

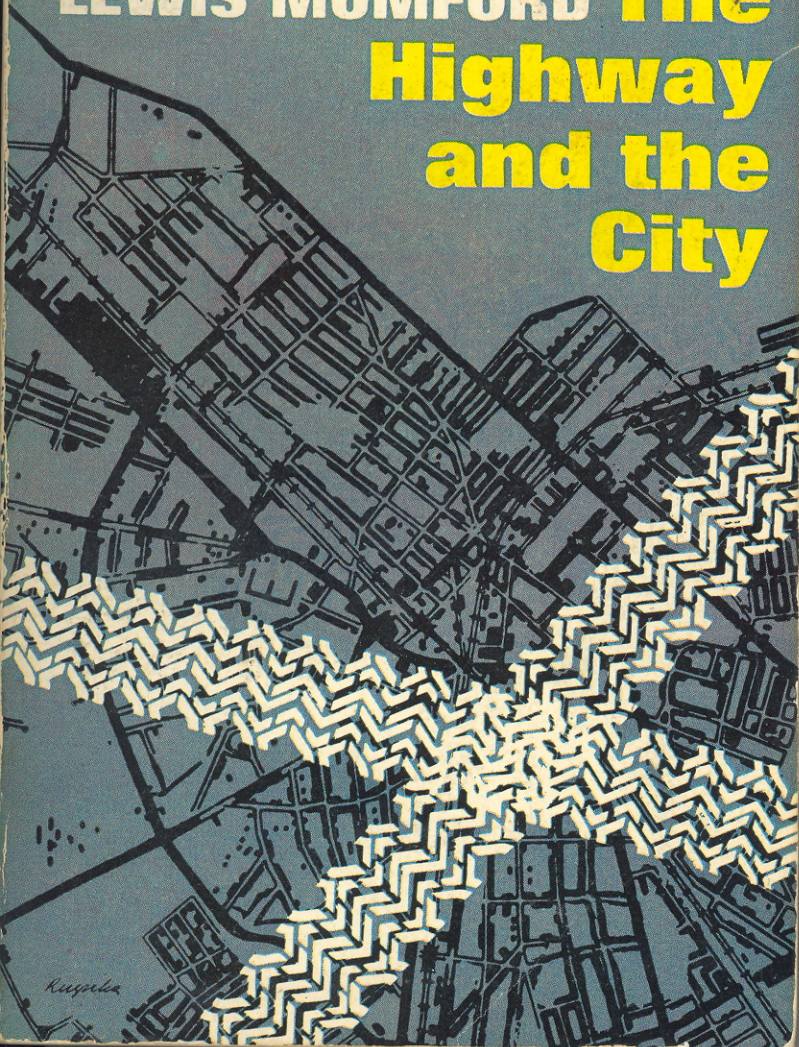
**A MENTOR BOOK**



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The foremost analyst of the metropolis in history  
discusses the rampant ills of today's strangled cities

**LEWIS MUMFORD** **The  
Highway  
and the  
City**



*Ruzicka*

## TWENTY-TWO

# The Highway and the City

When the American people, through their Congress, voted a little while ago (1957) for a twenty-six-billion-dollar highway program, the most charitable thing to assume about this action is that they hadn't the faintest notion of what they were doing. Within the next fifteen years they will doubtless find out; but by that time it will be too late to correct all the damage to our cities and our countryside, not least to the efficient organization of industry and transportation, that this ill-conceived and preposterously unbalanced program will have wrought.

Yet if someone had foretold these consequences before this vast sum of money was pushed through Congress, under the specious, indeed flagrantly dishonest, guise of a national defense measure, it is doubtful whether our countrymen would have listened long enough to understand; or would even have been able to change their minds if they did understand. For the current American way of life is founded not just on motor transportation but on the religion of the motorcar, and the sacrifices that people are prepared to make for this religion stand outside the realm of rational criticism. Perhaps the only thing that could bring Americans to their senses would be a clear demonstration of the fact that their highway pro-



gram will, eventually, wipe out the very area of freedom that the private motorcar promised to retain for them.

