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## The City as Convivial Centre

Leopold Kohr

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When Andre Gide, renowned as an author but, also, most of his life as a communist, returned once from a pilgrimage to Leningrad, he deeply offended his Russian hosts by saying: 'What I loved in Leningrad was St. Petersburg.'

I was reminded of this recently when I had a talk with a friend from the Puerto Rico Planning Board. Discussing the attempt to disperse industry more evenly across the Island, he complained that, in spite of great inducements to settle elsewhere, many businessmen return in the end to the already overcrowded old city of San Juan. Knowing San Juan, I can understand why. The reason why Andre Gide loved the St. Petersburg in Leningrad was that it was not built by modern planners. Similarly, the reason why so many industrialists move to the charming old city of San Juan in preference to areas where they could have all the space and facilities they desire is, I should venture to state, likewise that it was not built by modern planners.

Designed hundreds of years ago, ancient cities must obviously have hit upon some basic purpose of urban living that eludes the town planners of our own time. In a paper *The Training of Planners*, read in March 1956 at the University of Puerto

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Rico, Sir William Holford made the point that previous ages had the advantage of a precise moral aim giving direction to all planning. Classical antiquity strove for harmony; the Middle Ages for mystic fulfillment; the Renaissance for the elegance of proportions; more modern times for the enlightenment of humanism. All knew exactly what they wanted.

But what about the purpose of contemporary city planners? We have no clear picture of it except that it is animated by social service — a concept that shifts from day to day and, therefore, cannot easily be defined. Here, we are told, lies the great disadvantage of modern planners. Earlier builders knew exactly what they were building, because all they did was to execute what their mind conceived. By contrast, modern planners, whose purpose is the cultivation of the public taste, have the hardest time finding out what this taste is. Since God has failed to endow this fickle master with a voice by which it could communicate its desires, the planner must engage research staffs to find out in what direction the wind is blowing. And what does he discover when, at last, he has executed his design in response to winds, tides, and grass roots? That those for whom he has built, after a first look at it, move back into old San Juan, built four hundred years ago without concern to the alleged requirements of communal purposes and without the benefit of town planning courses.

Contrary to Sir William's, interesting categorization of the changing purpose of city planning in the course of time, I should like to submit that there is no such thing as a changing purpose. The reason why old towns are so charming, and new ones are not, is due to the fact that city planners of former times — of ancient Greece, of medieval city states, of modern Paris — did not pursue different purposes as their age changed, but instinctively served always the one unchanging purpose for which people have at all times desired to live in urban centres or human communities of any kind. This purpose was philosophically expressed by Aristotle when he said that

men form communities not for justice, peace, defence, or traffic, but for the sake of a good life. And the good life in the community has at all times signified the satisfaction of man's three basic social desires to which former planners have invariably given material shape in their structures. These desires are conviviality, religiosity, and politics. Hence, the nucleus of their Cities, with all their variation in styles, consisted always of the same basic structures. Taverns and theatres to satisfy conviviality, churches to satisfy religiosity, and city hall their political temperament. And because fulfilment of the community-creating desires required an economic base these structures were naturally grouped around the market place serving a fourth communal function, trade.

The reason that is driving people back into old San Juan seems therefore not the harbour, the labour force, the traffic facilities, the motorways. What brings them back from their locations without nucleus are the ancient blue cobblestones which do not speed up but slow down pace, the narrow lanes, the taverns on Cristo Street, the theatres, La Mallorquina, in short, the intensity and excitement of a town whose ancient planners did not think in terms of social service, mysticism, symmetry, or harmony, but in terms of conviviality, religiosity, politics, and trade.

If industry is to be successfully decentralized, what is necessary seems not the building of factories free of charge, or the promise of prolonged tax relief. What is needed seems to be the construction of urban nuclei at primitive cross roads — a sidewalk cafe, a restaurant serving excellent meals, a little theatre, a charming Henry Klumb church, a well styled assembly hall. Then industrialists will go there even if they have to build their own factories, and must pay taxes on top of it.

To summarize the success and failure of modern city planners in one sentence: ancient city planners, recognising the unchanging Aristotelian purpose of why people live in communities, put all their talent into the construction of the com-

munal nucleus — inns, churches, city halls, market places. The rest of the city then followed by itself. Modern planners are forever building the rest of the city. But without nucleus nothing can be held together. And the nucleus they cannot build because they are convinced that every age has a different purpose which, by the time they have discovered it, has melted away from underneath their feet.

There is no need to describe the traffic gluts of metropolitan areas such as we find nowadays almost anywhere — from London to Glasgow, from New York to San Juan. The only question is: What causes them? Too narrow streets? Streets have been widened, and gluts have become worse. Too few traffic arteries? Traffic arteries have multiplied, and gluts have become worse. Urban density? The cities have exploded outward like atomic clouds, diminishing density. But the gluts have increased in proportion as the cities have spread. Bad planning? Town administrations everywhere have long begun to enhance their social status by drawing expensive prestige advice from glamorous planning colleges such as Harvard or MIT, with the result that the gluts of underdeveloped San Juan have become as earnestly worthy of academic analysis as those of overdeveloped Cambridge or Boston. Too little thought?

