Nigel Turner. "Some 7 percent of the world's population own private cars and only a tiny proportion of that minority of mankind lives in the Third World. In most countries car ownerhsip is still what it always has been: the ultimate symbol of wealth and privilege." [1]

Family ownership of cars in Europe ranges from about 55 percent in Great Britain to 75 percent in Sweden, with multiple-car ownership by European families estimated at about 10 percent. Jean-Jacques Chanaron points out that "because the proportion of families owning cars can still increase and because multimotorization is just beginning, European markets are far from zero growth." Nevertheless, he observes, "Two significant factors differentiate Europe [as an automobile market] from the United States. Evident in the major European metropolises is a relative undermotorization, encouraged by the existence of public transit systems and aggravated by a 'de-motorization' movement generated and fed by problems of traffic and parking. In Paris, for example, of 100 families that could own cars, taking account of the proportion of people employed and

of age and income levels, only 64 actually do." Only about 50 percent of Japanese families owned cars as of 1980. Yet because of "some particular physical limits" of the Japanese market, Chanaron believes that "a rate of motorization equal to that of Western Europe in 1975 would lead in Japan to a total saturation of its roads, streets, and cities. Unless palliated by a major technical innovation, it would raise the level of pollution and other nuisances to an extent that the public would find unacceptable." [2]

Even in the United States, the most affluent country in the world, automobile ownership did not expand to include the urban working class until the period 1950–1970. Expansion then followed from a new level of general affluence engendered by forced savings during the war years; by the aggressiveness of unions after the war to ensure a more equitable distribution of wealth; by demand for American products to rebuild a devastated Europe; and by continuing huge government expenditures for defense, social programs, and public works. Among the latter, the most important in directly encouraging mass personal automobility was the Interstate Highway Act of 1956.

Motor vehicle registrations in the United States consequently more than doubled, from 49.2 million in 1950 to 108.4 million in 1970—by which date only 17 percent of American households lacked personal automobility, and the market for new cars appeared to be approaching saturation. Growth in new-car sales slackened during the 1970s, especially as the cost of personal automobility increased with escalating fuel prices following the 1973–1974 and 1979 oil shocks. By 1980 some 87.2 percent of American households owned one or more motor vehicles, 51.5 percent owned more than one, and fully 95 percent of domestic sales were for replacement. Automobile ownership in the United States, then, has spread to all except the hard-core poor, people too infirm or too handicapped to drive, and those who prefer alternatives to individualized automotive transportation.

Public Policy and the Decline of Public Transit

By 1956, when the Interstate Highway Act was passed, the railroads' share of common-carrier passenger miles had declined to 34.9 percent, the electric interurbans' share to an infinitesimal 0.3 percent. More important, in the words of George W. Hilton and John S. Due, "all common carriers were being dwarfed by the automobile, which was rapidly approaching a figure of 90 percent of all intercity passenger miles. Examiner Howard Hosmer of the Interstate Commerce Commission, in a widely cited report, suggested that at the average rate of withdrawal of railroad passenger

service trains in the postwar era, passenger service other than commutation would be non-existent by 1970." [3]

The triumph of the private passenger car over rail transportation in the United States was meteoric. Passenger miles traveled by automobile were only 25 percent of rail passenger miles in 1922 but were twice as great as rail passenger miles by 1925, four times as great by 1929. Meanwhile, the total volume of travel in the United States expanded over fivefold during the twenties.

Regular intercity motor bus service developed concurrently with intercity travel by private automobile. It was extended and consolidated during the 1920s, Greyhound and National Trailways emerging as the most important highway common carriers. But the bus could not compete with the car any more than could rail transportation, regardless of cost efficiency.

Convincing testimony that cost efficiency was not enough to keep common carriers competitive with the motorcar was provided to the California Railroad Commission in 1936 by officials of both Pacific Greyhound and the Southern Pacific Railroad, which owned a 39-percent interest in Pacific Greyhound as well as a controlling interest in the Pacific Electric interurban railway. W. E. Travis, president of Pacific Greyhound and a member of the board of directors of the Greyhound Corporation, told the commissioners, "Regardless of service or rates, there are certain classes who will not use the bus lines. There is a large group of people who might be called nontravelers who, if they travel at all, do so infrequently, if only a short distance, and then by private car.... The greatest number of travelers at the present time are those who use their private cars." Lee D. Jones, general manager of Pacific Greyhound and a former Southern Pacific executive, amplified the point: "The private automobile is used more for convenience and pleasure by the person driving than because of the cost of operation.... Even with commute rates as low as two thirds of a cent a mile given by railroads in suburban territories, nevertheless there are hundreds of people in these districts driving back and forth to work and disregarding what rates have been placed into effect; the railroads have not been able to draw these people back to the trains." Buses faced the same problem. "You will find on the road between San Francisco and Los Angeles or between Los Angeles and San Diego, hundreds of people traveling in private automobiles daily, even though our round-trip [bus] rates are less than one and one-half cents a mile. The same conditions exist in the moving of labor, such as fruit pickers, lettuce workers, and others, who either use their machines to transport their families or go in together and buy machines to travel from place to place." [4]

