

# The HIGHWAY and the CITY

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**T**O THOSE WHO HAVE ENCOUNTERED modern urban traffic congestion (and who hasn't?), it may provide some small comfort to learn that the problem is at least as old as ancient Rome.

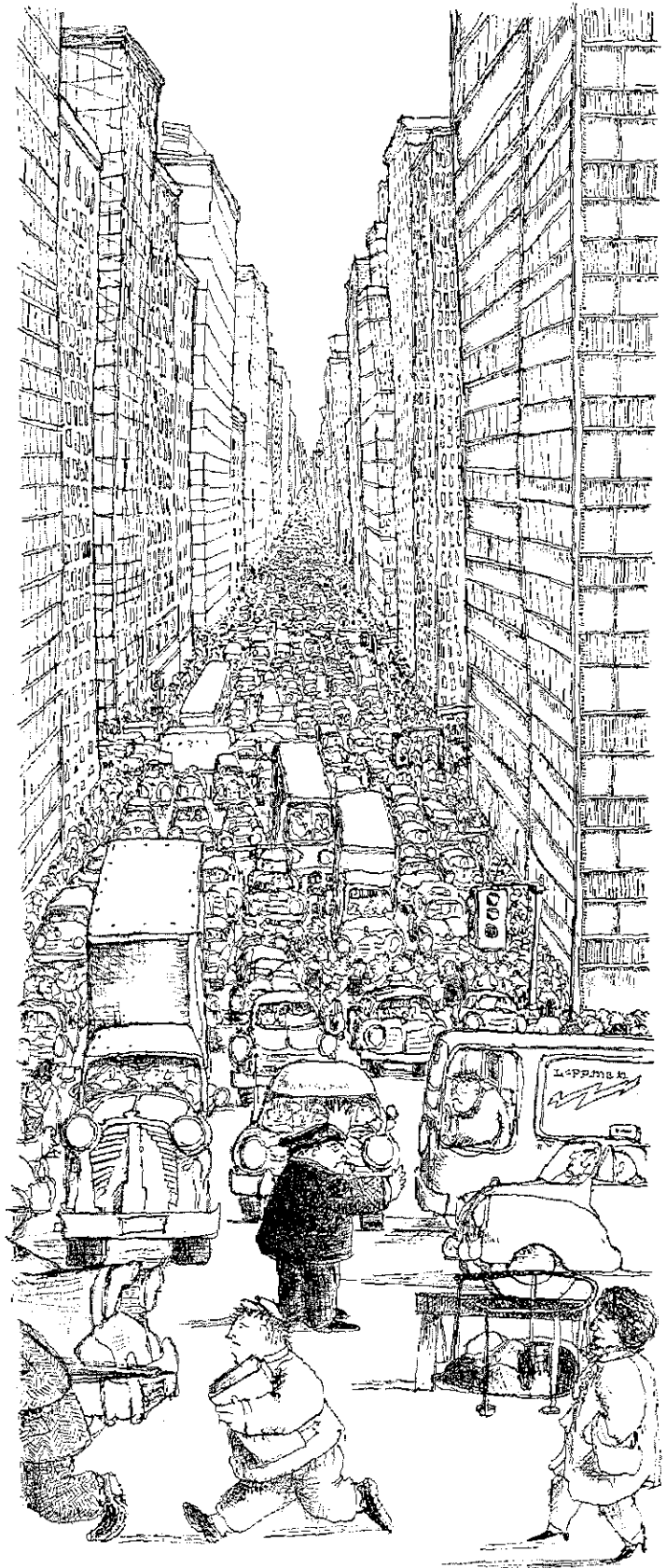
Gaius Julius Caesar won fame as general, statesman, and author—but he was also something of a traffic engineer, and not by choice. Traffic snarls were so acute in the market place of Imperial Rome and around the Circus Maximus that Caesar was forced to bar all except pedestrian traffic for the ten hours after sunrise. He also found it necessary to institute one-way streets and abolish downtown parking.

Many of today's city traffic woes had their Roman counterparts. Instead of smog, there were clouds of dust and swarms of insects. Instead of auto horns, there were the clatter of horses' hoofs and the roar of chariot wheels on stone pavement. Even the alleged modern problem of the woman driver was known to ancient Rome: Lady charioteers were not permitted to drive in the city on Sundays or during times of heavy traffic.

