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Erosion of cities or attrition of automobiles

Today everyone who values cities is disturbed by automobiles.

Traffic arteries, along with parking lots, gas stations and drive-ins, are powerful and insistent instruments of city destruction. To accommodate them, city streets are broken down into loose sprawls, incoherent and vacuous for anyone afoot. Downtowns and other neighborhoods that are marvels of close-grained intricacy and compact mutual support are casually disemboweled. Landmarks are crumbled or are so sundered from their contexts in city life as to become irrelevant trivialities. City character is blurred until every place becomes more like every other place, all adding up to Noplace. And in the areas most defeated, uses that cannot stand functionally alone—shopping malls, or residences, or places of public assembly, or centers of work—are severed from one another.

But we blame automobiles for too much.

Suppose automobiles had never been invented, or that they had

been neglected and we traveled instead in efficient, convenient, speedy, comfortable, mechanized mass transit. Undoubtedly we would save immense sums which might be put to better use. But they might not.

For suppose we had also been rebuilding, expanding and reorganizing cities according to the project image and the other anti-city ideals of conventional planning.

We would have essentially the same results as I blamed on automobiles a few paragraphs back. These results can be repeated word for word: The city streets would be broken down into loose sprawls, incoherent and vacuous for anyone afoot. Downtowns and other neighborhoods that are marvels of close-grained intricacy and compact mutual support would be casually disemboweled. Landmarks would be crumbled or so sundered from their contexts in city life as to become irrelevant trivialities. City character would be blurred until every place became more like every other place, all adding up to Noplace. And in the areas most defeated, etc.

And then the automobile would have to be invented or would have to be rescued from neglect. For people to live or work in such inconvenient cities, automobiles would be necessary to spare them from vacuity, danger and utter institutionalization.

It is questionable how much of the destruction wrought by automobiles on cities is really a response to transportation and traffic needs, and how much of it is owing to sheer disrespect for other city needs, uses and functions. Like city rebuilders who face a blank when they try to think of what to do instead of renewal projects, because they know of no other respectable principles for city organization, just so, highwaymen, traffic engineers and city rebuilders, again, face a blank when they try to think what they can realistically do, day by day, except try to overcome traffic kinks as they occur and apply what foresight they can toward moving and storing more cars in the future. It is impossible for responsible and practical men to discard unfit tactics—even when the results of their own work cause them misgivings—if the alternative is to be left with confusion as to what to try instead and why.

Good transportation and communication are not only among

the most difficult things to achieve; they are also basic necessities. The point of cities is multiplicity of choice. It is impossible to take advantage of multiplicity of choice without being able to get around easily. Nor will multiplicity of choice even exist if it cannot be stimulated by cross-use. Furthermore, the economic foundation of cities is trade. Even manufacturing occurs in cities mainly because of attached advantages involving trade, not because it is easier to manufacture things in cities. Trade in ideas, services, skills and personnel, and certainly in goods, demands efficient, fluid transportation and communication.

But multiplicity of choice and intensive city trading depend also on immense concentrations of people, and on intricate minglings of uses and complex interweaving of paths.

How to accommodate city transportation without destroying the related intricate and concentrated land use?—this is the question. Or, going at it the other way, how to accommodate intricate and concentrated city land use without destroying the related transportation?

Nowadays there is a myth that city streets, so patently inadequate for floods of automobiles, are antiquated vestiges of horse-and-buggy conditions, suitable to the traffic of their time, but . . .

Nothing could be less true. To be sure, the streets of eighteenth- and nineteenth-century cities were usually well adapted, as streets, to the uses of people afoot and to the mutual support of the mingled uses bordering them. But they were miserably adapted, as streets, to horse traffic, and this in turn made them poorly adapted in many ways to foot traffic too.

Victor Gruen, who devised a plan for an automobile-free downtown for Fort Worth, Texas, about which I shall say more later in this chapter, prepared a series of slides to explain his scheme. After a view of a street with a familiar-looking automobile jam, he showed a surprise: just about as bad a jam of horses and vehicles in an old photograph of Fort Worth.

What street life was like for really big and intense cities and their users in the horse-and-buggy days has been described by an English architect, the late H. B. Creswell, who wrote for the

British *Architectural Review* of December 1958 a description of London in 1890, when he was a young man:

The Strand of those days . . . was the throbbing heart of the people's essential London. Hedged by a maze of continuous alleys and courts, the Strand was fronted by numbers of little restaurants whose windows vaunted exquisite feeding; taverns, dives, oyster and wine bars, ham and beef shops; and small shops marketing a lively variety of curious or workaday things all standing in rank, shoulder to shoulder, to fill the spaces between its many theatres . . . But the mud! * And the noise! And the smell! All these blemishes were [the] mark of [the] horse . . .

The whole of London's crowded wheeled traffic—which in parts of the City was at times dense beyond movement—was dependent on the horse: lorry, wagon, bus, hansom and "growler," and coaches and carriages and private vehicles of all kinds, were appendages to horses. Meredith refers to the "anticipatory stench of its cab-stands" on railway approach to London: but the characteristic aroma—for the nose recognized London with gay excitement—was of stables, which were commonly of three or four storeys with inclined ways zigzagging up the faces of them; [their] middens kept the castiron filigree chandeliers, that glorified the reception rooms of upper and lower middle class homes throughout London, encrusted with dead flies and, in late summer, veiled with jiving clouds of them.

A more assertive mark of the horse was the mud that, despite the activities of a numerous corps of red-jacketed boys who dodged among wheels and hooves with pan and brush in service to iron bins at the pavement-edge, either flooded the streets with churnings of "pea soup" that at times collected in pools overbrimming the kerbs, and at others covered the road-surface as with axle grease, or bran-laden dust to the distraction of the wayfarer. In the first case, the swift-moving hansom or gig would fling sheets of such soup—where not intercepted by trousers or skirts—completely across the pavement, so that the frontages of the Strand throughout its length had an eighteen-inch plinth of mud-purge thus imposed upon it. The pea-soup condition was met by wheeled "mud-carts" each attended by two ladlers

* A euphemism.

clothed as for Icelandic seas in thigh boots, oilskins collared to the chin, and sou'westers sealing in the back of the neck. Splash Ho! The foot passenger now gets the mud in his eye! The axle-grease condition was met by horse-mechanized brushes and travellers in the small hours found fire-hoses washing away residues . . .

And after the mud the noise, which, again endowed by the horse, surged like a mighty heart-beat in the central districts of London's life. It was a thing beyond all imaginings. The streets of workaday London were uniformly paved in "granite" sets . . . and the hammering of a multitude of iron-shod hairy heels upon [them], the deafening, side-drum tattoo of tyred wheels jarring from the apex of one set to the next like sticks dragging along a fence; the creaking and groaning and chirping and rattling of vehicles, light and heavy, thus maltreated; the jangling of chain harness and the clanging or jingling of every other conceivable thing else, augmented by the shrieking and bellowings called for from those of God's creatures who desired to impart information or proffer a request vocally—raised a din that . . . is beyond conception. It was not any such paltry thing as noise. It was an immensity of sound . . .

This was the London of Ebenezer Howard, and it is hardly surprising that he regarded city streets as unfit for human beings.