One of the big losses in railroad patronage to the motorcar during the

1920s had been the traveling salesman, or "drummer." To attract this category of "commercial traveler" to intercity bus service, in mid-1936 Pacific Greyhound introduced $10 scrip books good for 700 miles of travel over a six-month period. The books obviated having to purchase tickets and made the average rate for highway travel only 1.4 cents per mile. Yet the firms approached by Pacific Greyhound's marketing people showed little interest, and only 180 books were sold over a three-month period. Jones explained: "We are constantly told that no matter if we make our fares one-half cent a mile they would still prefer the use of the private car for their business, explaining that it is not conceivable that any common-carrier service can be made to equal the necessary flexibility for travel by the commercial man.... The commercial man is on the road to get business for his firm and to sell its commodities, and the saving in transportation does not justify any slowing down of the speed in the making of sales."

These men claimed, then, that the private passenger car had won out over mass transit not because it was cost-efficient or technologically superior but because travelers preferred the freedom and convenience it gave them. Other evidence, however, suggests that the promotion of highway transportation by special-interest groups and resulting public policy decisions were perhaps more important to the decline of public transit than consumer choice in a free market.

Regulation remained a constraint on profitable operation as the unregulated motor vehicle cut into the business of short-haul passenger traffic. The interrelationship between regulation, competition from the motor vehicle, declining service, and declining ridership was an extremely complex, chicken-and-egg problem. The Hoover committee in 1929 pointed out, for example, that the loss of commuters in suburban traffic to motorcars "brought about curtailment of train service or abandonment of branch lines, when such action is permitted by the regulatory authorities, and the effect of poorer railway service has been to stimulate the transfer of passengers to the highway."[5]

Notably, the Federal Coordinator of Transportation in 1935 traced operating losses in railway passenger service not to the cost efficiency or technological superiority of the motorcar but to poor business practices. He reported, for example, that "railway passenger service operating loss in 1933 was due: to a service lacking in popular appeal; to ineffective sales promotion; and to preventable wastes in baggage service, in handling head end traffic, in duplication of terminal and station operations, in utilization of oversized power and equipment and of excessive and unnecessary number of cars in the trains, in improvident local train service, in competitive

duplication of limited trains and sleeping and parlor car accommodations, and in the prodigal operation of dining and buffet services."[6]

The evidence presented by Hilton and Due similarly suggests that the electric interurbans failed for a complex set of socioeconomic, as opposed to technological, reasons. The case of Pacific Electric demonstrates that some of the more important interurbans were conceived as adjuncts to real-estate development schemes rather than as transportation companies expected to make a profit in their own right. They were irrationally overbuilt and were overcapitalized with heavily watered stock. They faced problems in obtaining right-of-way. In contrast with motor vehicles, which ran on roads paid for by the public, electric trains used roadbed, rails, and wires built and maintained as a business expense. Finally, the electric interurbans were overly regulated by government, so that unprofitable operations could not be terminated and fares and rates could not be raised to levels that ensured a reasonable return on invested capital. Given such a formidable set of problems, it is a wonder that the interurbans lasted as long as they did. Most lost money for several years before folding. Pacific Electric, the largest intercity electric traction system in the United States, hung on until 1961, when the last train was discontinued on the Los Angeles–Long Beach line.

"With approval or dismay, scholars of the motor age have described the rise of individual transportation as a result of several factors, most of which were beyond anyone's control," Paul Barrett complains. In a 1975 article on the decline of public transit and the triumph of the automobile in Chicago between the world wars, he demonstrates that "some factors that we might be inclined to take as givens (in particular technical progress and 'middle class aspirations') turn out to be in part the results of public decision making." These decisions were "grounded in the popular conception of transit as a private business and the automobile as a public good." The evidence demonstrates "that distance from central place and the presence of good single family housing are better correlated with declining transit ridership than is the quality of service." His conclusion is that Chicagoans "changed their mode of transportation for reasons which often had little to do with either transportation or technology." The argument is only slightly qualified in his 1983 book. "Certainly a different local transit policy in Chicago would not have prevented the rise of the automobile," he concedes. "It might, however, have provided alternatives for the urban commuter."[7]

This first case study of the triumph of the automobile over electric traction in a major American city is instructive. Eschewing both unregulated free enterprise and municipal ownership, Chicago in 1907 adopted municipal ordinances defining mass transit as a regulated, pri-

vately owned business, which was expected to make a profit on operations and pay taxes. Although the 5-cent fare was sacrosanct, the transit companies were guaranteed a 5-percent return on capital investment—a commitment that encouraged overcapitalization through the retention of worthless securities and keeping outdated equipment on the books. The city received 55 percent of the transit companies' net profits, which resulted by 1935 in an additional transportation cost exceeding $188 million to Chicago streetcar riders paying 5-cent fares. This unnecessary expense was greater than the entire inflated value of the Chicago Surface Lines in 1930, and over $155 million of it was diverted to nontransit purposes by Chicago's commercial-political policymakers. The Board of Supervising Engineers empowered to regulate the transit companies proved ineffective, and the system of mixed public and private controls served only to retard the adoption of transit innovations, including even the replacement of streetcars with motor buses. Furthermore, mass-transit planning was effectively divorced from overcall city planning with the implementation after 1909 of Daniel Burnham's Plan of Chicago by the business-dominated Chicago Plan Commission.