Actually, one of the most basic causes of modern urban traffic problems lies in the opposite direction: in the fact that planning authorities are giving them not too little but too much thought. Indeed, such is their almost Freudian traffic fixation that they have ceased to care for anything but the swift movement of cars and its attendant problems, as if the sole purpose of the city were to serve as a race track for commuting drivers. As a result, whenever they hear of an obstacle to traffic such as a level street intersection, an edgy corner, a curve in a road, a two-way street, they are obsessed with the single thought of doing away with it. In San Juan, this has led to the prohibition of a fountain on a lawn to be skirted by a series of monotonous new traffic circles on the ground that its water display, though

old San Juan a chain reaction of restorations to ancient beauty was triggered off without the expenditure of a penny in public funds, once a few individuals of taste, unencumbered by the prejudice of a status seeking middle class, had succeeded in disproving the ideas radiating from our high powered school of modern city planning.

it would admittedly have added a touch of beauty, might distract the dedicated drivers from the swift pursuit of their appointed rounds. In Los Angeles, with its more advanced degree of traffic perfection, the same thoughtful philosophy has been responsible for turning three fourths of the entire urban area, over to roads needed for travelling and space needed for parking. The result? What might have been an elegant metropolis has become one of the most tormented sprawls of our time, offering to its harassed populations not the luxuries of leisure derived from life in graceful urban vicinities, but the burden of rural distances which, in the middle of the famous conurbation, are hardly shorter than those negotiated by medieval journeymen when travelling through entire principalities.

What has been completely overlooked in this obstacle-removing obsession of modern urban planners is that it is rapidly chewing up the greatest as well as the most precious obstacle to traffic of them all — the city itself. If cities existed for traffic, their gradual removal would indeed represent a significant improvement. However, since time immemorial their obvious founding purpose has been to serve man's convivial, political, and religious aspirations which find their material anchor not in traffic but in trade — a vastly different proposition. And trade has always been governed by principles diametrically opposite to those governing traffic. While traffic thrives on the removal of obstacles, trade thrives by putting them in its way. For the function of the city, unlike that of a refreshment or refuelling station in the open land, is to act as a terminus, not as a passage point. It is a stop, not a flow concept; an end, not a means; a place for getting out, not for driving through. This is why nearly all good cities have developed at points where the flow of traffic was bound to come to a halt: at the base of mountains, or on their top; on the shores of lakes, by rivers, or on the sea; or, in the case of some of the most spectacular amongst them such as Venice, Manhattan, or San Juan — in the midst of lagoons or on the

tips of thin islands where further progress was impeded not only in one but in all directions.

For the same reason we find that also within cities the highest priced business locations are not at points where traffic gushes by most smoothly, but where there is a chance that it gets all snarled up, as at street intersections or near traffic lights. This gives the trader the opportunity to attract attention to his wares — when people are forced to stand still or mill around, not when they are on the run.

What planners must, therefore, do if they are to ignore the conditions of modern town life is, in the first place, to reverse their hierarchy of values. They must give less, not more, thought to traffic planning, and in its place concentrate once again on trade or city planning in the proper sense of the term. Secondly, in order to facilitate their effort at gaining a new appreciation of the primacy of the trading over the traffic function of the city, our planners must begin to lean on a new set of masters, taking, for a change, counsel with those whose work bears indisputable witness to the success rather than the failure of their design. In other words: they must at last stop taking their cue from those constantly orbiting brigades of prestige consultants by means of which a few famous schools of urban planning have managed to perpetuate their academic empires long after the political empires have started to crumble. After all, what has our respectful subservience to these imperial emissaries, demanding affection along with their fees, achieved except the spread to the remotest corners of the globe of theories that have proved disastrous even in their lands of origin, yet are hard to dislodge because, as Anatol Murad would say, of the unanimity of their error?

The only question is: if the strength of unsound advisers lies in the unanimity of their error, where can the sound ones be found? Unfortunately, though not surprisingly, they are all dead. However, this need not be discouraging. For their work is still with us. It continues to live in those wonderful old trad-

and pavement abstractions of zebra and panda crossings? How many museums, art schools, theatres, cathedrals, universities in the place of urban escape routes? Certainly at least as many as the little cities of 10 to 30 thousand inhabitants of the technologically and economically retarded past.

And the same freeing of funds, though at a slightly less dramatic rate, would materialize even if a city would not just contract but, as in the case of metropolitan sprawls, condense and break up into a series of rival cities, each pursuing its nuclear renewal separately. For what each may lose in the always doubtful savings of scale resulting from the use of a single centralized planning authority and the orthodox approach to the solution of problems involving matters of finance, it would gain in the greater efficiency caused by the more surveyable and more human proportions of their now smaller task. This is to say nothing of the tremendous stimulus which a return to the humanity of proportions would exert on local initiative and private competitive ambition, as was so amply demonstrated in the glittering small-city world of the renaissance whose unrivalled wealth in buildings rather than in roads has remained one of the most rewarding sources of income for their lucky successors to this day.

Lastly, while all these factors would thus contribute greatly to the reduction of the public cost of aesthetic nuclear planning, it would at the same time trigger off an always welcome increase in private spending. For, once the aesthetic sense of the citizens has been aroused by the pace-setting activities of a self-conscious civilized community, they will themselves unfailingly follow suit by trying to match the beauty of public projects with the beauty of their private homes. This is how the patrician splendour of Florentine palaces came to be set in the midst of the bourgeois beauty of middle class residences which, in turn, blossomed forth like roses embedded in the sweet hedgerow charm of workers' cottages and almshouses. And it explains why even in our own time in a city such as

But the same force that increases costs geometrically with every arithmetic increase in urban expansion, causes a geometric reduction in costs with every arithmetic contraction in area. And this applies not only on an overall but even more so on a per-capita basis, considering that the territorially contracting population responsible for carrying these lower costs stays numerically the same. Unlike the costs of expansion which, as Philadelphia has shown, must ultimately outgrow the resources of even the richest community, the costs of contraction are therefore by their very nature not only easily manageable but even self-liquidating. They are covered by the very process of contraction. Moreover, considering their geometric diminution, they become rapidly so low that the community is actually willing to spend more on its improvement than is functionally necessary. In other words, part of its functional savings will now as readily be made available for an increase in the community's aesthetic spending as for added private consumption. This is exactly what accounts for the puzzling splendour and communal riches of even the poorest of pedestrian cities of the past, compared with the pitiful emaciation of the rich sprawls of our own time, boasting of a traffic so demanding that, once they have managed to pave the flatland of their roads, they have exhausted the energy needed for raising their sights to more exalted purposes.