Le Corbusier, when he designed his Radiant City of the 1920's, as a park, skyscraper and automobile freeway version of Howard's small-town Garden City, flattered himself that he was designing for a new age and, along with it, for a new system of traffic. He was not. So far as the new age was concerned, he was merely adapting in a shallow fashion reforms that had been a response to nostalgic yearnings for a bygone simpler life, and a response also to the nineteenth-century city of the horse (and the epidemic). So far as the new system of traffic was concerned, he was equally shallow. He embroidered (I think that is a fair word for his approach) freeways and traffic onto his Radiant City scheme in quantities that apparently satisfied his sense of design, but that bore no relationship whatsoever to the hugely greater quantities of automobiles, amounts of roadway and extent of parking and servicing which would actually be necessary for his repetitive

vertical concentrations of people, separated by vacuities. His vision of skyscrapers in the park degenerates in real life into skyscrapers in parking lots. And there can never be enough parking.

The present relationship between cities and automobiles represents, in short, one of those jokes that history sometimes plays on progress. The interval of the automobile's development as everyday transportation has corresponded precisely with the interval during which the ideal of the suburbanized anti-city was developed architecturally, sociologically, legislatively and financially.

But automobiles are hardly inherent destroyers of cities. If we would stop telling ourselves fairy tales about the suitability and charm of nineteenth-century streets for horse-and-buggy traffic, we would see that the internal combustion engine, as it came on the scene, was potentially an excellent instrument for abetting city intensity, and at the same time for liberating cities from one of their noxious liabilities.

Not only are automotive engines quieter and cleaner than horses but, even more important, fewer engines than horses can do a given amount of work. The power of mechanized vehicles, and their greater speed than horses, can make it easier to reconcile great concentrations of people with efficient movement of people and goods. At the turn of the century, railroads had already long demonstrated that iron horses are fine instruments for reconciling concentration and movement. Automobiles, including trucks, offered, for places railroads could not go, and for jobs railroads could not do, another means of cutting down the innumerable vehicular congestion of cities.

We went awry by replacing, in effect, each horse on the crowded city streets with half a dozen or so mechanized vehicles, instead of using each mechanized vehicle to replace half a dozen or so horses. The mechanical vehicles, in their overabundance, work slothfully and idle much. As one consequence of such low efficiency, the powerful and speedy vehicles, choked by their own redundancy, don't move much faster than horses.

Trucks, by and large, do accomplish much of what might have been hoped for from mechanical vehicles in cities. They do the work of much greater numbers of horse-drawn vehicles or of burden-laden men. But because passenger vehicles do not, this

congestion, in turn, greatly cuts down the efficiency of the trucks.

Today, those in despair at the war between those potential allies, automobiles and cities, are apt to depict the impasse as a war between automobiles and pedestrians.

It is fashionable to suppose that the solution lies in designating certain places for pedestrians, and certain other places for vehicles. We may be able to make such separations eventually, if we find we really want to. But such schemes are only practical, in any case, if they *presuppose* a spectacular decline in the absolute numbers of automobiles using a city. Otherwise, the necessary parking, garaging and access arteries around the pedestrian preserves reach such unwieldy and deadening proportions that they become arrangements capable only of city disintegration, not of city saving.

The most famous of pedestrian schemes is the Gruen plan for the downtown of Fort Worth. The firm of Victor Gruen Associates, architects and planners, proposed that an area of roughly a square mile be circled with a ring road feeding into six huge, oblong garages, holding ten thousand cars each, which would each penetrate from the ring-road perimeter deep into the downtown area. The rest of the area would be kept free of automobiles and would be intensively developed as a downtown of mixed uses. The scheme has run into political opposition in Fort Worth, but imitative plans have been proposed for more than ninety cities and have been tried in a few. Unfortunately, the imitators ignore the salient fact that the scheme treated the entire part of Fort Worth which could be described as citylike in the form of one interlocked, uninterrupted whole, and in these terms it made sense; to this extent, it was an instrument of concentration rather than separation; to this extent, it fostered greater complexity rather than greater simplicity. In the imitations, the idea is almost invariably perverted into dinky and timid designs for isolating a few shopping streets in the fashion of suburban shopping malls, and surrounding them with dead borders of parking and access.

This is about all that can be done—and indeed it is all that could have been planned for Fort Worth—unless a problem much more difficult than shrub-planting and bench-installing is faced.

This problem is how to cut down drastically the absolute numbers of vehicles using a city.

In the case of the Gruen plan for Fort Worth, Gruen had to presuppose such a decrease, even though the city is relatively small and simple in comparison with our great cities, and even though the arrangements for cars were enormous and elaborate. Part of Gruen's scheme included arrangements for express bus service tying the downtown into the whole city and its suburbs, and absorbing a far higher ratio of downtown users than is now served by public transportation. Without such an arrangement and such a presupposition, the ring-road scheme would have been unrealistic embroidery in the Le Corbusier tradition of wishful frivolity, or else—the difficulties faced realistically—it would have meant converting virtually the entire downtown to garages and rendering the ring road inadequate for access. To be sure, a greatly enlarged perimeter might have served, with the garages disposed far out, but then the practicality of a concentrated, intense district, readily used on foot, would have been defeated. The plan would have no point.

Some varieties of traffic separation, conceived for heavily congested downtown streets, envision not a horizontal separation as in the Gruen scheme, but a vertical separation with either the pedestrians put above the automobiles on an upper street level, or the automobiles put above the pedestrians. But removing pedestrians gives very little more room to cars. To provide roadbeds of the dimensions needed for the cars that bring in the pedestrians—which is the cause of the congestion and the reason for the separation—means stretching the dimensions of the corresponding pedestrian levels to the point of self-cancellation of pedestrian convenience. These schemes too, to be practical either for cars or for the pedestrians, must presuppose a drastic reduction in absolute numbers of automobiles, and much greater dependence on public transportation instead.

And there is another difficulty behind pedestrian schemes. Most city enterprises which are a response to pedestrian street use, and which, reciprocally, generate more pedestrian street use, themselves need convenient access to vehicles for services, supplies or transport of their own products.

If vehicular and pedestrian traffic are completely separated, one of two alternatives must be accepted.

The first alternative is that the preserves for the pedestrians must be streets which do not contain such enterprises. This is automatically an absurdity. These absurdities can be found, in real life, and just as might be expected, the preserves are empty. The pedestrians are in the vehicular streets, where the enterprises are. This type of built-in contradiction afflicts much grandiose "city of tomorrow" planning.

The other alternative is that it is necessary to devise schemes of vehicular servicing, separated from the pedestrian preserves.

Gruen's scheme for Fort Worth handled the servicing problem with a system of underground tunnels for trucks and for taxi service to hotels, with access through basement-level loading.

As a variant, the scheme also proposed a highly developed system of "post officing," a method also worked out many years ago by Simon Breines, a New York architect, in a proposal for a pedestrian midtown New York. "Post officing" means a system of central sorting for all freight and other deliveries within a zone. The sorted materials of *all* kinds from *all* sources to each destination are then combined and their distribution rationalized, much as incoming mail is sorted at a post office and distributed. In this case, the point is to cut down numbers of truck deliveries drastically; the reduced numbers of deliveries (and dispatches) can then be made when few pedestrians are around, preferably at night. The car-pedestrian separation, so far as trucking is concerned, thus becomes principally a separation in time, rather than in space. It involves considerable expense, because it involves an extra step of materials handling.