As the prospects for direct profits from fares diminished in the 1920s, private investors became reluctant to provide capital for improvements in transit service. As early as 1917, New York, Boston, and Philadelphia were subsidizing mass transit, and these cities have retained viable systems to the present time. But like the overwhelming majority of American cities, Chicago failed to follow their lead. Consequently, the financial community, which passed judgment on the viability of traction securities, came to set the terms for transit policy in Chicago. The hegemony of the bankers was confirmed when the Chicago Surface Lines went into receivership in 1972. A committee of bankers, organized by utility magnate Samuel Insull, worked out an arrangement to refinance the company. Ratified by Chicago's voters in a "traction referendum" of July 1, 1930, this arrangement gave the company a permanent franchise, failed to provide for effective regulation, and belatedly ended the fixed fare and compensation provisions of the 1907 ordinance. Barrett believes that because "municipal ownership in any meaningful sense had been ruled out, the 1930 agreement was probably the best the city could have obtained. It at least freed transit to operate like other businesses—adjusting fares to costs and making, if it could, an attractive return. If mass transit could not become, like the street, a genuine public responsibility, it might at least attract needed investment as a genuine private enterprise."[8] But the change had come at least two decades too late.

In contrast to mass transit, in Chicago and in all American cities the private passenger car was massively subsidized by publicly funded street

improvements to accommodate automobile traffic. This accommodation antedated by a generation or more the motorization of the urban working class. So working-class streetcar riders in effect were taxed by city planners and politicians to make possible middle-class automobile use. Unlike public policy toward mass transit, public policy toward the automobile was directed simply at solving practical problems of traffic congestion and public safety. Whereas the regulation of mass transit most often was destructive of its continuance, "traffic regulation [of automobiles], initially negative, soon became positive and accommodative, because it dealt directly with a large and growing group of citizens, and because the mutual adjustment of the city and the automobile presented the city with an urgent problem of pressing concern to important interest groups."[9]

Providing the automobile an infrastructure of vastly improved city streets was not cost-effective in comparison with what it would have cost to provide excellent urban mass transit. In his defense of the unlimited accommodation to the motorcar by city planners, even Mark Foster points out that "Chicago spent the staggering sum of $340 million over a thirty-year period [from 1910 to 1940] on street widening alone, to little avail. That was more than twice the estimated cost of a comprehensive subway system at 1923 prices." The shortsightedness of New Deal "planning" is also painfully evident, for Foster further notes that "the WPA [Works Progress Administration] provided ten times as much assistance to street and highway projects as it did to mass transit."[10]

The most extreme statement of the case that the automobile's ascendancy over mass rail transit in cities was not primarily the result of consumer choice in a competitive market was made in 1974 by Bradford C. Snell, assistant counsel to Senator Philip A. Hart's antitrust subcommittee investigating the restructuring of the automobile and ground transportation industries. Snell alleged that General Motors had played a dominant role in a "conspiracy" that had destroyed a hundred electric surface rail systems in forty-five cities between 1932 and 1956. This was part of a far larger attack on GM, which included allegations that the corporation had collaborated in the Nazi war effort during World War II and that it had pressured the railroads into adopting diesel locomotives that Snell claimed were less efficient than electric-powered ones. GM refuted all of Snell's charges.[11]

In 1925 GM acquired Yellow Coach, the largest manufacturer of both intercity and intracity buses in the United States. By the early 1930s Yellow Coach was also the nation's largest producer of pneumatic-tired trolley coaches—vehicles that ran on the pavement but were powered from overhead electric wires like streetcars. GM also was the largest

stockholder in the Greyhound Corporation until 1948 and had formed a holding company called the National Highway Transport Corporation (NHTC) to provide intercity bus service in the Southeast. NHTC became Altantic Greyhound Lines. By mutual agreement Greyhound bought only Yellow Coach buses; and after 1928, Snell contended, GM began a policy of "pressuring" railroads into replacing commuter rail service with jointly owned Greyhound-railroad bus routes. GM maintained an active role in Greyhound management and in 1932 arranged for a million-dollar cash loan to the financially troubled intercity bus company.

GM entered intercity bus operations with the formation in 1932 of United Cities Motor Transit (UCMT). In 1955 GM general counsel Henry Hogan testified before the Senate Judiciary Committee that UCMT had been created after GM "decided that the only way this new market for [city] buses could be created was for it to finance the conversion from streetcars to buses in some small cities." A few small cities in Michigan and Ohio were motorized, and Hogan observed that "in each case [GM] successfully motorized the city, turned the management over to other interests, and liquidated its investment." In 1935 UCMT was dissolved after being censured by the American Transit Association for attempting to motorize Portland's electric transit system.