To understand the economic windfall possibilities of contraction we need but imagine what could be done in urban beautification for a community of 50,000 inhabitants, transformed from car-crazed commuters into the pedestrian residents of a city the size of Salzburg, with three hundred million pounds now saved from paving the roads needed for expansion? Or, to be more precise, what could be done with a geometrically diminished sum of, let us say, three million pounds now freed for nuclear reconstruction? How many Salzburgs, Sienas, Amalfis could be turned from wood into marble? How many fountains and statues could be built in the place of the street lights

ing cities, built a long time ago without the benefit of modern theories, but also without the misery of those famous 'new-town blues' which has inadvertently crept into such much admired urban experiments as, for example, the new towns of post-war England. All that is needed to discover the principles of sound design for the cities of the future is, therefore, to explore once again the genius that was responsible for the cities of the past; to look back not in anger but in humility; to study not what is latest in Boston but what is oldest in San Juan.

This does not mean, of course, that a city such as old San Juan is a contemporary paradise. On the contrary. Like so many other ancient centres of modern sprawls, it too is glutted up with unwelcome traffic conditions from morning to night. But this is due to forces originating in its extensions, not in itself; in additions, such as modern Santurce or Puerto Nuevo, not in the internal organization of the old fortress capital. Since these forces can easily be abstracted, they need not divert us from recognizing that the basic structure of old San Juan mirrors an excellently planned trading community which, had it been permitted to stay by itself instead of being forced into a merger with the string of abominably constructed modern single purpose urbanizations adjoining it, would have remained largely immune to the difficulties besetting, for example, Santurce.

But what is it that makes old San Juan a soundly, and modern Santurce a badly, constructed city? What is the nature of their structural difference? The most superficial glance at their respective maps reveals it immediately. Santurce is a city of streets. San Juan is a city full of squares. And it is this that makes Santurce suffocate and San Juan breathe or would make San Juan breathe were it not for its fateful Siamesian link with its suffocating neighbour.

While the street, acting basically as an extension of the transit road passing through open country-side and suburb, is of course essential for bringing goods, traders, and customers to

town, the square provides the shape which is alone capable of absorbing this influx without the danger of producing flood conditions. Widening at all its sides, it turns the bottle neck into the accommodating palmitude of the bottle itself. Imposing a natural slowdown on all movement by having four instead of only two fronts facing each other, it not only captures the random activities of commerce in its magnetic field; it also orders them, brings them into functional relationships with each other, makes them surveyable and understandable. Moreover, while encouraging traffic to come at last to a full stop after its long approach, the square provides at the same time the space necessary for parking. This makes it radically different from the one-purpose urban parking lot which, with its off-side character, provides space for parking but not for trading. Functioning thus in addition as a centre of rest and leisure in the midst of the buzz of commercial activities, the square invites, lastly, dedication not only to the useful but also to the beautiful, thereby concentrating in itself as its culminating achievement the very essence of urban civilization — the good life.

If the individual square represents functionally the most suitable form for trade, a system of squares represents functionally the most suitable structure for the city. It affects traffic, in the same way as a system of pools affects the gushing fury of mountain torrents. Dissolving the stream of main roads, thundering towards the city from without, through a meshwork of short connecting channels, it distributes their threatening pressure into so many restful by-waters that even peak densities can produce only minor swellings. And as to traffic complexities generated from within, these tend to disappear as a result of the pedestrian proportions which cities clustered with squares, unencumbered by distances and folding out like the leaves of a flower, offer to their unharassed inhabitants. This explains why all the most pleasing towns in the world are towns of squares — from Salzburg to San Juan; from the chaos

— dense, tense, exciting, close and kept that way by a nucleus of sufficient aesthetic appeal. It must in fact be not unlike the walled towns of the Middle Ages, which were less plagued by conditions of traffic crowding and overpopulation not because their inhabitants were comparatively fewer than those of modern cities but because, within their car-less narrow confines, the velocity of their movement was so much slower. In spite of their high numerical densities their aggregate or effective densities were therefore far lower than those of the velocity swollen cities of our own time, whose relatively low numerical density is compensated many times by the high velocity density induced by a mode of existence which, as in a madhouse, is both scattered and integrated.

One of the main problems of planning is its cost. And the more sweeping the plan, the greater, it seems, must be the financial burden. As a result, though much may be said in favour of the simultaneous, polynuclear, development of a multitude of contracted pedestrian rival cities in a single metropolitan area, all may be defeated by the impossibility of marshalling the necessary funds.