As long as motorcars were few in number, he who had one was a king: he could go where he pleased and halt where he pleased; and this machine itself appeared as a compensatory device for enlarging an ego which had been shrunken by our very success in mechanization. That sense of freedom and power remains a fact today only in low-density areas, in the open country; the popularity of this method of escape has ruined the promise it once held forth. In using the car to flee from the metropolis the motorist finds that he has merely transferred congestion to the highway and thereby doubled it. When he reaches his destination, in a distant suburb, he finds that the countryside he sought has disappeared: beyond him, thanks to the motorway, lies only another suburb, just as dull as his own. To have a minimum amount of communication and sociability in this spread-out life, his wife becomes a taxi-driver by daily occupation, and the sum of money it costs to keep this whole system running leaves him with shamefully overtaxed schools, inadequate police, poorly staffed hospitals, overcrowded recreation areas, ill-supported libraries.

In short, the American has sacrificed his life as a whole to the motorcar, like someone who, demented with passion, wrecks his home in order to lavish his income on a capricious mistress who promises delights he can only occasionally enjoy.

For most Americans, progress means accepting what is new because it is new, and discarding what is old because it is old. This may be good for a rapid turnover in business, but it is bad for continuity and stability in life. Progress, in an organic sense, should be cumulative, and though a certain amount of rubbish-clearing is always necessary, we lose part of the gain offered by a new invention if we automatically discard all the still valuable inventions that preceded it.

In transportation, unfortunately, the old-fashioned linear notion of progress prevails. Now that motorcars are becoming universal, many people take for granted that pedestrian movement will disappear and that the railroad system will in time be abandoned; in fact, many of the proponents of highway building talk as if that day were already here, or if not, they have every intention of making it dawn quickly. The result is that we have actually crippled

the motorcar, by placing on this single means of transportation the burden for every kind of travel. Neither our cars nor our highways can take such a load. This overconcentration, moreover, is rapidly destroying our cities, without leaving anything half as good in their place.

What's transportation for? This is a question that highway engineers apparently never ask themselves: probably because they take for granted the belief that transportation exists for the purpose of providing suitable outlets for the motorcar industry. To increase the number of cars, to enable motorists to go longer distances, to more places, at higher speeds, has become an end in itself. Does this overemployment of the motorcar not consume ever larger quantities of gas, oil, concrete, rubber, and steel, and so provide the very groundwork for an expanding economy? Certainly, but none of these make up the essential purpose of transportation. The purpose of transportation is to bring people or goods to places where they are needed, and to concentrate the greatest variety of goods and people within a limited area, in order to widen the possibility of choice without making it necessary to travel. A good transportation system minimizes unnecessary transportation; and in any event, it offers a change of speed and mode to fit a diversity of human purposes.

Diffusion and concentration are the two poles of transportation: the first demands a closely articulated network of roads—ranging from a footpath to a six-lane expressway and a transcontinental railroad system. The second demands a city. Our major highway systems are conceived, in the interests of speed, as linear organizations, that is to say as arteries. That conception would be a sound one, provided the major arteries were not overdeveloped to the exclusion of all the minor elements of transportation. Highway planners have yet to realize that these arteries must not be thrust into the delicate tissue of our cities; the blood they circulate must rather enter through an elaborate network of minor blood vessels and capillaries. As early as 1929 Benton MacKaye worked out the rationale of sound highway development, in his conception of the Townless Highway; and this had as its corollary the Highwayless Town. In the quarter century since, all the elements of MacKaye's conception have been carried out, except the last—certainly not the least.

In many ways, our highways are not merely masterpieces of engineering, but consummate works of art: a few of them, like the Taconic State Parkway in New York, stand on a par with our highest creations in other fields. Not every highway, it is true, runs through country that offers such superb opportunities to an imaginative highway builder as this does; but then not every engineer rises to his opportunities as the planners of this highway did, routing the well-separated roads along the ridgeways, following the contours, and thus, by this single stratagem, both avoiding towns and villages and opening up great views across country, enhanced by a lavish planting of flowering bushes along the borders. If this standard of comeliness and beauty were kept generally in view, highway engineers would not so often lapse into the brutal assaults against the landscape and against urban order that they actually give way to when they aim solely at speed and volume of traffic, and bulldoze and blast their way across country to shorten their route by a few miles without making the total journey any less depressing.

Perhaps our age will be known to the future historian as the age of the bulldozer and the exterminator; and in many parts of the country the building of a highway has about the same result upon vegetation and human structures as the passage of a tornado or the blast of an atom bomb. Nowhere is this bulldozing habit of mind so disastrous as in the approach to the city. Since the engineer regards his own work as more important than the other human functions it serves, he does not hesitate to lay waste to woods, streams, parks, and human neighborhoods in order to carry his roads straight to their supposed destination.