According to Snell, the turning point in the decline of electric traction in cities came with the motorization of New York City's surface lines by GM and the Omnibus Corporation in 1935. John Ritchie was simultaneously chairman of Yellow Coach and president of Omnibus, which in addition was linked to the GM-controlled Hertz Corporation. The switch from electric streetcars to buses in New York City was largely completed in only eighteen months, but the last streetcar did not disappear until 1957.

In 1936 National City Lines (NCL) was formed by a combination of equipment suppliers headed by GM, Standard Oil of California, and Firestone Tire and Rubber. The purpose of this holding company was to motorize urban transit systems; its operating pattern was the same as that pioneered by UCMT. Streetcar companies were bought up, then resold after being motorized. Snell alleged that the sales contracts prohibited the new owners from purchasing any transit equipment powered by anything other than gasoline. The contracts did not, however, require the purchase of GM buses or other suppliers' products. Yellow Coach abruptly curtailed its production of electric-powered trolley buses in 1938 in favor of new diesel-powered buses. In 1938 Pacific City Lines (PCL) was organized as an NCL affiliate to motorize West Coast streetcar systems, beginning with those in Fresno, San Jose, and Stockton, California. In 1943 American City Lines (ACL), another NCL affiliate, was formed, which in four

months began the conversion to buses in nineteen more cities, including the dismantling of Pacific Electric in Southern California. At a cost of $9 million, NCL had motorized the street railway systems of the major cities in sixteen states by 1950. GM terminated its NCL affiliations in 1949.

After they could no longer pay their way, eighteen NCL properties were sold to municipal transit districts at high profits. These included the Los Angeles Transit Lines in 1958 and the Key System, which served the Oakland and East San Francisco Bay area, in 1960. NCL realized $6.5 million from the Los Angeles sale and $5.1 million from the Key System transactions. In these and other cases the municipal transit districts had to subsidize the systems that they had acquired. A particularly sore point was that the Key System tracks on the lower deck of the Bay Bridge had been torn up and the right-of-way paved for highway transportation at the very time when the newly formed Bay Area Rapid Transit District (BART) was seeking a trans-bay route for its trains.

GM responded in detail to Snell's "false and damaging claims." As we have seen in an earlier chapter, the company made a strong rebuttal to the allegation of collaboration with the Axis in World War II. GM similarly presented convincing evidence that Snell's other charges were untrue and that the corporation had not had "a destructive impact on mass transportation in this country." It was pointed out, for instance, that an exhaustive investigation by the U.S. Department of Justice had exonerated GM completely on charges that the corporation had used its power as the nation's largest shipper to pressure railroads into switching over to diesel locomotives. Evidence was also cited that the diesel locomotive was a progressive new product that had revolutionized the railroad industry.

As for electric traction in cities, GM claimed that it had been in decline long before NCL was formed, and that flexible buses were a substantial improvement over less efficient streetcars running on fixed rails. Pacific Electric, for example, had begun to curtail rail passenger service as early as 1917. It "steadily expanded its motor bus operations in the 1920s and 1930s," and "by 1939, the year before it is claimed that GM had any role in acquiring the system, over 35 percent of the total passenger miles were on buses." Rail passenger losses over the system except for 1923 and the war years 1943 and 1944 "were a financial catastrophe."

Documentation was found in "the literature of the time" that demonstrated "why the public favored the bus." Contrary to Snell's contentions, the motor bus "provided greater cost efficiency and operating flexibility." It was estimated that the average motor bus in New York City could operate at about four fifths the cost of a streetcar. In 1936 Mayor Fiorello La Guardia had welcomed "modern buses replacing anti-

quated trolleys" and "removal of the remaining obsolete traffic-obstructing trolley lines."

Whatever problems the Key System may have had in the 1950s under NCL control were not GM's responsibility, for GM had terminated all of its supply contracts with and investment in NCL in 1949. Furthermore, prior to the acquisition of the Key System by NCL in 1946 a number of contracts for the removal of tracks and the repaving of city streets had been approved by the Oakland City Council, and the decision to remove the tracks from the lower deck of the Bay Bridge was made by the state government, not NCL. "General Motors did not generate the winds of change which doomed the streetcar systems," the corporation claimed in its defense. "It did, however, through its buses, help to alleviate the destruction left in their wake. Times were hard and transportation systems were collapsing [in the 1930s]. GM was able to help with technology, with enterprise and, in some cases, with capital. The buses it sold helped give mass transportation a new lease on life which lasted into the postwar years."