However, it is not the sweep of urban renewal planning that is costly but its adjustment to a continuously expanding city. Then costs increase indeed at a prohibitive geometric ratio with every arithmetic increase in urban spread. Thus, in the light of the example I have already quoted, the additional expense involved in creating the extra car, bus, parking and highway facilities — needed for transferring to the road a mere 50,000 commuters now coming daily into Philadelphia on a single of the city's many suburban rail lines from a maximum distance of only 12 and an average distance of perhaps no more than 7 miles — would amount to the stupendous sum of three hundred million pounds. In fact, it even proved impossible to raise the funds for merely surfacing the necessary extra road space, so that the Philadelphia proposal had to be abandoned almost as soon as it was conceived.



than the increasingly neglected centres. Nothing else could have induced them to re-assume the burdens of technological distances which they hoped to have escaped by moving into cities. All that is needed to bring them back is therefore to make the centres once again more attractive than the outskirts; to apply a process of nuclear seeding that concentrates not on the technology, sociology, or economics but on the function-determined aesthetics of urban life. For beauty is of course as much a determinant of residential as it is of industrial location.

But to be successful, the accent must be on urban life, on urbanity which, is not the extension but the very antithesis of rural life. The two appeal to entirely different sets of persons. Both are separate culminating points of human existence, and of equal merit. But intermingled and fused, they do not represent the enhancement of either but the abomination of both. The charm of the country is its spaciousness; of the city, that it is dense. The former is expansive, the latter closely packed. The one inspires serenity and contemplation; the other excitement and dialogue. In the terms of Schiller's classification of poets, the country is naive, the city sentimental. The latter thrives on an environment of created rather than natural beauty. Hence its need both for great architecture in its nuclear buildings and their tight grouping in squares and streets so narrow and close that their proximity can turn a succession of disjointed individual tones into the organic harmony of a symphonic whole. But this is not the only reason why the urban nucleus of hotels, churches, cafes, residences, assembly halls, must be closely packed. No city can cultivate the essence of its urbanity, its dialogue, its wit, its literature, its musing sophistication, if it must waste its time in spanning distances of rural dimensions.

Thus, if we have found earlier that the good city must be a city of squares, and the good metropolis a polynuclear federation of cities, the velocity theory of urban density has now provided us with a third criterion. It must also be a pedestrian city

of London or the splendour of Venice to the village charm of Stow-on-the-Wold. And it explains why all the worst cities in the world are cities of streets — from the neurotically hurried constructions of the new world to the modern metropolitan rings encasing like an ugly skin-disease the towns of the old.

However, there is an important additional advantage that raises a system of squares over one of streets. Not only is it best suited to solve the problem of urban form — bringing as it does commercial activities into their most stimulating physical relationships, and enabling traffic to function as the unassuming hand maiden rather than the demanding mistress of trade. A system of squares represents also the pattern best suited to solve the problems of urban growth. Historically, nearly all cities sprang up on squares and grew by squares. This permitted expansion in the healthy biological way: by means of an infinitely elastic process of cell splitting and duplication, setting in each time an existing square had reached the form most useful for the fulfillment of its communal function. By contrast, the modern way had adopted the method of cancer. It fosters the growth of cities through cell enlargement, elongation, and integration. No wonder that, instead of youth, it brings stagnation and decay not in spite of growth but as the very result of it.

If modern metropolitan complexities are to be resolved, one of the first tasks of our planners will therefore be: to apply the pattern not of the new to the old, which is so largely the cause of our increasing misery, but of the old to the new. In other words:

1. Whenever a new urban development is laid out, it must, right from the beginning, be arranged as a composition in squares, not as an exercise in the geometry of streets. The planners of supermarkets, if not the Dr. Watsons of urban design, have long understood the elementary nature of this proportion.
2. Where urban development has already been completed

along doom spelling, one-dimensional, modern single-purpose lines, its pattern must be radically broken up. Streets must be changed back from the specialized yet self-centred arteries of traffic they are now, into the subsidiary links of trade they ought to be.

To achieve this, commercial activities must be drawn away from them and, together with a rounded assortment of general urban activities, be regrouped in diversified clusters through the bold creation of new squares. Not just of one or two but of a great variety of them. A choked up area such as Santurce alone would need at least thirty, serving not as parking lots behind unadorned empty walls but as a loosely interlaced federation of tree-shaded leisurely plazas, each surrounded in the manner of co-equals by buildings of commerce, residence, entertainment, government and culture, suited to its own particular flavour. Vying thus with each other in personality as well as in beauty, and balancing traffic pressure through the diffusing effect which competition exerts in the case of rival centres of similar attractiveness, such squares would solve one of the worst causes of urban gluts in one stroke. For though they would singly not be exactly large enough, they would collectively certainly be numerous enough, to accommodate all vehicles aiming for them.

While the substitution of a system of squares for one of streets represents the most important structural approach towards lessening the traffic problems of a modern metropolis, as an isolated measure it would not be sufficient to insure a lasting effect. There are other causes squeezing the life out of our towns, and these must be taken into account also, if the consequences of urban overcrowding are to be brought back to bearable proportions. Otherwise a city such as old San Juan which, after all, is built on an essentially sound foundation of more than twenty squares, could never have fallen victim to its present affliction in the first place. Yet, as things stand, its seeming amplitude in squares has not only long lost its ability

over, the paradoxical cause not only of most of our current high-density traffic problems but also of many of the economic and social complexities of urban as well as national overpopulation, it follows that the only way of solving the whole range of problems is not by continuing but, at last, by reversing the process of the past forty years. On the national scale, we must stop encouraging 'statistical deportation'. And in our cities we must stop trying to enlarge our Lebensraum by urban expansion. For while such measures lessen numerical density, by increasing more than proportionately velocity density, they actually increase, not lessen, the only thing that counts: aggregate or effective density. What we must do is therefore the opposite: condense our Lebensraum; contract our cities. In the case of the galactic clouds of urban sub-particles drifting in and around metropolitan areas, there is moreover need not just for one but a series of simultaneous condensations, until the whole has assumed the form of a federated system of largely autonomous rival towns.