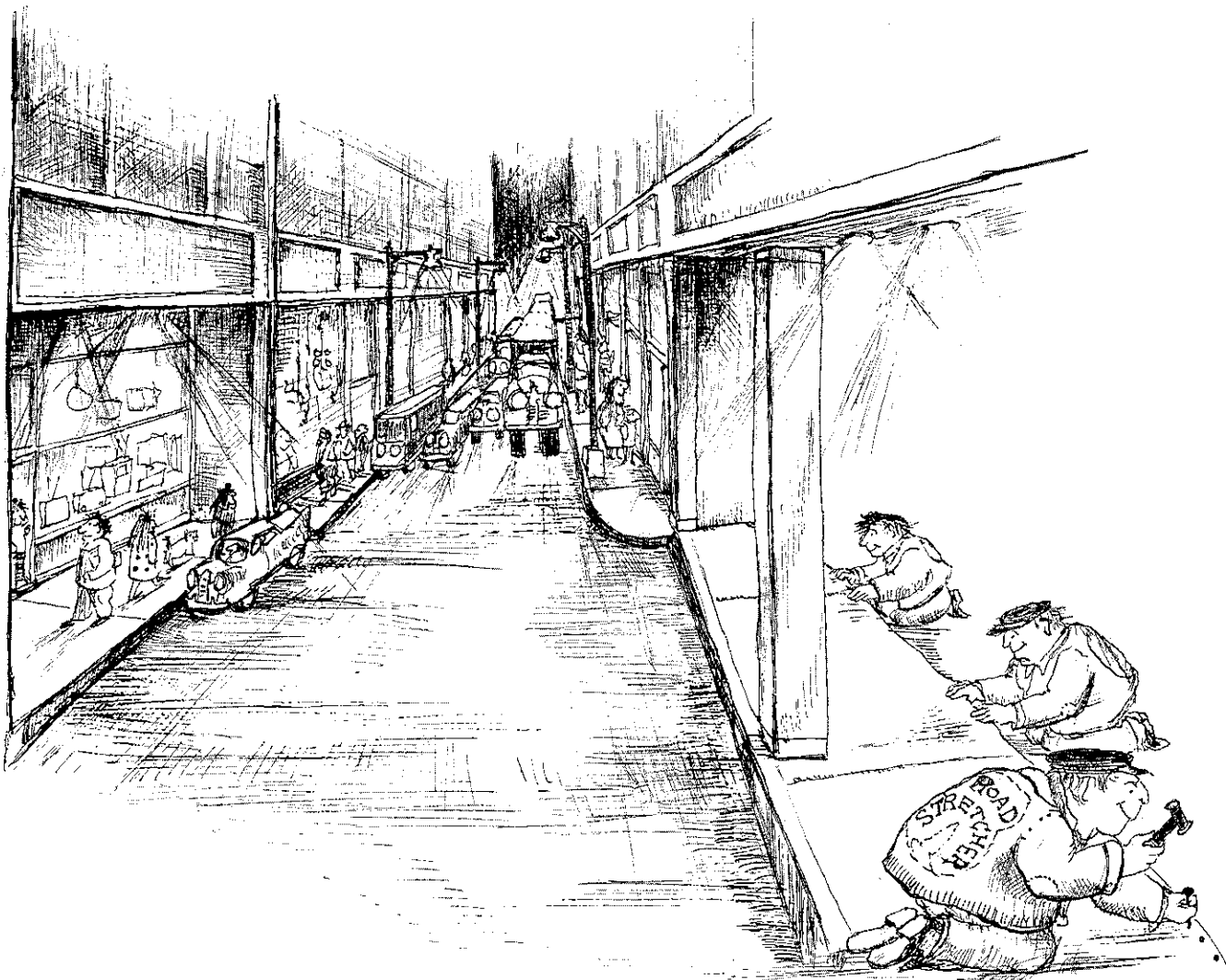
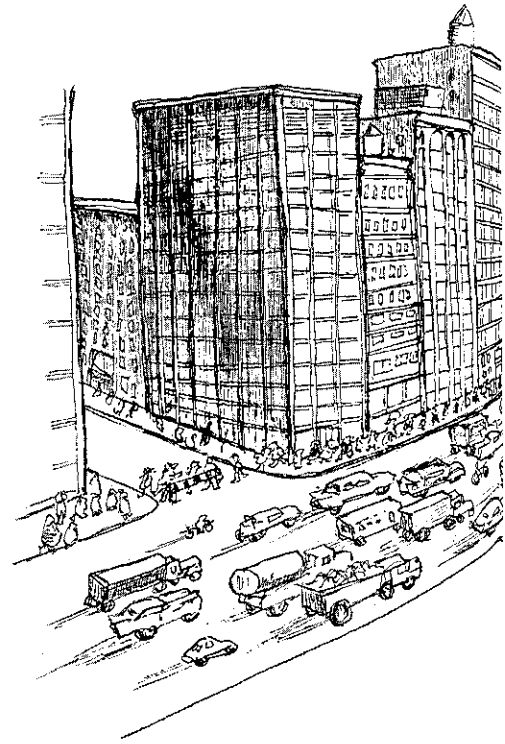
Down through history urban roads have been plagued by these and similar difficulties as men have sought to devise efficient and convenient means of moving people and goods. Roads have always been essential to the growth of the city—roads to bear chariots, horses and buggies, bicycles, and, finally, automobiles, buses, and trucks.