That the demise of electric traction had begun more than a decade before the formation of NCL is incontrovertible. Still, the streetcar remained a more important carrier of passenger than the motor bus until World War II. The trolley coach became a contender only in the vastly reduced public transit market of the mid-1950s. In 1937 some 7.161 billion passengers rode streetcars in the United States, versus 3.489 billion motor bus passengers and a mere 289 million trolley coach passengers. By 1942 streetcar passengers barely exceeded motor bus passengers, 7.290 billion to 7.245 billion, and trolley coach ridership had tripled to 898 million. Motor bus riders exceeded streetcar riders in 1947, 10.2 billion to 8.1 billion, and trolley coach ridership had quadrupled to 1.3 billion. By 1955 all modes of public transit were in decline. Streetcars experienced the sharpest drop in patronage, while trolley coaches were affected the least. In 1955 some 7.250 billion passengers were carried by motor buses, versus only 1.207 billion by streetcars and 1.202 billion by trolley coaches.

Clearly it was not the shifting of passengers from the streetcar to the comparatively cost-efficient motor bus that killed off public transit. Neither was it the failure to shift them to the still more cost-efficient trolley coach. The culprit was the costwise highly inefficient private passenger car, which in the 1950s began making dramatic inroads into ridership on all modes of public transit. From this perspective the conversion of transit systems to motor buses was, as GM claimed, a stopgap measure that permitted them to survive during a period of transition to almost complete auto dependence.

The Highway Lobby

The conversion of urban transit systems to motor buses by GM and other automotive suppliers was not intended as an end in itself, suggests David James St. Clair; rather, it was an entering wedge in a far broader campaign to expand greatly the ownership and use of automobiles in cities. In response to market saturation in the late 1920s, St. Clair claims, "progressive leaders, such as Sloan at GM, engineered a campaign designed to alter the environment in which automobiles were sold. The goal was to reorder society to accommodate increased automobile use and ownership, and therefore increased automobile production. The objective was to create a different social environment in which the automobile would play a larger role." Because farmers were already entirely auto-dependent and a disappearing breed, there was only one place to seek more customers. "In order to augment sales and overcome the saturation of the market, American cities had to be opened up to the automobile, i.e., made compatible with the automobile," St. Clair contends. "This required the construction of an urban freeway network and the suppression of competing modes of transit. The industry was aware of this and actively pursued this policy through its lobbying for urban freeways and through its activities in destroying public transportation."[12]

The automobile industry's great stake in urban freeways was acknowledged in testimony given in 1955 before the House Public Works Committee by James J. Nance, president of both the Automobile Manufacturers Association (AMA) and Studebaker-Packard. Nance was testifying in favor of a complete interstate highway system, including controversial urban freeway portions. He forthrightly acknowledged: "Obviously we have a selfish interest in this program, because our products are no good except on the road. Unless we know that there is going to be an expansion of the roads of this country and an expansion to take care of the saturation which we are rapidly approaching on our present highway system, it is very difficult for us to plan over the next ten years as to what our expansion is going to have to be."[13]

A 1961 study entitled *Future Highways and Urban Growth,* commissioned by the AMA and undertaken by Wilbur Smith and Associates, a New Haven consulting firm, made clear why urban freeways were essential to the expansion of the automobile industry. Seventy-one percent of the American population already lived in major metropolitan areas in 1960, and it was projected that 78 percent would by 1980. Growth in urban areas was strongest in the suburbs, while the percentage of population living in central cities had remained relatively constant. Clearly, it was

the urban market that was expanding. And it was in cities that automobile ownership and use were lowest.

"Los Angeles had become the auto industry's prime example of what a city could become," St. Clair observes. "As a result of freeways and the decline of public transit ridership, Los Angeles clearly stood out as an exception to the usual pattern of urban auto ownership." Los Angeles in 1949 had one car for every family, or for every 2.5 people. In contrast, Chicago had one car for every 1.5 families or 5.1 people, New York City one car for every 2.5 families or 8.7 people. St. Clair assumes that "the Los Angeles ratios were indicative of the potential market across the country." He estimates that if the Los Angeles ratios had been approximated in the 95 largest population counties in the United States, 8,198,256 additional vehicles would have been owned on the person-per-car ratio or 5,002,881 additional vehicles on the family-per-car ratio over actual 1949 registrations of 13,161,275 automobiles.[14]

As Nance testified, urban freeways were essential to the realization of these possibilities. Freeways would help disperse the population into outlying areas not served by public transit. "Density and income being equal, fewer cars are owned and used by persons living near the central city than those in outlying areas," Wilbur Smith's study observed. "Quality of public transportation is a factor since areas with efficient and frequent public transit often have lower car ownership and use than areas with poor transit service. High-density areas are often in proximity to employment and commercial outlets, thereby minimizing the need for private transportation." Furthermore, Smith found, "freeway users travel almost three times as far as other urban drivers." He anticipated that "by 1980, up to 16 percent more vehicle miles of travel will result from the use of urban freeways than if there were no freeway systems."[15] This increased use combined with increased ownership would have an exponential impact on replacement demand for cars as well as on sales of gasoline, lubricants, tires, and parts.

Although toll express highways were operating profitably in the urbanized East, James Cope, the vice-president of Chrysler, explained in 1953 testimony to Congress on behalf of the AMA that "no method has ever been devised to adapt the toll principle to urban highway needs."[16] Relatively long driving stretches between toll collections were necessary if roads were truly to be express highways. Keeping toll collection to a minimum in turn required much more limited access than freeways allowed. Consequently, toll roads generated only about 30 percent new traffic, as opposed to 60 percent for the tax-supported "free" express highways that the auto makers lobbied for and obtained in 1956.