In other words, if we are to escape the agonies of modern city life, we must not desert our cities but move back into them. We must once more take up residence close to our convivial nucleus. Tackling, as it does, not the effect but the cause, and depriving us not of the means but of the motive of negotiating technological distances, this is the only method capable of yielding desirable results. And it should not be too difficult to sell to our harrassed suburbanites considering that it is after all the absence of technological distances which has drawn them into cities in the first place. Any other method, enlarging these fateful distances, can do nothing, as experience has shown, but aggravate the geometrical terror of the still largely misunderstood phenomenon of velocity density.

The only question is: how can people be induced to return to the city? This is where aesthetic considerations move into the foreground again. Suburbanites have scattered for one reason alone: They thought the outskirts had become more attractive

contrast to a functional distance, this is an artificial distance, produced not by economic need but by technological progress and, unlike the former, is by nature neither desirable nor necessary. My real motive of movement is therefore not the car. That is my instrument. It is the rise of a technological distance.

But having moved into a suburb has produced more than one technological distance. My wife feels we live too far from the market to continue shopping on foot. My children are too far from playgrounds and school. We all are too far from the theatre, the recreation facilities, the restaurants, the library, the pubs, in fact from every location that was within pedestrian distances as long as we lived in the town. In other words, my move into the outskirts has increased the distances to be negotiated not arithmetically but geometrically. The addition of a single mile has added not one two-mile journey per day, but a whole cluster of such journeys, and this not only for the family collectively but for each of its members individually. Moreover, like the receding stars in the universe we not only must drive farther but even faster, to say nothing of the ultimate paradox that everything takes us now longer with a car than it took us previously on foot. Only Einstein's relativity theory can shed light on this. If we now add to the technologically caused movements of a single individual the cumulative movements imposed by the same process on thousands and hundreds of thousands of people, we shall have no difficulty visualising the astronomical pressures exerted by an outwards exploding metropolis on its physical and economic resources. According to a report from Philadelphia (*The Times*, May 8, 1962), the cost of building or expanding roads to handle a mere 55,000 daily commuters, living 12 miles away and up till now relying on rail transport, was alone estimated at about £300,000,000.

Thus, what makes people move at the crowd increasing pace, made necessary by the need of spanning unnecessary technological distances, is our flight from our convivial nucleus; our modern habit of scattered low-density living. If this is, more-

to sponge up the traffic rushing downtown; it is itself, to a not inconsiderable extent, responsible for having increased this rush to a point where the suggested cure — an adequate prescription of squares — seems to have become one of the main factors not for alleviating but for aggravating the disease.

The somewhat paradoxical reason for this lies in the compounding effect a well arranged system of squares has on the attractive power of a city. First, it makes it commercially attractive by bringing urban activities into their proper functional relationships. This has already been pointed out. But, on a second plane, it makes the city also aesthetically attractive by diverting an ever increasing part of its rising commercial prosperity to purpose of urban sophistication, taking the material forms of architecturally splendid churches, theatres, assembly halls, inns, side-walk cafes. In other words, a sound system of squares will, in the last analysis, give the city its crowning achievement in attractiveness-beauty.

This is, of course, not in itself the cause of the added difficulty. This arises when other urban centres, whose rival attractions ought to have prevented the concentration of excessive traffic pressures on any single one amongst them, begin to fall behind in their purely aesthetic achievement, either as a result of a feeling of social insignificance which discourages the thought of adornment, or simply because of a deficiency in ambition on the part of their inhabitants. When this happens, the pull on industry and other activities exerted by the now more pleasing community becomes increasingly stronger, and that of the less pleasing ones increasingly weaker, complicating thereby the life not only for the latter but for both. For: the cumulative process now setting in is ultimately bound to reach a point at which the more attractive city will attract so much trade and attendant traffic that it will be devoured by its own charms, while the less attractive ones will in the end be able to retain so little that their future will be one of perpetual decay. And this

is the difficulty that may paradoxically have its indirect origin in a system of squares so pleasing that it has no competition.

Thus, a second cause of urban overcrowding — besides the fatal one-dimensional street pattern — lies in the depopulation of potential rivals unable to attract or even to retain industrial and commercial activities because of their neglect of their aesthetic make-up. Or, to put it differently, the second cause of urban glut conditions lies, as in the case of fan mail swamping an actress, in the charm of the recipient of it all; in the excessive beauty of the victim. Other things being equal, it is this one overriding factor — urban beauty — that induces industrialists in search of locations to site their plants in already overcrowded neighbourhoods such as Paris, London, New York, or San Juan, rather than in a host of other places that would economically be infinitely more sensible, but would bore them to death for their lack of culture and sophistication.

Before anything can be done to alleviate the problem of crowding through beauty by means of industrial resiting or decentralization, it is therefore necessary to modify, or rather to extend, the existing theory of industrial location. Conventional location theory explains site selection as the interaction of three determinants: distance from markets, from raw material sources, and the labour force. The aesthetic factor — distance from a social centre appealing to the senses — is ignored.

Hence, according to theory, if people are pulled into San Juan, it is simply because that city is the mathematical point at which the lines drawn from the three economic site determinants intersect for a majority of businesses. It has the labour force. It is near raw material sources. And it is as close to the markets of the world as any place in Puerto Rico can get. However, the same is true of every coastal town of Puerto Rico, from Fajardo to Mayaguez, from Arecibo to Ponce. For on an island of such small dimensions, each of these places can be thought as practically equidistant with San Juan from the conventional

obstacle removers though their own experience, if not their theoretical considerations, should by now have been able to convince them that every new access road, motorway, and urban autobahn they construct, increases the pressures they want to diminish, by intensifying the volume increasing effect of a velocity whose continuous acceleration is facilitated by the sweep of their spatial designs.