Except in the most intensively used central downtown areas, it hardly seems that the service complications accompanying thoroughgoing separation of pedestrians and vehicles are justified.

I am doubtful as to whether the advantages of thoroughgoing separation are, in any case, very great. The conflicts between pedestrians and vehicles on city streets arise mainly from overwhelming numbers of vehicles, to which all but the most minimum pedestrian needs are gradually and steadily sacrificed. The problem of vehicular dominance, beyond toleration, is not ex-

clusively a problem involving automobiles. Obviously, excessive numbers of horses produced similar conflicts; people who have experienced an Amsterdam or New Delhi rush hour report that bicycles in massive numbers become an appalling mixture with pedestrians.

Where opportunity affords, I have been watching how people use pedestrian streets. They do not sally out in the middle and glory in being kings of the road at last. They stay to the sides. In Boston, which has experimented with closing two of its downtown shopping streets (the deliveries were the knotty problem, of course), it was quite a sight to see the almost empty roadbeds and the very crowded, very narrow sidewalks. On the other side of the continent, the same phenomenon occurs in the model Main Street of Disneyland. The only vehicles on the Disneyland town's roadbed are a trolley which comes by at rather long intervals, for kicks, and once in a while a horse and buggy. Nevertheless, visitors there use the sidewalks in preference to walking down the middle of the street; the only times I saw them choose the street instead were, perversely, when one of the vehicles or a parade went by. Then they went out to *join* what was in the street.

A certain amount of such inhibition in Boston or in Disneyland may be caused by the fact that we have all been so conditioned to respect the curbs. Paving which merged roadbed and sidewalk would probably induce more pedestrian use of roadbed space, certainly, where sidewalks are wide (even in Boston) people do not bunch themselves up to the laughable degree that they do in Disneyland or on the narrow downtown Boston sidewalks.

However, that is apparently only part of the answer. In suburban shopping centers where "streets" are wide but thoroughly pedestrian and without curbs, people stay to the sides also except where something interesting to see has been deliberately placed out in the "street." It takes tremendous numbers of pedestrians to populate the whole width of a roadbed, even in scatterings. The only times pedestrians seem to use, or want to use, a street roadbed in this fashion are in cases of extraordinary floods of pedestrians, as in the Wall Street district or the Boston financial area when the offices let out, or during the Easter parade on Fifth Avenue. In more ordinary circumstances, people are attracted to

the sides, I think, because that is where it is most interesting. As they walk, they occupy themselves with seeing—seeing in windows, seeing buildings, seeing each other.

In one respect, however, people on the pedestrian streets of Boston, of Disneyland, or of shopping centers do behave differently from people on ordinary city streets heavily used by vehicles. The exception is significant. People cross over from one side to the other freely, and in using this freedom they do not seem to be inhibited by the curbs. These observations, coupled with the way people are forever sneaking across streets at forbidden places if they can get away with it—even at risk to their lives—and coupled with the palpable impatience people so often exhibit at crossings, lead me to believe that the main virtue of pedestrian streets is not that they completely lack cars, but rather that they are not overwhelmed and dominated by floods of cars, and that they are easy to cross.

Even for children the point may be less to segregate the cars than to reduce the domination by cars and combat the erosion of sidewalk play space by cars. It would, of course, be ideal to dispose of cars entirely on city streets where children play; but worse troubles still are harvested if this means disposing of the other utilitarian purposes of sidewalks, and along with them, supervision. Sometimes such schemes, too, are automatically self-canceling. A housing project in Cincinnati affords an illustration. The houses in this project front on pedestrian precincts of lawns and sidewalks, and they back up on service alleys for cars and deliveries. All the casual coming and going occurs between the houses and the alleys and therefore, functionally, the backs of the houses have become the fronts and vice versa. Of course the alleys are where the children all are too.

Life attracts life. Where pedestrian separation is undertaken as some sort of abstract nicety and too many forms of life and activity go unaccommodated or are suppressed to make the nicety work, the arrangement goes unappreciated.

To think of city traffic problems in oversimplified terms of pedestrians versus cars, and to fix on the segregation of each as a principal goal, is to go at the problem from the wrong end. Consideration for pedestrians in cities is inseparable from considera-

tion for city diversity, vitality and concentration of use. In the absence of city diversity, people in large settlements are probably better off in cars than on foot. Unmanageable city vacuums are by no means preferable to unmanageable city traffic.

The problem that lies behind consideration for pedestrians, as it lies behind all other city traffic difficulties, is how to cut down absolute numbers of surface vehicles and enable those that remain to work harder and more efficiently. Too much dependence on private automobiles and city concentration of use are incompatible. One or the other has to give. In real life, this is what happens. Depending on which pressure wins most of the victories, one of two processes occurs: erosion of cities by automobiles, or attrition of automobiles by cities.

To understand the pros and cons of any city traffic tactics, we have to understand the nature of these two processes, and their implications. We also have to be aware that surface traffic in cities exerts pressures upon *itself*. Vehicles compete with each other for space and for convenience of their arrangements. They also compete with other uses for space and convenience.

Erosion of cities by automobiles entails so familiar a series of events that these hardly need describing. The erosion proceeds as a kind of nibbling, small nibbles at first, but eventually hefty bites. Because of vehicular congestion, a street is widened here, another is straightened there, a wide avenue is converted to one-way flow, staggered-signal systems are installed for faster movement, a bridge is double-decked as its capacity is reached, an expressway is cut through yonder, and finally whole webs of expressways. More and more land goes into parking, to accommodate the ever increasing numbers of vehicles while they are idle.

No one step in this process is, in itself, crucial. But cumulatively the effect is enormous. And each step, while not crucial in itself, is crucial in the sense that it not only adds its own bit to the total change, but actually accelerates the process. Erosion of cities by automobiles is thus an example of what is known as "negative feedback." In cases of negative feedback, an action produces a reaction which in turn intensifies the condition respon-

sible for the first action. This intensifies the need for repeating the first action, which in turn intensifies the reaction, and so on, ad infinitum. It is something like the grip of a habit-forming addiction.

A striking statement of the negative feedback traffic process—or part of it—was worked out by Victor Gruen in 1955, in connection with his Fort Worth plan. Gruen, in order to understand the size of problem he had in hand, began by calculating the potential business that Fort Worth's currently underdeveloped and stagnating—but traffic-jammed—downtown ought to be doing by 1970, based on its projected population and trading area. He then translated this quantity of economic activity into numbers of users, including workers, shoppers and visitors for other purposes. Then, using the ratio of vehicles per downtown users current in Fort Worth, he translated the putative future users into numbers of vehicles. He then calculated how much street space would be required to accommodate the numbers of these vehicles apt to be on the streets at any one time.

He got an outlandish figure of roadbed needed: sixteen million square feet, not including parking. This is in comparison with the five million square feet of roadbed the underdeveloped downtown now possesses.