As downtown traffic congestion grew into a problem during the

1920s, improving city streets to accommodate increasing automobile traffic had become an important goal of automobile interests. Yet, as Foster points out, "while the automobile industry consciously and aggressively created urban markets, it made no particular effort ... to promote the car as a commuting tool for urban workers." Indeed, it was widely assumed, particularly in electric traction publications, "that the automobile alone could never provide sufficient transportation for all family members in a modern city" and that "most urban trips would continue to involve mass transit." Moreover, the increased use of the motorcar in urban transit was promoted by several special-interest groups other than the automobile manufacturers—chambers of commerce anxious to boost tourism, realtors who "perceived the automobile as creating more investment and sales opportunities," highway engineers, and landscape architects who gained contracts and commissions from better access to public parks. These groups could count on a broad base of popular support. Bond issues to improve city streets were approved by voters with monotonous regularity.[17]

Nevertheless, there was virtually no interest in urban freeways outside Southern California, where construction of them only began in earnest after World War II. The first publicly financed limited-access highway, as well as the first urban freeway, was New York City's Bronx River Parkway, completed in 1923. Following this, city planner Robert Moses began to link parts of the New York City park system together with automobile parkways. As late as 1941, however, as Mark H. Rose reports, highway planning for the postwar years was considered vital by American leaders primarily because "road construction, if done expeditiously and located properly, would open up jobs. Beginning around 1942, a few Americans focused on more grandiose projects."[18]

The Southern California freeway system was first proposed in the 1937 Traffic Survey of the Automobile Club of Southern California and was made possible by state legislation passed in 1939. Of the entire California freeway system, only six miles of the Arroyo Seco Parkway (now the Pasadena Freeway) were finished by the outbreak of World War II, and postwar progress in completing the system was much slower than is now generally recognized. For example, the San Diego Freeway was not extended over the Santa Monica mountains into the San Fernando Valley until 1962, and the western end of the Santa Monica Freeway was not completed until 1964.

The postwar highway lobby formed in the 1930s. In 1937 the AMA organized its safety division into an "independent" Automobile Safety Foundation (ASF), which, as St. Clair reports, "never really supported vehicle safety legislation at either the state or federal level" but "never

missed an opportunity to promote highways." From 1939 on, it was "one of the automobile industry's most active lobbying organizations, testifying at Congressional hearings far more often than the AMA." [19]

To prevent the diversion of gasoline taxes to other purposes during the Great Depression, Alfred Sloan conceived the National Highway Users Conference (NHUC) in 1932. He remained its chairman until 1948, when he was succeeded in that role, as later in the position of chairman of General Motors, by Albert Bradley. From 1946 until passage of the 1956 Interstate Highway Act, the NHUC coordinated the lobbying activities of highway transportation interests. It boasted some three thousand member groups but was dominated by GM. In 1951 the NHUC launched Project Adequate Roads to publicize the need for an interstate highway system. The NHUC merged with the ASF in 1969 to form the Highway Users Foundation for Safety and Mobility (HUFSAM).

Additionally, an informal group of highway transportation interests that Helen Leavitt dubs "the Road Gang" began meeting Tuesdays for lunch and holding round-table discussions on postwar highway legislation in 1942. The group had some 240 members, including representatives of the automobile manufacturers and dealers, automobile clubs, oil companies, truckers and the Teamsters Union, highway engineers, and state highway administrators. The Road Gang was secretive about its activities, so little is known about the group.

Even though about 80 percent of war materials in World War II had been moved by rail, the alleged strategic need for an interstate system for national defense became the main argument of the highway lobby. In 1956 the official name of the system became the National System of Interstate and Defense Highways. National defense was the major justification for increasing the federal share of funding from the 60–40 ratio in the 1944 Federal Aid Highway Act to 90–10 in the 1956 Interstate Highway Act and for permitting federal funds from general tax revenues as well as special user taxes to be used for building the system. St. Clair and Leavitt both demonstrate convincingly that, contrary to the contention of the Road Gang, the Interstate System was never essential to national defense.

St. Clair also calls attention to the circular reasoning of the arguments made by the automobile industry that urban freeways were essential to the accommodation of future automobile traffic. His point here is that while the industry's projected increases in urban travel provided its rationale for urging that urban freeways be part of the Interstate System, the projected increases assumed the completion of the urban freeways being argued for. And Leavitt makes a particularly strong case against the claim that the urban freeways were needed to alleviate traffic congestion.