The fatal mistake we have been making is to sacrifice every other form of transportation to the private motorcar—and to offer, as the only long-distance alternative, the airplane. But the fact is that each type of transportation has its special use; and a good transportation policy must seek to improve each type and make the most of it. This cannot be achieved by aiming at high speed or continuous flow alone. If you wish casual opportunities for meeting your neighbors, and for profiting by chance contacts with acquaintances and colleagues, a stroll at two miles an hour in a concentrated area, free from needless vehicles, will alone meet your need. But if you wish to rush a surgeon to a patient a thousand miles away,



the fastest motorway is too slow. And again, if you wish to be sure to keep a lecture engagement in winter, railroad transportation offers surer speed and better insurance against being held up than the airplane. There is no one ideal mode or speed: human purpose should govern the choice of the means of transportation. That is why we need a better transportation *system*, not just more highways. The projectors of our national highway program plainly had little interest in transportation. In their fanatical zeal to expand our highways, the very allocation of funds indicates that they are ready to liquidate all other forms of land and water transportation. The result is a crudely over-simplified and inefficient method of mono-transportation: a regression from the complex many-sided transportation system we once boasted.

In order to overcome the fatal stagnation of traffic in and around our cities, our highway engineers have come up with a remedy that actually expands the evil it is meant to overcome. They create new expressways to serve cities that are already overcrowded within, thus tempting people who had been using public transportation to reach the urban centers to use these new private facilities. Almost before the first day's tolls on these expressways have been counted, the new roads themselves are overcrowded. So a clamor arises to create other similar arteries and to provide more parking garages in the center of our metropolises; and the generous provision of these facilities expands the cycle of congestion, without any promise of relief until that terminal point when all the business and industry that originally gave rise to the congestion move out of the city, to escape strangulation, leaving a waste of expressways and garages behind them. This is pyramid building with a vengeance: a tomb of concrete roads and ramps covering the dead corpse of a city.

But before our cities reach this terminal point, they will suffer, as they now do, from a continued erosion of their social facilities: an erosion that might have been avoided if engineers had understood MacKaye's point that a motorway, properly planned, is another form of railroad for private use. Unfortunately, highway engineers, if one is to judge by their usual performance, lack both historic insight and social memory: accordingly, they have been repeating, with the audacity of confident ignorance, all the mistakes in urban planning committed by their predecessors who designed our railroads. The wide swaths of land devoted to cloverleaves,

and even more complicated multi-level interchanges, to expressways, parking lots, and parking garages, in the very heart of the city, butcher up precious urban space in exactly the same way that freight yards and marshalling yards did when the railroads dumped their passengers and freight inside the city. These new arteries choke off the natural routes of circulation and limit the use of abutting properties, while at the points where they disgorge their traffic they create inevitable clots of congestion, which effectively cancel out such speed as they achieve in approaching these bottlenecks.

Today the highway engineers have no excuse for invading the city with their regional and transcontinental trunk systems: the change from the major artery to the local artery can now be achieved without breaking the bulk of goods or replacing the vehicle: that is precisely the advantage of the motorcar. Arterial roads, ideally speaking, should engirdle the metropolitan area and define where its greenbelt begins; and since American cities are still too impoverished and too improvident to acquire greenbelts, they should be planned to go through the zone where relatively high-density building gives way to low-density building. On this perimeter, through traffic will bypass the city, while cars that are headed for the center will drop off at the point closest to their destination.

Since I don't know a city whose highways have been planned on this basis, let me give as an exact parallel the new semicircular railroad line, with its suburban stations, that bypasses Amsterdam. That is good railroad planning, and it would be good highway planning, too, as the Dutch architect H. Th. Wijdeveld long ago pointed out. It is on relatively cheap land, on the edge of the city, that we should be building parking areas and garages: with free parking privileges to tempt the commuter to leave his car and finish his daily journey on the public transportation system. The public officials who have been planning our highway system on just the opposite principle are likewise planning to make the central areas of our cities unworkable and uninhabitable. Route 128 in Boston might seem a belated effort to provide such a circular feeder highway; but actually it is a classic example of how the specialized highway engineer, with his own concerns solely in mind, can defeat sound urban design.