But how can one diminish the velocity of people? By imposing speed limits? The trouble with speed limits is that they tend to follow, rather than prevent, increasing velocities. They are adjusted to ranges within which average motorized vehicles can be driven in safety and comfort and, consequently, tend to increase whenever progress increases the range of comfort and safety. Hence the irreversible gradual rise in speed limits over the past fifty years from 5 to 50 miles per hour, and their inescapable further increase once cars can be driven in safety still faster. A more reliable method would be to limit not the speed of motor vehicles but their use or, as Anatol Murad suggested in *The Scourge of Automobility*, prohibit them altogether. However, this too would prove difficult as long as cars can be produced in the quantities they are now, and car owners are voters. The only effective way of dealing with the velocity of movement seems therefore to attack the problem at its base, and diminish not the speed of movement, nor the means of movement, but the motive of movement. And to achieve this, we must first discover: What makes people move at the volume increasing pace of our day that tends to turn every population into overpopulation?

Is it cars? Yes! But I do not use a car because I have one. I have a car because I must use one. And I must use one because I live too far away from my working place ever since I have moved into an attractive suburb that has sprung up at the outskirts of the town. In other words, my moving away from my place of work has created a previously nonexistent difficulty in the form of what may be called a technological distance. In

moderate twice its current population. It is due to the acceleration of the pace of life brought about by political centralization, and intensified by a consequently greatly increased use of modern high-speed means of transportation. No wonder that the annual numerical bloodletting produces no corresponding result. And the urban population problem is of the same nature. Again, the element depriving cities of their oxygen, both figuratively and literally, is not the number of people but their speed. There is no overpopulation problem in New York, London, or San Juan at 1 o' clock in the morning, when velocity is practically nil. It begins to arise between 7 a.m. and 8 a.m., swells during the first rush hour, recedes, swells again, recedes, swells and, finally, vanishes once more when the city settles for the night. All the time, the numerical population may have remained unchanged. What fluctuates is the effective population which, in a modern metropolis, grows several times during the day to such a size that it brings life all but to a standstill.

It is therefore this, not that there are too many people around, which is at the root of our worst urban complexities. This is why it is not enough to attack the problem of congestion only quantitatively and structurally, distributing traffic, as I have suggested, and increasing the absorptive capacity of cities by means of square patterns and nuclear seeding. Primary attention must also be paid to an understanding of the qualitative change these measures force upon traffic: a reduction in the velocity with which people move. If this cannot be achieved, the best square pattern and the most aesthetically conscious approach to nuclear seeding will be of no avail. However, the great advantage of these two devices for effecting a structural change is precisely that, if executed in the proper functional manner, they will automatically induce the desired qualitative change, the reduction in velocity, without which urban congestion would be incapable of solution. This means that the measures needed once again are the very opposite from those advocated by our modern

location determinants. And yet, what a task it is to persuade industries to move into these other areas! This in spite of the fact that their natural economic advantages have been augmented by a number of artificial location inducements such as generous tax exemptions, the gratuitous training of the labour force, and the free construction of factory buildings. Other things being equal, surely these additional assets ought to have tipped the scales in their favour and, thereby, discouraged the further growth of San Juan's terrifyingly swelling splash corona.

But other things are not equal, as we can see from the fact that, whenever a factory is established elsewhere in Puerto Rico, pulls begin at once to operate which instead of anchoring the enterprise to the ground, tend to set the stage for a slow exodus towards the crowded dear old capital. It begins with the manager who, from the outset, prefers the hounded existence of a commuter to a life of leisure on location. It continues with the worker who, once he can afford the transfer, finds it nicer to be unemployed in San Juan than employed in Salinas. And it may end with the entire industry packing up and resettling in the metropolis, thereby aggravating the twin problem of urban over and underdevelopment at both ends of the line.

Why should all this be happening? Obviously because there must be a fourth location determinant at work; a factor that is not only equal in strength to any of the three others, but must be stronger than all others combined. This is the heretofore ignored aesthetic factor. For what really keeps pulling people into San Juan, often even at a considerable economic sacrifice, is not the market or the labour force. It is that it is the loveliest of cities. It is the psychic income it affords. It bewitches. It has beauty. And by beauty as a location determinant one must understand not just physical beauty, such as can be found also in Ponce or San German. In the urban sense, it implies social beauty, the kind that provides for the good Aristotelian life. And by this one must again understand not just a good house,

an ample table, a pleasing environment. It includes the enjoyment of the full range of urban conviviality, set against a background of exciting architecture, and ignited by the sparkle of theatres, restaurants and galleries.

But how could this vital fourth factor have been overlooked all these years? The reason is not too difficult to discern. During the 19<sup>th</sup> century, when Heinrich von Thünen laid the foundation of modern location theory, practically all cities, towns, and villages possessed it to such an extent that the aesthetic assets of each were cancelled out by the almost equal endowment of all. Germany, Italy, Austria-Hungary had so many attractive small capital cities — quite a few of them with their own sovereign princes, archbishops, courts, operas, universities — that each generated enough nuclear force to hold and attract industry, and yet not enough to deprive others of theirs. Lopsided urban concentrations were therefore automatically checked by the relatively even distribution of urban beauty across the land. Hence the beauty being equal, only the three conventional location determinants, labour force, markets, and raw material sources, were felt as exerting measurable pulls. Thünen may therefore be forgiven for his oversight.