But the instant Gruen had calculated his sixteen million square feet, the figure was already out of date and much too small. To obtain that much roadbed space, the downtown would have to spread out physically to an enormous extent. A given quantity of economic uses would thereby be spread relatively thin. To use its different elements, people would have to depend much less on walking and much more on driving. This would further increase the need for still more street space, or else there would be a terrible mess of congestion. Differing uses, necessarily strung out in such relatively loose fashion, would be so far from one another that it would become necessary to duplicate parking spaces themselves, because uses bringing people at different hours would not be sufficiently compact for much staggered use of the same accommodations.* This would mean spreading the downtown even

* This type of waste already occurs frequently in downtowns where dribbled use is deliberately planned. Thus Pittsburgh's new civic center, drib-

thinner, in turn requiring still more use of cars, traveling greater absolute distances internally. Very early in the process, public transportation would be thoroughly inefficient, from both the customer's and the operator's point of view. In short, there would be no coherent downtown, but a great, thin smear, incapable of generating the metropolitan facilities, diversity and choices theoretically possible for the population and economy concerned.

As Gruen pointed out here, the more space that is provided cars in cities, the greater becomes the need for use of cars, and hence for still more space for them.

In real life, we do not suddenly jump five million square feet of city roadbed to sixteen million square feet, and so the implications of accommodating a few more cars and a few more cars and a few more cars are a little harder to see. But swiftly or slowly, the negative feedback is at work. Swiftly or slowly, greater accessibility by car is inexorably accompanied both by less convenience and efficiency of public transportation, and by thinning-down and smearing-out of uses, and hence by more need for cars.

The paradox of increasing car accessibility and decreasing intensity of users can be seen at its extreme in Los Angeles, and to almost as great a degree in Detroit. But the combination is just as inexorable in cities at an earlier stage of the erosion process, where only a small minority of users are accommodated by the increase in surface traffic flow. Manhattan is a case in point. One method adopted there to palliate vehicular congestion is to speed traffic by making the wide north-south avenues one-way. Buses, instead of running both ways on an avenue, must, of course, like the other vehicles, run north on one avenue, south on another. This can, and often does, mean two long blocks of otherwise unnecessary walking by bus users, in the course of reaching a given destination.

Not surprisingly, when an avenue is made one-way in New York, a drop in bus patronage follows. Where do these former

bled and buffered off at the edge of downtown, must provide, for evening use, parking accommodations that are duplicated in the working part of downtown and go empty in the evenings. Joint support of any type of city facility, including parking and pavement as surely as parks and stores, requires great compactness.

bus riders go? Nobody knows, but the bus company's theory is that this fraction of its riders represents persons on a borderline of choice. Some, the company officials think, are on a borderline of choice as to whether to use buses or to use individual vehicles; others, who have come into the district from outside, are on a borderline of choice as to whether to make the effort to use the district, and there may be other choices, such as not making the internal trip. Whatever their choices, convenience differentials have shifted sufficiently for these people to change their minds. What is indisputable is that the increased traffic flow, with its by-the-way depressing effect on public transportation, does bring into play an increase in numbers of vehicles. It also cuts down pedestrian convenience by forcing longer waits than formerly at crossings on the affected avenues.

With one palliative and another, Manhattan enabled, during the eight-year period 1948-56, 36 percent more vehicles to enter it daily from outside, although this still represents a small fraction of Manhattan's users from outside, 83 percent of whom arrive by public transportation. During this same interval there was a 12-percent decline in public transportation passengers from outside, leaving a "deficit" of about 375,000 human users a day from outside. Increased city accessibility by cars is *always* accompanied by declines in service of public transportation. The declines in transit passengers are always greater than increases in private automobile passengers. With greater accessibility to a district by cars, total cross-use of the district by people thus invariably declines, and this is a serious matter for cities, where one of the great jobs of transportation is to permit and encourage cross-use.

Results like this—increased accessibility, decreased intensity—stir panic in certain breasts. To counter the drop in intensity of use, the standard remedy is to try to increase further the accessibility by cars—usually, first, by making parking easier for them. Thus, taking another Manhattan example, one of the remedies fervently advocated by the traffic commissioner, as a palliative for department stores, is a series of city-owned parking garages. This palliative would erode some ten blocks or so of midtown Manhattan land, including many hundreds of small businesses.*

* At one of the garage sites the traffic commissioner advocates—very "logi-

Thus does erosion, little by little, subtract reasons for using an eroded district, and at the same time make it less lively, less convenient, less compact, less safe, for those who continue to have reason to use it. The more concentrated and genuinely urban an area, the greater the contrast between the smallness of what is delivered and the significance of what is lost by the process of erosion.

If vehicular traffic in cities represented some fixed quantity of need, then the action of providing for it would produce a satisfying and fulfilling reaction. Something, at least, would be solved. But because the need for more vehicles grows with the palliatives, the solution keeps receding.

Even so, there should be at least a theoretical point of solution—a point when increasing accessibility and decreasing intensity of use reach a state of equilibrium or balance. At this point, the traffic problem should be solved in the sense that there would be no more pressure from vehicles unsatisfied for movement and storage room. With progressive erosion, traffic pressures upon the various parts of a city should be gradually equalized, and then the continued sprawl should satisfy these equalized pressures. When a city has become a sufficiently homogeneous and thin smear, it should have the traffic problem, at any rate, in hand. Such a state of equilibrium is the only possible solution to a negative feedback process like city erosion.

This point of equilibrium has not yet been approached in any American city. Our real-life examples of big cities subjected to erosion illustrate, as yet, only the stage of ever growing pressure. It

cally" located between a department store and the foot of a bridge—I counted 129 businesses, including several unique spice shops to which customers come from all over the metropolitan area, a couple of art galleries, some dog beauty parlors, a couple of very good restaurants, a church, and a great many residences, including several recently rehabilitated old houses. The businesses include those which would be taken, and those facing, on the opposite sides of the streets, for these make a unit; the businesses left, facing a huge deadening garage, would be amputated from their constellation of mutual support, and deadened too. To its credit, the City Planning Commission is opposing the traffic commissioner's garage scheme, as this is written, and is opposing it for the right reasons: on the grounds that encouragement to more vehicles will be destructive to other values.

would seem that Los Angeles ought to be approaching the point of equilibrium because 95 percent of travel within Los Angeles is now done by private automobile. Yet, even so, the pressures have not been sufficiently equalized, for into Los Angeles' eroded and drab downtown 66 percent of users still come by public transportation. When a strike of transit workers in 1960 brought out more cars in Los Angeles than usual, air photos showed freeways and surface roads alike jammed at crawling bumper-to-bumper capacity, and news reports told of fist fights between harried drivers competing for insufficient parking places. Los Angeles' transit system, once considered the best in the United States (some experts say in the world), has declined to a slow and inconvenient vestige of public transportation, but it obviously still has a reservoir of users for whom there is no room on the highways and parking lots. Moreover, the parking pressure generally is still on the increase there. A few years ago, two parking places per apartment were considered ample for those moving back into the "city." Today the new apartment houses are providing three parking places per apartment, one for the husband, one for the wife, and an average of one per apartment for other household members or visitors. No fewer will do in a city where it is hard to buy a pack of cigarettes without an automobile; and when someone gives a party even an average allotment of three parking spaces per apartment becomes a squeeze. Nor has the pressure been lifted yet for cars in motion under normal, everyday conditions. As Harrison Salisbury has written in the *New York Times*:

Time and again, Los Angeles freeway movement is impeded by accidents. So chronic is the problem that the engineers propose to remove stalled cars from the highways by helicopter. The truth is that a horse and buggy could cross Los Angeles almost as fast in 1900 as an automobile can make this trip at 5 P.M. today.