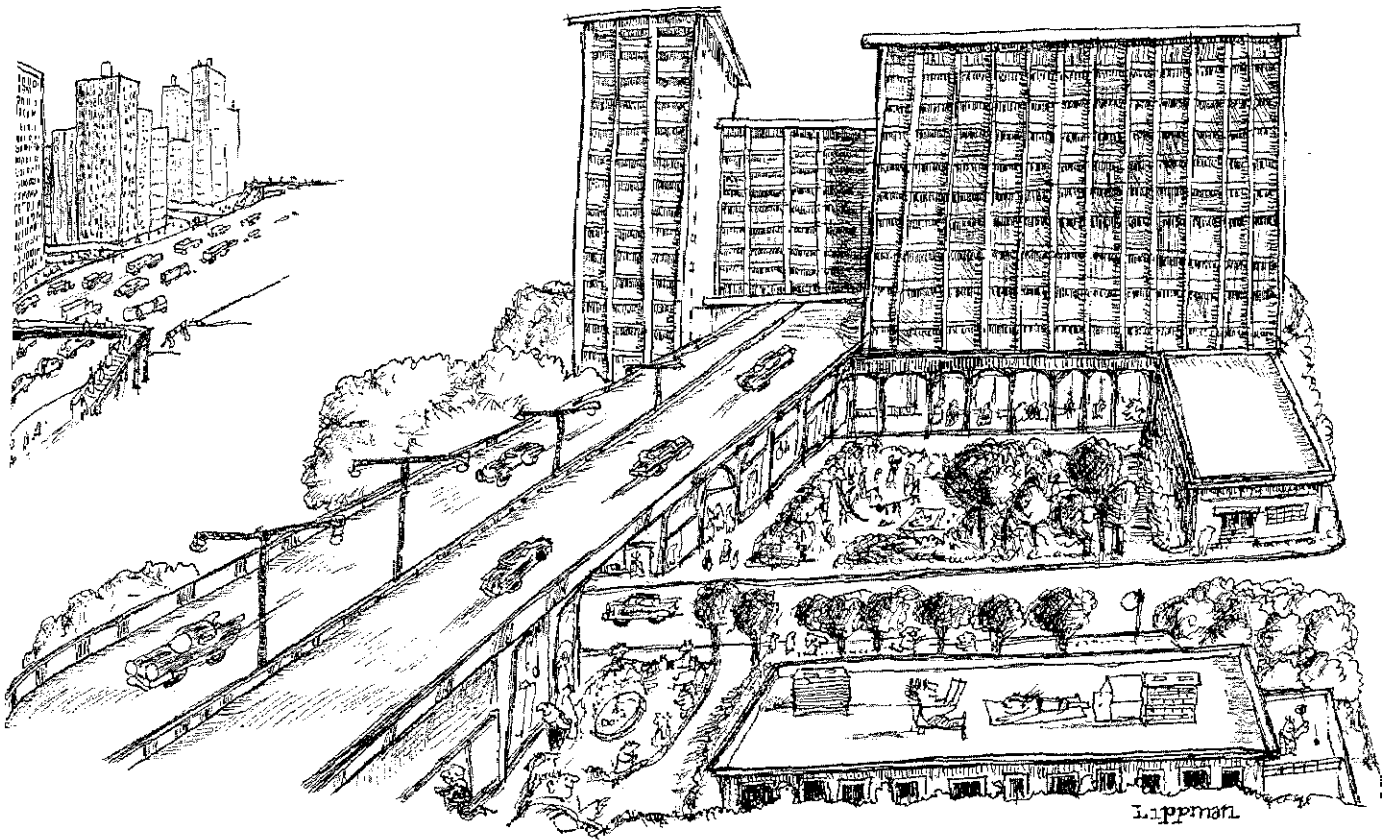
In the United States, as indeed throughout much of the world, the motor vehicle and the modern highway network developed like Siamese twins, each utterly dependent on the other. Previously inaccessible tracts of land were now bound to the town by road systems and rapidly filled in with homes and businesses. When towns became crowded, residents used the freedom of movement made possible by the private automobile to set up housekeeping in the suburbs and exurbs.