Now it happens that the theory of the insulated, high-speed motorway, detached from local street and road systems

immune to the clutter of roadside "developments," was first worked out, not by highway engineers, but by Benton MacKaye, the regional planner who conceived the Appalachian Trail. He not merely put together its essential features, but identified its principal characteristic: the fact that to achieve speed it must bypass towns. He called it in fact the Townless Highway. (See *The New Republic*, March 30, 1930.) Long before the highway engineers came through with Route 128, MacKaye pointed out the necessity for a motor bypass around the ring of suburbs that encircle Boston, in order to make every part of the metropolitan area accessible, and yet to provide a swift bypass route for through traffic.

MacKaye, not being a one-eyed specialist, visualized this circuit in all its potential dimensions and developments: he conceived accordingly a metropolitan recreation belt with a northbound motor road forming an arc on the inner flank and a southbound road on the outer flank—the two roads separated by a wide band of usable parkland, with footpaths and bicycle paths for recreation. In reducing MacKaye's conception to Route 128, without the greenbelt and without public control of the areas adjacent to the highway, the "experts" reduced the multi-purpose Bay Circuit to the typical "successful" expressway: so successful in attracting industry and business from the center of the city that it already ceases to perform even its own limited functions of fast transportation, except during hours of the day when ordinary highways would serve almost as well. This, in contrast to MacKaye's scheme, is a classic example of how not to do it.

Just as highway engineers know too little about city planning to correct the mistakes made in introducing the early railroad systems into our cities, so, too, they have curiously forgotten our experience with the elevated railroad—and unfortunately most municipal authorities have been equally forgetful. In the middle of the nineteenth century the elevated seemed the most facile and up-to-date method of introducing a new kind of rapid transportation system into the city; and in America, New York led the way in creating four such lines on Manhattan Island alone. The noise of the trains and the overshadowing of the structure lowered the value of the abutting properties even for commercial purposes; and the supporting columns constituted a dangerous obstacle to



surface transportation. So unsatisfactory was elevated transportation even in cities like Berlin, where the structures were, in contrast to New York, Philadelphia, and Chicago, rather handsome works of engineering, that by popular consent subway building replaced elevated railroad building in all big cities, even though no one could pretend that riding in a tunnel was nearly as pleasant to the rider as was travel in the open air. The destruction of the old elevated railroads in New York was, ironically, hailed as a triumph of progress precisely at the moment that a new series of elevated highways was being built, to repeat on a more colossal scale the same errors.

Like the railroad, again, the motorway has repeatedly taken possession of the most valuable recreation space the city possesses, not merely by thieving land once dedicated to park uses, but by cutting off easy access to the waterfront parks, and lowering their value for refreshment and repose by introducing the roar of traffic and the bad odor of exhausts, though both noise and carbon monoxide are inimical to health. Witness the shocking spoilage of the Charles River basin parks in Boston, the arterial blocking off of the Lake Front in Chicago (after the removal of the original usurpers, the railroads), the barbarous sacrifice of large areas of Fairmount Park in Philadelphia, the partial defacement of the San Francisco waterfront, even in Paris the ruin of the Left Bank of the Seine.

One may match all these social crimes with a hundred other examples of barefaced highway robbery in every other metropolitan area. Even when the people who submit to these annexations and spoliations are dimly aware of what they are losing, they submit without more than a murmur of protest. What they do not understand is that they are trading a permanent good for a very temporary advantage, since until we subordinate highway expansion to the more permanent requirements of regional planning, the flood of motor traffic will clog new channels. What they further fail to realize is that the vast sums of money that go into such enterprises drain necessary public monies from other functions of the city, and make it socially if not financially bankrupt.

Neither the highway engineer nor the urban planner can, beyond a certain point, plan his facilities to accommodate an expanding population. On the over-all problem of population

pressure, regional and national policies must be developed for throwing open, within our country, new regions of settlement, if this pressure, which appeared so suddenly, does not in fact abate just as unexpectedly and just as suddenly. But there can be no sound planning anywhere until we understand the necessity for erecting norms, or ideal limits, for density of population. Most of our congested metropolises need a lower density of population, with more parks and open spaces, if they are to be attractive enough physically to retain even a portion of their population for day-and-night living; but most of our suburban and exurban communities must replan large areas at perhaps double their present densities in order to have the social, educational, recreational, and industrial facilities they need closer at hand. Both suburb and metropolis need a regional form of government, working in private organizations as well as public forms, to reapportion their resources and facilities, so as to benefit the whole area.