The point of equilibrium, wherever it may lie, lies beyond the point where problems even more serious than traffic bottlenecks are generated. It lies beyond the point of safety from other human beings for persons afoot upon streets. It lies beyond the point of casual city public life. It lies far beyond the point of any rela-

tionship between investment and productivity. Quoting Salisbury again:

The drawback is that as more and more space is allotted to the automobile, the goose that lays the golden eggs is strangled. Enormous areas go from the tax rolls and are rendered unsuitable for productive economic purposes. The community's ability to foot the ever-multiplying costs of freeways dwindles . . . At the same time traffic movement becomes more and more random . . . It is from Los Angeles that the most anguished cries are heard for rescue from the rubber-tired incubi. It is Los Angeles that threatens to prohibit new cars unless they are fitted with devices to prevent the discharge of smog-creating hydrocarbon fractions . . . It is in Los Angeles that serious officials say that the system is exhausting the elements necessary for human life—land, air and water.

Los Angeles did not plan to cultivate such problems, any more than New York and Boston and Philadelphia and Pittsburgh, eating themselves away with expressways, are planning to chop up and eat themselves away. One seemingly logical step is taken after another, each step plausible and apparently defensible in itself; and the peculiar result is a form of city which is not easier to use and to get around in, but on the contrary more scattered, more cumbersome, more time wasting, expensive and aggravating for cross-use. A New York manufacturer who makes many business calls in other cities tells me he must devote almost twice as much time in Los Angeles as in San Francisco or New York to achieve a given number of calls and completed work. The head of a branch office of a consulting firm in Los Angeles tells me he ought to have two more staff members than are needed in Chicago, just to make an equivalent number and range of contacts.

Yet although erosion solves nothing, and creates great inefficiency, there is never a good or obvious point at which to swear off; for as the process proceeds, from its small and apparently innocuous beginnings, it becomes continually harder to halt or reverse it and seemingly, at least, more impractical to do so.

The tactics of erosion, destructive as they are to cities, and poor as they are at solving anything, cannot be blamed for all

that is cumbersome and progressively impractical and expensive in city transportation, however. Many city districts, without benefit of erosion, are thin and impractical for use except by private automobiles and always were—even before automobiles.

We are all familiar with the great need for automobiles in suburbs. It is common for wives in suburbs to chalk up more errand mileage in a day than their husbands chalk up in commuting mileage. Duplication of car parking is also familiar in suburbs: the schools, the supermarkets, the churches, the shopping centers, the clinics, the movie, all the residences, must have their own parking lots and all this duplicate parking lies idle for much of the time. Suburbs, at least while they remain suburbs, can stand this land waste and this high ratio of private automobile travel, because of their lack of concentration. (Here, it would seem, is that elusive point of equilibrium; yet the moment work is introduced into the mixture, even in a suburb, the equilibrium is lost.)

Much the same need, both for automobiles as a constant necessity and for duplicated parking, can occur in cities where conditions for city diversity—including sufficiently high densities—are lacking. "I am the one who commutes in this family," explains my friend Mrs. Kostritsky. The Kostritskys live in inner Baltimore, where they are close to Mr. Kostritsky's work. But his wife, using a car (nothing else is practical), must "commute" to get her children to school, to do any shopping more extensive than that involving a loaf of bread, a can of soup and a head of withered lettuce, to use a library, to see a show, to attend meetings, and, like any mother already out in the suburbs, this inner-city mother too must drive to a suburban shopping center to buy children's clothing. Not only are there no such stores near her home, but the downtown stores no longer have enough demand to carry a good range of children's clothing. By dark it is dangerous to travel except by car. The district's thinness, moreover, cannot justify tolerable public transportation, either within the district itself or to other parts of the city, and this would be so whether or not automobiles existed.

Such city districts are like suburbs in requiring constant automobile use. But, on the other hand, unlike suburbs, their concentration of people is too high for suburban accommodation of all

the automobiles and parking necessary. "In-between" densities—too low for cities, too high for suburbs—are as impractical for transportation as they are for other economic or social purposes.

The common fate of such districts nowadays is to be abandoned by people with choice, in any case. If the very poor inherit them, the transportation and use impracticalities may not cause serious traffic problems, because the inhabitants may not be able to afford enough traffic to make a problem. When they are able to, they are apt to leave.

But when such districts are purposely "renewed to bring back the middle class," or if they are the objects of conservation, to retain a population that has not yet deserted, the need to provide very extensive car accommodations immediately becomes a chief and overriding consideration. The existing deadness and thinness of use are thereby reinforced.

The Great Blight of Dullness is allied with the blight of traffic congestion.

The more territory, *planned or unplanned*, which is dull, the greater becomes the pressure of traffic on lively districts. People who *have* to use automobiles to use their dull home territory in a city, or to get out of it, are not merely capricious when they take the cars to a destination where the cars are unnecessary, destructive and a nuisance to their own drivers.

Territories exhibiting the Great Blight of Dullness need to be supplied with whatever conditions they lack for generating diversity. This is their basic need, regardless of traffic. But it is an aim which becomes impossible to further, if accommodations for huge numbers of cars get first consideration, and other city uses get the leftovers. A strategy of erosion by automobiles is thus not only destructive to such city intensity as already exists; it also conflicts with nurturing new or additional intensity of use where that is needed.

City uses and interests of various kinds are forever interfering with the erosion process. One reason that erosion occurs as gradually as it does in most cities is the exorbitant cost of buying up so much land which is already in use for other purposes. But no end of other factors besides expense exert friction on unlimited flow

of surface traffic. The many corners where pedestrians are allowed to cross streets, for instance, exert friction.

To get a sharp impression of the conflict that is waged between the pressures for accommodating more vehicles and the pressures exerted by many other uses, one need go no farther than the nearest public hearing about a street widening, a route for a city expressway, a bridge approach, a road in a park, a switch to one-way traffic, a new group of public garages, or any other officially sponsored erosion proposal that requires a hearing.

Such occasions bring forward a different viewpoint from that of the erosion advocates. Citizens whose neighborhoods or property will be affected usually turn up to combat the plan, sometimes protesting not only with their voices and petitions, but with demonstrations and signs.* They sometimes cite much the same line of general argument against erosion that I have touched on, quoting Salisbury or Gruen or Wilfred Owens' book, *Cities in the Motor Age*, or Lewis Mumford's arguments for balanced and varied transportation.

However, generalities and philosophy about whether the cities are heading are not really the meat of the citizens' arguments, nor does such comment make up their most fervent and convincing points.

What the citizens really attack is the *specific* destruction that will be wrought on their homes, their streets, their businesses, their community. Often their localized minor elected officials turn up to join the protest; if they did not, they would never be elected again.

The planners, traffic commissioners, major elected officials, and other remote people at the top of the municipal apparatus expect this procedure. They know all about such protesters: well-meaning people but, in the nature of things, untrained in these problems, concerned with parochial interests, unable to see "the big picture."

But what these citizens say is worth listening to.