Even the Road Gang was divided over whether urban freeways should be part of the Interstate System. Long-distance truckers were interested only in a system of interconnected, through highways and opposed diversion of funds either to rural secondary routes or to urban freeways. Conversely, the automobile industry considered urban freeways central to the proposed Interstate System. A smaller point of disagreement was the extent to which urban freeways should be conceived in the context of urban planning and urban reform. "Since federal and state road engineers controlled the program, they had few incentives to include urban renewal, social regeneration, and broader transportation objectives in their programming," Rose reports. "Their task, as they saw it, was one of promoting traffic efficiency by constructing roads.... Basically, then, traffic patterns of motorists and truckers and decisions of engineers determined the outlines of Interstate construction." The more significant differences among highway interests were reconciled "after they lost legislation in Congress [in 1955] because of differences over the details of finance. By 1956, the press for more roads and a bill which asked few sacrifices, especially from major truck operators, dissolved these differences." In brief, true to the American pragmatic tradition of pork-barrel politics, everyone got the roads they wanted once the problem of funding had been resolved by providing to pay for the system out of a nondivertible Highway Trust Fund collected from special user taxes. "The 1956 Highway Act, which authorized stepped-up construction of the national expressway system and hearty and regular increases in aid for building urban, primary, and farm-to-market roads, emerged from this social and political milieu," Rose concludes. "It was a highway building program pure and simple, one which federalized state and local road building practices and ideals." What the highway interests "managed to secure, then, was federal funding for localistic and largely impermeable commercial and professional subcultures."[20]

Passage of the 1956 Interstate Highway Act ensured the complete triumph of the automobile over mass-transit alternatives in the United States and killed off, except in a few large cities, the vestiges of balanced public transportation systems that remained in 1950s America. Because they were not conceived as parts of broader metropolitan area plans, the urban freeways constructed as a major part of the Interstate System bisected and destroyed a number of cohesive urban neighborhoods and some city parks, at great social cost and public expense.

The lion's share of funding for the Interstate System came from special use taxes on cars, gasoline, tires, lubricants, and parts paid into the Highway Trust Fund, which could be used only for highway expenditures

until August 13, 1973. On that date President Richard M. Nixon signed a compromise $22.9-billion highway aid bill providing for the first diversion of the fund to urban mass transit and extending the timetable for completion of the Interstate System to June 30, 1979. By the time the sacrosanct Highway Trust Fund was broken, 82 percent of the Interstate System was completed, and another 16 percent was under construction. With the nation facing an imminent fuel shortage and a long-term energy crisis, President Nixon called for decreased automobile use and imposed a national 55-mph speed limit over the system's 80-mph express highways.

United States Highway Administration data for 1977 reveal that transportation by private passenger car accounted for some 83 percent of all trips made in the United States, versus only 2 percent by bus and streetcar, 0.3 percent by subway and elevated rail transportation, and 0.5 percent by "other" public transportation, including trains, airplanes, and taxis. For domestic automobiles in 1981, principal use was 44.7 percent to and from work, 31.7 percent local transportation, 15.2 percent pleasure trips, 9.6 percent business use, and 1.7 percent travel to school.

American versus European Highway Policy

Viable cost-efficient rail transportation, including the Paris Métro in France and urban mass transit in Germany, persists in Europe despite relatively high levels of automobile ownership and use. And in Japan, world leadership in automobile production and an automobile culture coexist with excellent mass transit, exemplified by the bullet trains, which are also subsidized. These facts unequivocally demonstrate that mature automobile cultures are compatible with excellent mass-transit systems. Why then did the automobile revolution end up virtually wiping out urban mass transit and rail passenger service in the United States?

A comparative analysis of European and American transportation policies by James A. Dunn, Jr., suggests some answers. He contrasts the European policy paradigm of centralized, authoritative planning with the American paradigm of relying on the invisible hand of the market. Rail transportation in France and urban mass transit in West Germany historically have been viewed not as commodities exchanged for profit in a competitive marketplace but as social services to be provided by government on the basis of rational planning. This has meant that the development of highway transportation in Europe has been coordinated by the state to be complementary to rather than competitive with the railroads and with urban mass transit. Rail and urban mass transit are subsidized from very

high gasoline taxes that additionally tend to curb automobile use. And highway systems are not extended or improved beyond points compatible with railroad networks. Europeans have been especially reluctant to build urban freeways.

Dunn's comparison of highway policy in Great Britain and in the United States is particularly instructive. Unlike the purchase of automobiles by individuals, which falls within the American conception of transportation choice being determined in the marketplace, providing the infrastructure of highways and streets essential for automobile use requires centralized planning here as well as in Europe and emanates from political decisions and the political process, not the market. What needs to be accounted for is why, unlike European governments, the federal, state, and local governments in the United States have consistently provided massive funds for building the world's best highway infrastructure, to the virtual exclusion of aid for the rail infrastructure. The answer lies in the historic nondivertibility of highway revenues collected from gasoline and other special user taxes.