However, the existence of the aesthetic determinant might have been spotted in centralized countries such as France and Great Britain where, as in the case of contemporary Puerto Rico, urban beauty was allowed to accumulate in their national capitals in such lopsided abundance that, by the time provincial cities had managed to develop communal nuclei of sufficient rival charm in their own right, Paris had attracted a population larger than all Switzerland's, and London larger than all Austria's. From the time of Boswell to this day — a condition much deplored by Dr. Johnson at least as far as the migrating Scots were concerned — the most important location question of all Britain has been: How far is it from London? — just as in English provincial universities, the most important question for students has been how far are they below Oxbridge? For

people move. And by velocity must be understood not only the speed, but also the frequency, of movement; not only the driving to the factory at 50 miles per hour, but also the fact of spanning the distance twice or four times a day; not only the quantity but the quality of traffic.

Now, the significant though only rarely appreciated thing about velocity is that it has the same impact on people as it has on particles. It increases their effective mass. It makes a faster crowd in effect a larger crowd than one that may be more numerous but moves at a slower pace. This is why theatres have emergency exits. They augment the normal exits to a figure adjusted not to the steady numerical but to the fluctuating effective size of an audience. For every theatre owner knows that, when a group of people is seized by a pace-increasing emotion such as panic, it has the same effect as if the number itself had increased. Measures dealing with human aggregations must therefore take into account not merely their numbers, but their numbers multiplied by their velocity. Since this is usually ignored in the case of class rooms, the sudden glut conditions avoided in theatres are a daily occurrence in schools. For though the available door supply is generally amply adequate to cope with the reluctant entrance velocity of students assembling for a lecture, it invariably falls dismally short when it comes to handling the greatly increased escape velocities developing whenever the bell of freedom strikes at the end of the hour.

What affects the size of theatre audiences and student bodies affects also entire populations, both national and urban. Also in their case, their volume may increase as a result of both quantitative and qualitative factors. Puerto Rico's overpopulation, for instance, causing what might be called a statistical deportation of up to 60,000 reluctant citizens into the wilderness of New York every year, has all the appearances not of a numerical but of a velocity overpopulation. It is due, not to a high birth rate; actually, Puerto Rico should be able to accom-

their planning targets induces them not to ignore beauty but, what is just as bad, to take its measure from applications that have nothing to do with the purposes of urban life. If the function of the city was serving air passengers on overflights as a tapestry soothing travel-tired eyes, the urbanization modern planners have built might indeed be called beautiful — in its capacity as a picture. And the same could be said if the purpose of these aggregations were to serve airborne classes of medical students as mobiles illustrating the development of blood clots in the brain. But cities are not meant for either. Their function is the attainment of the good life. As long as that idea remains blurred, houses and roads will never add up to a beautiful town, however great their individual beauty, while the nondescript shacks and dirty lanes of slums, huddled together in their exquisitely organic mess, will continue to radiate a degree of urban beauty such as seems beyond the reach of modern planners.

Continuing the practical considerations of urban renewal after our seeming digression into the field of aesthetics, let us briefly recapitulate. So far, we have approached the problem from a structural and quantitative point of view. We have suggested the turning of cities into federations of squares, and of metropolitan areas into federations of cities, both being actually two cumulative aspects of the same idea: the diminution of traffic pressure through its dispersal amongst a multitude of loosely interlaced but separately acting absorbers, each assisting the other like the elastic cells of a sponge.

Yet, even the simultaneous realization of both these structural ideas would be insufficient to restore a traffic-afflicted city to full health. To achieve this, we must deal with a third and deeper cause of modern urban congestion. Though intimately linked with the two others, this one expresses itself in an entirely different dimension. Its apprehension requires a shift from quantitative to qualitative considerations; from space to time concepts. It concerns the velocity with which

what still gives the decisive advantage to the latter over the former is not their superior academic and economic inducements — these have nearly vanished as a result of the excellence in standards achieved in provincial universities — it is their unrivalled urban beauty, their continued matchless aesthetic splendour, which has been overlooked for so long as the decisive determinant of academic location simply because, until recently, Oxford and Cambridge were the only universities in England.

Returning now to the special problem of San Juan, though it applies just as much to Salzburg, London, or to St. Ives during the holiday season, the main force responsible for the excessive economic attractiveness of the city, as well as for all the misery that this entails — excessive congestion, excessive traffic, excessive aesthetic deterioration of its surroundings — must therefore be sought in its non-economic assets. These are its architecture, its amenities, the pulse of its excitement, its way of life, in short, its urban beauty. Moreover, the more concentrated this becomes, the more crestfallen, by contrast, appears the rest of the island which, in turn, aggravates the problems of San Juan still further. And San Juan, in this context, stands not for the metropolitan aggregations which, such as Santurce or Puerto Nuevo, have been captured in its magnetic field. These are like the flimsy, neon-glamorous shop, hotel, and amusement sections springing up along the road towards a shrine, and offering already so much preliminary diversion that the less devout never bother to go any further in the first place. San Juan here stands for the shrine itself, the terminus and ultimate reason for it all — the old city of plazas, patios, and blue cobble stones.