The very earthiness and directness of their reasoning about

* Edmund Bacon, the director of Philadelphia's planning commission, tells me that citizens against an expressway he was for turned up with signs reading "Fry Bacon."

concrete and specific local effects is the key, I think, to rescuing cities from destruction by traffic, a point I shall return to soon. It is also a reminder that erosion is unpopular, for very tangible reasons, with great numbers of city people.

While protests, the necessity for hearings themselves, and the direct expenses required for many erosive changes all represent some of the forms of friction exerted by cities on the erosion process, they do not represent any reversal of the erosion process. At the most, they represent stalemate.

If the triumph of other pressures over traffic is carried a step further, however, so as to *diminish* vehicular traffic, then we have an example of attrition of automobiles by cities.

Attrition of automobiles by cities is today almost always happenstance. Attrition, unlike erosion, is seldom deliberately planned by anybody, and it is neither recognized nor practiced as policy. Nevertheless, it does occur.

Many of its occurrences are ephemeral. For instance, when an off-Broadway theater was opened at the intersection of several narrow streets in Greenwich Village, the added intensity of use at that spot, between the acts and after the show, hampered traffic. The patrons used the street roadbed as an outdoor lobby because the sidewalk was so narrow, and they were slow to get out of the way. A similar blockage of a much wider street can be seen in New York when Madison Square Garden lets out after some event at night. So great is the press of the crowds that they ignore the rights of vehicles. They do not respect the cars' turns at the lights. Traffic halts and backs up for many blocks. In either of these cases, if drivers on the borderline of choice decide not to try to bring the car next time, attrition is operating, although very ephemerally.

Another common form of attrition of automobiles by cities is represented in the garment district of New York City which generates a great deal of truck traffic. These trucks, in competition for road space, operate inefficiently; their numbers are so great that they render inefficient other forms of automobile traffic. People in private passenger cars learn to avoid the garment district. When those on borderlines of choice decide instead to walk or use the subway between their points of travel, attrition is

operating. Indeed, so difficult has it become to move into the garment district by taxi or private car that in recent years most of Manhattan's fabric firms, which used to be in a quiet backwater in downtown Manhattan, have moved up into the garment district where they can be within walking distance of their customers. While such a move adds to concentration and intensity of city land use, it cuts down on city vehicular use, and is an example of attrition carried to the point that the *need* for cars is reduced.

Attrition of automobiles by cities is so seldom deliberate that it is hard to find recent examples. (The closing of streets for pedestrian use, being almost always accompanied by compensating provisions for vehicles, is not attrition but rearrangement of traffic.) However, the closing of Washington Square Park in New York to automobiles, beginning in 1958, affords an instance and is worth examining.

Washington Square Park, about seven acres in size, terminates the southern end of Fifth Avenue. However, until 1958, it did not terminate north-south traffic on Fifth Avenue. A roadway arrangement, originally a carriage drive, carried traffic through the park between Fifth Avenue's terminus and other north-south roadways below the park.

Over the years, traffic, of course, gradually increased on this park roadway link and it was always a nuisance to other users who patronize this park heavily and continuously. Back in the 1930's, Robert Moses, in his capacity as parks commissioner, attempted to remove this road. But his plan was to compensate for it—much more than compensate for it—by trimming down the sides of the park to widen the narrow perimeter streets, and thus to encircle the park with a major, high-speed traffic artery. This scheme, locally christened “the bathmat plan” (describing what would be left of the park) was fought and defeated. Stalemate.

Then in the mid-1950's, Mr. Moses came up with a new plan for erosion. This one involved a major depressed highway cutting through the center of the park, as a link for carrying a heavy volume of high-speed traffic between midtown Manhattan and a vast, yawning Radiant City and expressway which Mr. Moses was cooking up south of the park.

At first most of the local citizens opposed the proposed de-

pressed highway, anticipating nothing beyond a stalemate. However, two daring women, Mrs. Shirley Hayes and Mrs. Edith Lyons, were less conventional in their thinking. They took the remarkable intellectual step of envisioning improvement for certain city uses, such as children's play, strolling, and horsing around, at the expense of vehicular traffic. They advocated eliminating the existing road, that is, closing the park to all automobile traffic—but at the same time, *not* widening the perimeter roads either. In short, they proposed closing off a roadbed without compensating for it.

Their idea was popular; the advantages were evident to anyone who used the park. Furthermore, it began to dawn on the theorists in the community that stalemate did not exist as a choice this time. For when other parts of the Moses Radiant City and Downtown Expressway scheme were eventually developed, the road through the park would begin to get automobiles in express-highway quantities. It was noticed that the old road, although a nuisance, was being used well below its capacity, and would be quite a different and intolerable affair when it carried a share of the proposed future expressway-destined load.

Instead of staying on the defensive, majority opinion in the community took to the offensive.

The city officials insisted that if the roadway were closed—a step they appeared to think insane—the only possible alternatives must be to widen the streets at the park perimeter, or else bring them to a state of frantic and frenetic congestion. The Planning Commission, after a hearing, turned down the proposals for closure, and approved instead what its members called a “minimum roadway” through the park, on the grounds that if the community got its foolish way the citizens would regret it. The streets surrounding the park, they said, would be swamped with diverted traffic. The traffic commissioner forecast an immediate annual increase of millions of cars in the nearby streets. Mr. Moses predicted that if the community got its way, the citizens would soon be back begging him to reopen the road and build a highway, but the mess they were in would serve them right and teach them a lesson.

All these dire predictions would likely have come true if com-

pensating provision had been made for cars diverted from the park. However, before any alternate arrangements were made—even arrangements for speed-up of flow on existing perimeter roadbeds—the community, by exerting rather tough political pressure abruptly, got the park road closed, first on a trial basis and then permanently.

None of the predictions of increased traffic around the park were borne out. These predictions could not be borne out because these perimeter streets, narrow, beset with many lights, cluttered with parked cars, whimsically used by jaywalkers, replete with hard-to-negotiate corners, were already a most aggravating and slow route for automobiles. The route through the park, the route that was being closed, was much the best immediate north-south route.

Every traffic count taken around the park perimeter since the closing has shown no increase in traffic; most counts have shown a slight reduction. On lower Fifth Avenue, the traffic counts dropped appreciably; apparently a considerable amount of its traffic had been through traffic. Far from bringing new problems of congestion, the obstacle resulted in slight relief of previous congestion.

Where have the traffic commissioner's annual millions of cars gone instead?

This is the most interesting and significant part of the story. They have not noticeably gone anywhere else instead. The through avenues east and west of Fifth Avenue, and parallel to it, which might have been expected to take the brunt of the diverted load, did not seem to receive an extra load. At least the running time of the buses, a factor sensitive to increases or decreases in total traffic, reflected no change. Nor did the bus drivers detect a difference from observation. (The traffic commissioner, who has the means for making counts of the extent needed, and for doing origin-destination trip studies, appeared uninterested in learning where, if anywhere, his vanished hordes departed. He does not like to talk about it.)

Like the vanished bus riders on the one-way avenues, these cars—or *some* cars—disappeared into thin air. Their disappearance is no more mysterious, and no less to be expected, than the

disappearance of the bus riders. For just as there is no absolute, immutable number of public transportation riders in a city, so is there no absolute, immutable number of private automobile riders; rather, the numbers vary in response to current differentials in speed and convenience among ways of getting around.