To say this is to say that both metropolitan congestion and suburban scattering are obsolete. This means that good planning must work to produce a radically new pattern for urban growth. On this matter, public policy in the United States is both contradictory and self-defeating. Instead of lowering central area densities, most urban renewal schemes, not least those aimed at housing the groups that must be subsidized, either maintain old levels of congestion, or create higher levels than existed in the slums they replaced. But the Home Loan agencies, federal and private, on the other hand, have been subsidizing the wasteful, ill-planned, single-family house, on cheap land, ever remoter from the center of our cities; a policy that has done as much to promote the suburban drift as the ubiquitous motorcar.

In order to cement these errors in the most solid way possible, our highway policy maximizes congestion at the center and expands the area of suburban dispersion—what one might call the metropolitan “fall-out.” The three public agencies concerned have no official connections with each other: but the total result of their efforts proves, once again, that chaos does not have to be planned.

Motorcar manufacturers look forward confidently to the time when every family will have two, if not three, cars. I would not deny them that hope, though I remember that it

was first voiced in 1929, just before the fatal crash of our economic system, too enamored of high profits even to save itself by temporarily lowering prices. But if they don't want the motorcar to paralyze urban life, they must abandon their fantastic commitment to the indecently tumescent organs they have been putting on the market. For long-distance travel, a roomy car, if not artfully elongated, of course has many advantages; but for town use, let us insist upon a car that fits the city's needs: it is absurd to make over the city to fit the swollen imaginations of Detroit. The Isetta and the Goggomobil have already pointed the way; but what we need is an even smaller vehicle, powered by electricity, delivered by a powerful storage cell, yet to be invented: the exact opposite of our insolent chariots.

Maneuverability and parkability are the prime urban virtues in cars; and the simplest way to achieve this is by designing smaller cars. These virtues are lacking in all but one of our current American models. But why should our cities be destroyed just so that Detroit's infantile fantasies should remain unchallenged and unchanged?

If we want to make the most of our New Highway program, we must keep most of the proposed expressways in abeyance until we have done two other things. We must replan the inner city for pedestrian circulation, and we must rebuild and extend our public forms of mass transportation. In our entrancement with the motorcar, we have forgotten how much more efficient and how much more flexible the footwalker is. Before there was any public transportation in London, something like fifty thousand people an hour used to pass over London Bridge on their way to work: a single artery. Railroad transportation can bring from forty to sixty thousand people per hour, along a single route, whereas our best expressways, using far more space, cannot move more than four to six thousand cars: even if the average occupancy were more than one and a half passengers, as at present, this is obviously the most costly and inefficient means of handling the peak hours of traffic. As for the pedestrian, one could move a hundred thousand people, by the existing streets, from, say, downtown Boston to the Common, in something like half an hour, and find plenty of room for them to stand. But how many weary hours would it take to move them in cars over these same streets? And what would one do with the cars after they had reached the Common? Or where, for



that matter, could one assemble these cars in the first place? For open spaces, long distances, and low population densities, the car is now essential; for urban space, short distances, and high densities, the pedestrian.

Every urban transportation plan should, accordingly, put the pedestrian at the center of all its proposals, if only to facilitate wheeled traffic. But to bring the pedestrian back into the picture, one must treat him with the respect and honor we now accord only to the automobile: we should provide him with pleasant walks, insulated from traffic, to take him to his destination, once he enters a business precinct or residential quarter. Every city should heed the example of Rotterdam in creating the Lijnbaan, or of Coventry in creating its new shopping area. It is nonsense to say that this cannot be done in America, because no one wants to walk.

Where walking is exciting and visually stimulating, whether it is in a Detroit shopping center or along Fifth Avenue, Americans are perfectly ready to walk. The legs will come into their own again, as the ideal means of neighborhood transportation, once some provision is made for their exercise, as Philadelphia is now doing, both in its Independence Hall area, and in Penn Center. But if we are to make walking attractive, we must not only provide trees and wide pavements and benches, beds of flowers and outdoor cafés, as they do in Rotterdam: we must also scrap the monotonous uniformities of American zoning practice, which turns vast areas, too spread out for pedestrian movement, into single-district zones, for commerce, industry, or residential purposes. (As a result, only the mixed zones are architecturally interesting today despite their disorder.)