The degree to which Americans have taken advantage of this freedom can be seen in the fantastic growth of our metropolitan regions. In 1940 these



*LOOKING INTO THE FUTURE, the author predicts that the U.S. will need many more miles of urban freeways than are now under construction or planned. But he warns that available land—and funds—are limited; greater capacity must be squeezed from existing urban streets and highways. Two techniques planners suggest to achieve this end are shown in accompanying illustrations. "Street stretching" (below) calls for transformation of sidewalks into roadways; sidewalks are replaced by building arcades into ground floors of buildings. Rush hour traffic (right) can be speeded through cities by establishing reversible, one-way flow on selected streets; plan includes restriction of traffic on cross streets and construction of elevated crossovers. Illustration at far right depicts concept for joint urban freeway-urban redevelopment program; city would acquire area adjoining right-of-way for proposed highway, use land to meet needs for better housing, parks, and other community facilities. Acquisition of extra area would cost little more than cost of right-of-way alone.*





areas contained 52.6 percent of the nation's total population; by 1960 this figure had risen to 63 percent.

This development has placed an ever-increasing burden on our urban road systems. During the first decades of the century, the burden was borne only by state and local governments; the federal aid road program was limited to rural areas and major out-of-town arteries. But by the time World War II ended and the urban population explosion began in earnest, federal funds were available, providing half the cost of the continuation of major thoroughfares through urban areas.

The big breakthrough for the cities came, however, in 1956 when Congress provided for the completion of the National System of Interstate and Defense Highways, a 41,000-mile intercity and intra-city freeway network. With a few exceptions, the Federal Government pays 90 percent of the cost of this system.

Although only about 6,800 miles of the Interstate System are in urban areas, this relatively small mileage represents 45 percent of the total network cost. The price tag on urban freeways is high; but in terms of service to people, which is the only valid measurement, they are actually bargain miles.

Along with the development of the nation's highway network, of course, there have come a host of other modes of transportation, all of them intertwined and mutually dependent. Airlines would be white elephants of the palest hue without the ground

transport that brings them fuel, supplies, and passengers. Rail terminals have almost as many trucks as freight cars; and such operations as piggyback and containerized freight are benefiting railroaders and truckers alike. The family car, the train, the bus, the ferry—all are essential to commuter transportation.

Time was—and not too long ago—when the advocates of urban freeways and the proponents of rail rapid transit were regularly pictured by feature writers as almost constantly engaged in a stagnating and wheel-spinning argument over the merits of each. Unfortunately, some of this dialogue continues, but enlightened opinion on both sides holds that it's not an "either/or" question. Transportation modes are complementary rather than competitive, and the particular form should be chosen to fit the specific situation.

Not only now but for the foreseeable future we must build transportation systems using all the transport techniques available to us. This more enlightened view has been a long time evolving, but two actions in recent years have been major forces in the evolution.