Attrition of automobiles operates by making conditions *less* convenient for cars. Attrition as a steady, gradual process (something that does not now exist) would steadily decrease the numbers of persons using private automobiles in a city. If properly carried out—as one aspect of stimulating diversity and intensifying city use—attrition would decrease the need for cars simultaneously with decreasing convenience for cars, much as, in reverse, erosion increases need for cars simultaneously with increasing convenience for cars.

In real life, which is quite different from the life of dream cities, attrition of automobiles by cities is probably the only means by which absolute numbers of vehicles can be cut down. It is probably the only realistic means by which better public transportation can be stimulated, and greater intensity and vitality of city use be simultaneously fostered and accommodated.

However, a strategy of attrition of automobiles by cities cannot be arbitrary or negative. Nor is such a policy capable of giving dramatic results suddenly. Although its cumulative effects should be revolutionary, like any strategy aimed at keeping things working it has to be engaged in as a form of evolution.

What sort of tactics are suitable to a strategy of attrition of automobiles by cities? Many of the tactics become obvious at once, if we understand that the point is not attrition of automobiles *in* cities but rather the attrition of automobiles *by* cities. Tactics are suitable which give room to other necessary and desired city uses that happen to be in competition with automobile traffic needs.

Consider, for example, the problem of accommodating the sidewalk uses, from outdoor store displays to children's play, that people attempt in popular streets. These need broad sidewalks. In addition, double rows of trees might be splendid on some sidewalks. An attrition tactician would look for sidewalks

getting heavy or various use, and would seek to widen and enhance them as a gain for city life. Automatically, this would narrow the vehicular roadbed.

If and when our cities learn to foster deliberately the four basic generators of diversity, popular and interesting streets will grow ever more numerous. As soon as such streets, by their use, earn sidewalk widening, it should be offered.

Where would the money come from? From the same place the money now comes that is misapplied to sidewalk narrowing.*

There are many variants to physical subtraction of roadbed space for the benefit of other, already evident uses. Spots of intense congregation outside schools, some theaters, certain store groupings, could be given outdoor lobbies intruding partially into the vehicular roadbed, thus making their attrition value permanent instead of ephemeral. Small parks could be carried across a street, thereby creating dead ends. These would still permit, from either direction, vehicular service access to a street. But they would prevent vehicular through traffic except in emergency. Park roads, where parks get enough use to justify this, could be closed off as in Washington Square.

Aside from these and other variants of intrusion on roadbed space, shorter blocks (and therefore many crossings) which are a necessity in any case for generating diversity, also interfere with traffic flow.

In the next chapter, on visual order, I shall make further specific suggestions for tactics that simultaneously are of positive benefit for city life and happen to frustrate automobile traffic. Possibilities for adding to convenience, intensity and cheer in cities, while simultaneously hampering automobiles, are limitless. Today we automatically, if sometimes regretfully, rule out most amenities—to say nothing of pure functional necessities like easy and frequent pedestrian crossings—because these are in conflict

* Manhattan alone widened 453 street roadbeds in the years 1955-58, and its borough president announced that this was only a start. A sensible attrition program there would eliminate sidewalk narrowing, would aim—among other things—at widening the sidewalks of at least 453 streets in a four-year period, and would consider this only a start.

with the voracious and insatiable needs of automobiles. The conflict is real. There is no need to invent tactics artificially.

Nor is there any need to foist such improvements where they are not wanted. Streets and districts where appreciable numbers of people want and will enjoy such changes should get them; not streets or districts whose people will give them no support.

So close and so organic is the tie between vital, diverse city districts and a reduction in absolute numbers of vehicles using their streets, that, except for one serious problem, a good strategy of attrition could be based purely on building lively, interesting city districts, and all but ignoring the by-the-way effects on automobile traffic—which would automatically be effects of attrition.

Attrition must come about with a certain selectivity. As mentioned earlier in this chapter, traffic exerts pressures upon *itself*; vehicles compete with each other, as well as with other uses. Just as other uses and traffic adapt and adjust to each other, thus giving rise to the processes of erosion or attrition, so do vehicles adapt and adjust to the presence of each other. For instance, the inefficiency of trucks in cities is, in large part, an adaptation by trucks to the competition of so many vehicles. If the inefficiency becomes sufficiently great, the enterprises concerned may move or go out of business, which is another aspect of erosion and thinning down in cities. I have already given an example of differential convenience among vehicles themselves: the differing effects upon private automobiles and upon buses of making an avenue one-way. The advantage to the automobiles is a penalty to the buses.

Utterly unselective attrition of vehicles could be, in many streets, as discouraging to trucks and to buses as to private automobiles.

Trucks and buses are themselves important manifestations of city intensity and concentration. And as I shall soon indicate, if their efficiency is encouraged, this too results in further attrition of automobiles, as a side effect.

I am indebted for this line of thought to William McGrath, traffic commissioner of New Haven, who has conceived several means by which already familiar traffic techniques can be used

deliberately for selective vehicular encouragement and discouragement. The very idea of doing such a thing at all is brilliant; McGrath says it occurred to him gradually, over a period of four years of working with New Haven planners, during which he realized that techniques for moving and storing more cars and for putting every foot of roadbed to maximum use, as he learned in school, was a most lopsided way of dealing with city streets.

One of McGrath's aims is to encourage greater efficiency of public transportation, which in New Haven today means buses. To achieve this, the buses going into and through downtown must be speeded up. This can be done without doubt, says McGrath, by regulating the traffic light frequencies to short intervals and not staggering them. Owing to the corner pick-up stops required in any case by buses, the short signal frequencies interfere with bus travel time less than long signal frequencies. These same shorter frequencies, unstaggered, constantly hold up and slow down private transportation, which would thereby be discouraged from using these particular streets. In turn, this would mean still less interference and more speed for buses.

McGrath thinks that the realistic way to get pedestrian streets where these may be desirable in a heavily used downtown is to bollix up the use of the street for cars—largely by bollixing up the signal system—to the point that “only a driver with a hole in his head would pick such a route after he tried it a time or two,” and also by forbidding parking and standing. After such a street has reached the point that it is being used only by trucks making or picking up deliveries there, and by few other vehicles, its status as a pedestrian street can be formalized without much jolt to anybody and without the necessity to compensate by throwing heavy flow and burdensome parking upon some other street. The necessary changes in habits will already have been absorbed, by attrition.

Theoretically, city expressways are always presented as means for taking cars off of other streets, and thereby relieving city streets of traffic. In real life, this works only if and when the expressways are well under capacity use; left unconsidered is the eventual destination, off the expressway, of that increased flow of vehicles. Instead of serving as bypassers, expressways in cities

serve too frequently as dumpers. Mr. Moses' proposed plan for a downtown expressway in Manhattan, for instance—the one with repercussions on Washington Square—is always presented appealingly as a fast route between the East River bridges and the Hudson River tunnels to keep through traffic out of the city. And yet the actual plan for it includes a spaghetti-dish of ramps into the city. It will be a dumper, and by thus accommodating traffic aimed for the heart of the city, it will actually tend to choke up, instead of aid, city bypass traffic.