Why should anyone have to take a car and drive a couple of miles to get a package of cigarettes or a loaf of bread, as one must often do in a suburb? Why, on the other hand, should a growing minority of people not be able again to walk to work, by living in the interior of the city, or, for that matter, be able to walk home from the theatre or the concert hall? Where urban facilities are compact, walking still delights the American: does he not travel many thousands of miles just to enjoy this privilege in the historic urban cores of Europe? And do not people now travel for miles, of an evening, from the outskirts of Pittsburgh, just for the pleasure of a stroll in Mellon Square? Nothing would do more to give life back to our blighted urban cores than to re-instate the

pedestrian, in malls and pleasantries designed to make circulation a delight. And what an opportunity for architecture!

While federal funds and subsidies pour without stint into highway improvements, the two most important modes of transportation for cities—the railroad for long distances and mass transportation, and the subway for shorter journeys—are permitted to languish and even to disappear. This is very much like what has happened to our postal system. While the time needed to deliver a letter across the continent has been reduced, the time needed for local delivery has been multiplied. What used to take two hours now sometimes takes two days. As a whole our postal system has been degraded to a level that would have been regarded as intolerable even thirty years ago. In both cases, an efficient system has been sacrificed to an overfavored new industry, motorcars, telephones, airplanes; whereas, if the integrity of the system itself had been respected, each of these new inventions could have added enormously to the efficiency of the existing network.

If we could overcome the irrational drives that are now at work, promoting shortsighted decisions, the rational case for rebuilding the mass transportation system in our cities would be overwhelming. The current objection to mass transportation comes chiefly from the fact that it has been allowed to decay: this lapse itself reflects the general blight of the central areas. In order to maintain profits, or in many cases to reduce deficits, rates have been raised, services have decreased, and equipment has become obsolete, without being replaced and improved. Yet mass transportation, with far less acreage in roadbeds and rights of way, can deliver at least ten times more people per hour than the private motorcar. This means that if such means were allowed to lapse in our metropolitan centers—as the inter-urban electric trolley system, that complete and efficient network, was allowed to disappear in the nineteen-twenties—we should require probably five to ten times the existing number of arterial highways to bring the present number of commuters into the city, and at least ten times the existing parking space to accommodate them. In that tangled mass of highways, interchanges, and parking lots, the city would be nowhere: a mechanized nonentity ground under an endless procession of wheels.

That plain fact reduces a one-dimensional transportation

system, by motorcar alone, to a calamitous absurdity, as far as urban development goes, even if the number of vehicles and the population count were not increasing year by year. Now it happens that the population of the core of our big cities has remained stable in recent years: in many cases, the decline which set in as early as 1910 in New York seems to have ceased. This means that it is now possible to set an upper limit for the daily inflow of workers, and to work out a permanent mass transportation system that will get them in and out again as pleasantly and efficiently as possible.

In time, if urban renewal projects become sufficient in number to permit the design of a system of minor urban thoroughways, at ground level, that will bypass the neighborhood, even circulation by motorcar may play a valuable part in the total scheme—provided, of course, that minuscule-size town cars take the place of the long-tailed dinosaurs that now lumber about our metropolitan swamps. But the notion that the private motorcar can be substituted for mass transportation should be put forward only by those who desire to see the city itself disappear, and with it the complex, many-sided civilization that the city makes possible.

There is no purely local engineering solution to the problems of transportation in our age: nothing like a stable solution is possible without giving due weight to all the necessary elements in transportation—private motorcars, railroads, airplanes, and helicopters, mass transportation services by trolley and bus, even ferryboats, and finally, not least, the pedestrian. To achieve the necessary over-all pattern, not merely must there be effective city and regional planning, before new routes or services are planned; we also need eventually—and the sooner the better—an adequate system of federated urban government on a regional scale.

Until these necessary tools of control have been created, most of our planning will be empirical and blundering; and the more we do, on our present premises, the more disastrous will be the results. In short we cannot have an efficient form for our transportation system until we can envisage a better permanent structure for our cities. And the first lesson we have to learn is that a city exists, not for the constant passage of motorcars, but for the care and culture of men.