Paradoxically, the principle of nondivertibility was innovated not in the United States but in Great Britain, when a bargain was struck between the government and upper-class motorists in debate over the 1909 Development and Road Improvement Funds Bill. The bill provided for a 3-pence-per-gallon tax on imported gasoline and a graduated horsepower tax, to be administered by a central board and spent on roads. Chancellor of the Exchequer Lloyd George explained to Parliament that the motorists were "willing and even anxious to subscribe to such a purpose, so long as a guarantee is given in the method and control of expenditure that the funds so raised will . . . be devoted exclusively to the improvement of roads." As Dunn observes, however, "there was a crucial difference between this British style of earmarking and the subsequent American methods. The promise to spend motor vehicle and motor fuel tax revenues only on roads was made in Parliament and was thus on the public record, but it was not written into the law! . . . [N]owhere in the law was it stipulated that the Road Board had to spend all the funds it received. Nor did it specifically prohibit the government from withdrawing all or some of the unspent road funds and using them for other purposes."[21]

The gentlemen's agreement between Parliament and British motorists was broken in 1926 by Chancellor of the Exchequer Winston Churchill, who called the idea of a nondivertible road fund "nonsense," "absurd," and "an outrage upon the sovereignty of Parliament and upon common sense." Beginning in 1926, Churchill used the accumulated surplus from the Road Fund to meet general obligations, and he intro-

duced new taxation policies whereby the entire gasoline tax and a third of the horsepower tax on cars were to be paid each year directly into the treasury instead of into the Road Fund. In Dunn's words, "This left the fund with a much narrower revenue base and the precedent that unspent balances could be taken by the treasury at any time."

As a result of these policies, the percent of highway revenues expended on highways in Great Britain declined from a low 60.3 percent in 1950 to only 34 percent in 1970, versus the 100-percent expenditure of nondivertible highway revenues on highways in the United States. Consequently, by 1973, when the Nixon administration ended nondivertibility of the Highway Trust Fund, Great Britain had 70.5 motor vehicles per mile of road and a viable mass-transit system, versus 30.7 motor vehicles per mile of road and public transit in ruins in the United States.

"Most contemporary critics of highway policy have focused their attention on the federal government's Highway Trust Fund," Dunn points out. "But one should remember that the state funds collect and earmark twice as much money as the federal fund. In 1972, for example, the states collected $11.2 billion in highway-user taxes, while the federal government collected slightly less than $5.4 billion." As we have seen, gasoline taxes, collected in all states by 1929, had become the main source of revenue for highway expenditures in the United States. "Coalitions of state automobile clubs, taxpayers' associations, and road user groups, aided by their national affiliates and groups sponsored by the auto industry itself, worked to promote ironclad earmarking," Dunn writes; "their favorite device was to insert an amendment into the state constitution." Minnesota became the first state to adopt an earmarking amendment in 1920, and by 1962 sixteen states had done so. "In states where an amendment was not possible, earmarking schemes based on normal legislation were introduced. In 1974 forty-six of the fifty states had specially earmarked highway trust funds."

Earmarking not only came late—well after a mature automobile culture had developed in the United States—but cannot be considered a manifestation of some unique American affection for the road and the car. Both at the state level beginning in the 1920s and at the federal level after 1934 and especially in the 1950s, the nondivertibility of highway revenues was achieved by the lobbying efforts of special-interest groups of highway users, especially the automobile industry and the automobile clubs, at a time when almost half of American families did not own automobiles and were therefore dependent on some form of public transportation. Thus, the irrational proliferation of the American automobile culture during the period 1956–1973, and the concurrent destruction of alternative transpor-

tation systems, cannot be explained away as the choice of consumers expressed in a free market, as the inevitable result of the superiority of the road and the private passenger car over other modes of transit, or as the ultimate consequence of a mystic and mythical American love affair with the automobile.

Decline and Resurgence

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"When the history of the automobile is written, scholars will necessarily focus careful attention on the crucial period of the late sixties and the early seventies," John Jerome predicted in 1972. "During that period the largest industry the world had ever known ... peaked out. The automobile industry began to die." Jerome considered the railroads to have been "the ultimate example of a throwaway economy." However, he thought that "automobiles have a shorter past and a shorter future. It is unlikely that public control of corporate excess will become powerful enough to kill the automobile so long as there is any profitability to be wrung from it. But as our technology becomes more sophisticated, so does our cost accounting, and new costs—social ones—are being fed into a ledger at a much faster rate than new areas of automotive profitability can be discovered." His conclusion was, "The automobile must go." [1]

Jerome's book was one of the more important in the "death of the automobile" literature that enjoyed a brief vogue in the early 1970s. Other noteworthy titles were Helen Leavitt's 1970 *Superhighway—Super-Hoax*, Kenneth Schneider's 1971 *Autokind vs. Mankind*, Ronald Buel's 1972 *Dead End*, and Emma Rothschild's 1973 *Paradise Lost*. Up to this point, as we have seen, the complaints against the American automobile culture appearing between hard covers had been overwhelmingly consumer-oriented and directed against the automobile industry rather than the road and the car in themselves. John Keats's *The Insolent Chariots*, the most notable and outspoken, was a biting satire on Detroit's styling excesses and shoddy marketing practices. Ralph Nader's 1965 *Unsafe at Any Speed*, the most influential, was a narrowly based attack on the automobile industry that did not question the benefits of mass personal automobility per se. The critics of the early 1970s, in contrast, saw the ending of what Roth-