McGrath thinks that if expressways are genuinely meant to relieve city streets, their full effects must be taken into account. There must, for one thing, be no increased parking to be reached through city streets that are theoretically supposed to be relieved of cars. Nor should it be possible at exit ramps, McGrath believes, for drivers to thread their way through theoretically relieved streets. McGrath works this out as follows: Streets that could possibly be used as alternates to the artery when the artery chokes up, should be protected by judiciously placed dead ends; these would not interfere with localized use of streets but would thoroughly thwart drivers trying to knit them with expressway or arterial routes. With such devices, expressways could serve as bypass routes only.

Certain ramps, which do lead into dense cities, could be limited to trucks and buses.

Extending the basic McGrath idea of selectivity further, trucks in cities could be greatly helped. Trucks are vital to cities. They mean service. They mean jobs. At present, we already have, in reverse, truck selectivity traffic tactics on a few city streets. On Fifth and Park avenues in New York, for instance, trucks are forbidden, except for those making deliveries.

This is a reasonable policy for some streets, but under a strategy of attrition of automobiles, the same tactics can be used wrong-side-out on other streets. Thus, where streets are narrowed or bottlenecked to the point that a choice must be made as to what vehicles can use them, precedence can go to trucks, with other vehicles permitted only if *they* are making (passenger) deliveries or pickups.

Meantime, the fastest lanes in multilane arteries or on wide

avenues could be reserved for trucks only. This is no more than a reversal, for example, of the amazingly frivolous New York policy of designing the speediest expressway arteries, along the densest parts of the city, deliberately to exclude trucks, and forcing even long-distance trucking into local streets.

Trucks, favored by selective attrition, would do considerable self-sorting. Long-haul vehicles would, in the main, use fast arteries. Narrow or bottlenecked streets would be used primarily for deliveries or pickups.

In a city district where attrition of automobiles had steadily and selectively occurred, we could expect to find trucks forming a much higher proportion of total surface vehicles than is the case today. This does not mean there would be more trucks, but rather fewer passenger automobiles; the more effective the attrition on private cars, the less ubiquitous we might expect the trucks to be, because they would not be halted and idled to the extent they are now. Furthermore, trucks which are used *for* work, instead of for getting to and from work, spread out their use through the working day instead of piling up in wild peaks.

As between taxis and private passenger automobiles, inadequate parking selectively favors taxis. This can be a useful form of traffic selectivity too, because taxis do so many more times the work of equivalent private cars. Khrushchev, when he visited this country, understood this differential in efficiency very quickly. After watching the traffic in San Francisco, he commented to the mayor in wonder at the waste, and evidently thought over what he had seen, because when he reached Vladivostok on his way home he announced that it would be his policy to encourage fleets of taxis in Soviet cities rather than private automobiles.

Selectivity, which would have to be part of a successful strategy of attrition wherever the competition among vehicles warranted it, means very little, however, by itself. It has point only as part of a broad strategy of cutting down absolute numbers of vehicles in cities.

In considering suitable tactics and principles of attrition, it is worth taking another look at the process of erosion. Erosion of cities by automobiles, while anything but admirable in its effects,

presents much to admire in certain of its principles of operation. Anything so effective has something to teach, and is worth respect and study from that point of view.

The changes required or wrought by erosion always occur piecemeal—so much so that we can almost call them insidious. In the perspective of a city's life as a whole, even the most drastic steps in the process are piecemeal changes. *Therefore, each change is absorbed piecemeal, as it occurs.* Each erosive change requires changes in the habits which people follow to get around in a city, and changes in the ways that they use a city, but not everybody needs to change his habits at once, nor does anybody (except those displaced) have to change too many habits at once.

Attrition of automobiles requires changes in habits and adjustments in usage too; just as in the case of erosion it should not disrupt too many habits at once.

The desirability of piecemeal, evolutionary attrition has a bearing, too, on the development of public transportation. At present public transportation languishes, but not from lack of potential technical improvement. A wealth of ingenious technique lies in limbo because there is no point in developing it during an era of city erosion, no funds for it, no faith in it. Even if public transportation is stimulated by increase in usage, under tactics of automobile attrition, it is unrealistic to expect that revolutionary improvement will be accomplished abruptly, or wished into being. The development of twentieth-century public transportation (something we have never possessed) has to follow a rise in custom and clearly anticipated custom, just as decline in public transportation has followed a drop in custom and anticipated drop in custom.

The piecemeal erosive changes that cumulatively eat away a city are by no means all thought out in advance, in some Olympian scheme or master plan. If they were, they would not be nearly as effective as they are. In the main, they occur as direct, practical responses to direct, practical problems as those problems appear. Every move thus counts; few are gestures and boondoggles. In the case of attrition of automobiles, this same kind of opportunism will give maximum results, and also best results in terms of city utility and improvement. Attrition tactics should be applied where

conflicts exist between traffic flow and other city uses, and as new conflicts of this kind develop.

Finally, city eroders always approach the problems to be solved in positive fashion. There is some talk, mostly on rarefied and abstract levels, about using highways for the side *purpose* of slum clearance. But in real life, nobody either promotes or supports highways with the negative *purpose* of getting rid of something else. Increased, or supposedly increased, convenience, speed or access are the purposes.

Attrition, too, must operate in positive terms, as a means of supplying positive, easily understood and desired improvements, appealing to various specific and tangible city interests. This is desirable not because such an approach is a superior persuasive and political device (although it is), but because the objects should be the tangible and positive objects of increasing, in specific places, city diversity, vitality and workability. To concentrate on riddance as the primary purpose, negatively to put taboos and penalties on automobiles as children might say, "Cars, cars, go away," would be a policy not only doomed to defeat but rightly doomed to defeat. A city vacuum, we must remember, is not superior to redundant traffic, and people are rightly suspicious of programs that give them nothing for something.

What if we fail to stop the erosion of cities by automobiles? What if we are prevented from catalyzing workable and vital cities because the practical steps needed to do so are in conflict with the practical steps demanded by erosion?

There is a silver lining to everything.

In that case we Americans will hardly need to ponder a mystery that has troubled men for millennia: What is the purpose of life? For us, the answer will be clear, established and for all practical purposes indisputable: The purpose of life is to produce and consume automobiles.

It is not hard to understand that the producing and consuming of automobiles might properly seem the purpose of life to the General Motors management, or that it might seem so to other men and women deeply committed economically or emotionally to this pursuit. If they so regard it, they should be commended

rather than criticized for this remarkable identification of philosophy with daily duty. It is harder to understand, however, why the production and consumption of automobiles should be the purpose of life for this country.

Similarly, it is understandable that men who were young in the 1920's were captivated by the vision of the freeway Radiant City, with the specious promise that it would be appropriate to an automobile age. At least it was then a new idea; to men of the generation of New York's Robert Moses, for example, it was radical and exciting in the days when their minds were growing and their ideas forming. Some men tend to cling to old intellectual excitements, just as some belles, when they are old ladies, still cling to the fashions and coiffures of their exciting youth. But it is harder to understand why this form of arrested mental development should be passed on intact to succeeding generations of planners and designers. It is disturbing to think that men who are young today, men who are being trained now for their careers, should accept *on the grounds that they must be "modern" in their thinking*, conceptions about cities and traffic which are not only unworkable, but also to which nothing new of any significance has been added since their fathers were children.