The first was legislation enacted by Congress in 1962, establishing a new condition for making federal highway aid available to urban areas of over 50,000 population. It provided that after July 1, 1965, federal aid programs proposed for such urban areas must be based on a continuing, comprehensive planning process to be carried on cooperatively by the

states and local governments. This process is concerned with total transportation, not just highways, and by its very nature must involve land-use planning and the overall economic, social, and cultural objectives of the community and its people.

The second significant milestone in the evolution of the transportation system concept was the establishment of the new U.S. Department of Transportation last year. This action by Congress and President Johnson brings together under one head most of the major agencies that have dealt with the various modes of transportation on a compartmented basis for many years. The new department makes sense from any viewpoint, but particularly with respect to the close and efficient coordination of entire transportation systems and their financing at minimum cost. This coordination should be of great help to the cities as they strive to establish balanced transport systems.

### Road and rail: a rule of thumb

What this balance will be must of necessity vary from city to city. A rule of thumb—and that is all it is—might be: for small cities, highways and cars; for medium-sized cities, highways and cars plus bus transit; for large cities: highways and cars plus buses and, in a relatively few cases, rail rapid transit.

Certainly highways will continue to be a basic form of transportation in cities of all sizes. Just as certain, those cities that grew to large size along subway systems will continue to depend on them to a large extent. There must be, however, a conscious weighing of the advantages and disadvantages of alternative transport modes.

Alan S. Boyd, the first Secretary of Transportation, had this to say on the subject:

"If any lesson should have been learned about urban transportation in the past 75 years, it is the need for systems having the greatest possible flexibility. Yet some groups are still proposing to install rail rapid transit, which is the least flexible of all systems, in cities lacking the population densities required for economic feasibility. And often the proposed route is over an abandoned railroad right-of-way, as though the abandonment had no significance whatsoever."

In looking 20 or more years ahead (always a hazardous diversion) it appears certain that we will need many more miles of urban freeways than are now under construction or planned, principally in the suburban areas. But new facilities are by no means the total answer to metropolitan traffic problems, either now or in the future. There are limits, not only on the funds available, but on the land available. So part of the answer must be to squeeze more capacity, more utility out of the urban highways and streets that we already have or are now building.

How do we do that? There are many ways, some already proven, some under study and trial. It has

been shown beyond question that low-cost improvements to existing streets or revisions in traffic operations—such as reversible traffic lanes, efficient signal timing, intelligent pavement markings—can double traffic volume and increase average speeds by 25 percent. This amounts to a bargain substitute for entirely new urban freeways which would cost millions of dollars and nibble away at the valuable space remaining in cities.

Televised and computerized traffic control systems in some of our large cities are demonstrating every day their value in improving traffic flow and reducing congestion during peak periods. Another promising possibility is what we call "street stretching"—neither the Greeks nor the Romans had a word for that. This involves some fresh thinking in the United States about widening urban streets where the need is particularly critical. In many cases the existing sidewalks can provide room for an additional traffic lane or lanes. The sidewalks can be replaced with arcades built into the first floors of the buildings that edge the sidewalk. Costly? Yes, but not nearly as expensive or disruptive as removing whole buildings for new streets or freeways.

The Bureau is also developing, with the state highway departments, separate, comprehensive plans to speed traffic through cities without major reconstruction. One such plan calls for an expressway type of traffic flow on existing city streets. This can be accomplished by restricting cross traffic during rush hour periods on most cross streets and by constructing elevated or depressed crossovers on selected streets. During off-peak periods the normal flow of traffic at cross streets would be permitted.

In large cities, those above 500,000 population, the program would include some additional freeways, use of special bus lanes at designated periods, reversible flow lanes for mixed traffic or for exclusive bus traffic at peak hours, and rapid rail transit in the highway corridor in certain areas.

### Helicopters and hydrofoils: future possibilities

Certainly there are possibilities for long-range development of some of the "glamor" modes of transportation. Helicopters, now usually heavily subsidized, may assume an increasing role in public transportation, and the vertical take-off plane may have an application in urban areas. Hydrofoil boats have been used in some cities where conditions are appropriate. But these are likely to be of limited value in the urban areas where traffic problems are and will be most severe.

The combination of wheeled vehicle and highway may not be the most perfect answer to our transport needs, but it has undergone some miraculous improvements since Caesar's time—and it remains a basic and essential element in the future of American urban transportation.