The question now is: How can this tremendous population and traffic magnet be weakened in order to prevent its approaches from becoming a car shunting yard, and its centre a tourist catering business, alienated from all the more graceful purposes of urban life? How does one relieve a beautiful woman of the flattering but self-defeating pressure of too

many suitors? Not by making her still more beautiful, but by seeding her environment with an appropriate number of dazzling feminine rivals; by creating alternative centres of attraction. This will not only at once scatter the frustrating and frustrated multitude. It will also increase the chance for all of at last beholding in peace for what one has yearned in anguish. Similarly, if one wants to deflect the increasing population pressure from San Juan, one must not build more access roads or parking facilities. These will merely bring in more people. Nor will deflection be achieved through the offer of lavish industrial incentives in other areas, not any more than bathers will be deflected from a crowded beach if one moves the hot dog stands nourishing them a mile inland. All that such laboured attempts at decentralization may accomplish is to generate incomes which will in the end be used less for staying put elsewhere than for financing additional possibilities for reaching the gaities of San Juan, but this time with a little affluence rather than penniless.

The answer lies in the duplication of the essence of San Juan's matchless attractive power by creating a number of dramatic rivals; by instilling into these others the element which up till now has remained the monopoly of the capital; the aesthetic factor of industrial location, urban beauty; by seeding their centres with a nucleus not of rival economic facilities, such as is still current policy, but with rival convivial facilities.

But to ensure the success of such an experiment it would not be sufficient to create rivals merely in a geographic sense. They must be rivals politically. They must be given autonomy in administration and planning. Otherwise their efforts will be just so many projects of a central agency, aligned in a priority scale depending on 'other directed' motivations and permitting only a time consuming execution in successive stages rather than the simultaneous development such as the urgency of the problem would demand. If, by contrast, all have their own au-

separation. There is therefore much less leeway for subjective judgement, than is usually assumed, about what you or I or Picasso can consider a physically beautiful spoon, wheel, church, or city. Nor, however, does this mean that beauty permits only one best expression. For the function-determined archetype is materialized in a range of approximations that is as enchanting as it is infinite.

And lastly, the objection may be raised: am I not bringing coal to Newcastle? Or sunshine to Puerto Rico? Is not every planner from Newcastle to San Juan, from Munich to Tokyo, obsessed with aesthetic considerations? Has not, in particular, the beauty of Puerto Rico's modern development attracted the unravellers of metropolitan confusion from all over the world for purposes of inspection? Yes! But who amongst those responsible for the looks of this development, so ready to admire it, would care to live in the urbanizations put up with such pride? They come for inspection, true enough. But having surveyed in twenty minutes what they could just as well have observed at the modern outskirts of Munich, of Accra, of Milan, of St. Ives, or of Cambridge, they revert at once to more sensible pursuits. They submerge themselves for the rest of their study tours in places whose charm lies in the fact that none of their breed has ever managed to lay hands on them: in the nucleus of old San Juan, of old Munich, of old Cambridge, of old St. Ives, whose squares, proportions, and convivial organization exude so unmistakably the essence of the good life that they themselves cannot resist their temptations. Yet, they keep on refusing to embody this essence in their own realizations for fear of being dismissed as romantic calendar artists by a profession which, as was noted earlier, admits itself that it has only the vaguest notion of the planning purposes it is supposed to serve.

And this is the difficulty. For even though most modern planners may be animated by aesthetic considerations, they are handicapped by the fact that the blurred image they have of



the surf of the ocean or the Canale Grande of El Fangito — at the degree of reluctance shown by its blessed inhabitants when invited to seek refuge elsewhere, even at the prospect of being accommodated in concrete shelters. For slums, too, can have social beauty and indeed, have it to a greater extent than most modern urbanizations. They give their residents the good life which, as should long have become obvious, depends on things other than the abstractions of planners deriving their urban concepts from watching cars in action rather than man.

But quite apart from this, aesthetic concepts are highly objective even within an individual frame of reference. Just as the individual utility concept of a commodity rests on the wholly objective foundation that the commodity in question has the faculty of satisfying wants inherent in human nature, so does its individual beauty concept depend on a wholly objective faculty: the ability of the commodity of fulfilling the function inherent in its form. A crane cannot be a beautiful spoon. On the other hand, any shape capable of fulfilling its assigned function has at least the makings of beauty, so that one may say that, rather than individual taste being the determinant of beauty, beauty is actually the chief determinant of individual taste. Beauty is therefore in all its aspects an objectively measurable quantity, leaving a little individual leeway at the margin, but otherwise invariably expressed by the degree of nearness which the form of a thing reaches in relation to the function embodied in it.

And the same is true of urban arrangements. If all communal structures are grouped in the manner best suited for fulfilling the Aristotelian purpose of the good life in common; and if all the distances between them are arranged on a scale reflecting the harmony of urban proportions gained from the mathematics not of traffic, engineering, or sewage disposal but of the human convivium, the result cannot be but functionally exact. And what is functionally exact cannot but be socially wholesome and aesthetically beautiful, a trinity that permits of no

tonomy of decision, they will not only apply the infective spirit of ambition and initiative to the task; free from the desperate uniformity of integrated taste, they will, like the cities of the Renaissance, discover that beauty has an infinite variety of expressions, and revels in a myriad of colours — not merely in the excremental brown, grey, and green, so beloved by centralized officialdom throughout the world.

The second answer to the problem of modern overcrowding, derived from what I should like to call the nuclear theory of city planning, is therefore similar to the first. The first suggested a reduction in traffic pressure through the scattering effect achieved by the superimposition of a spongelike system of breathing squares over a stringlike pattern of asthmatic streets. The second suggests an increase of this scattering effect by two further measures, one external, one internal, and both based on an extension of the conventional theory of industrial location. The external measure scatters traffic through a policy of industrial decentralization, reinforced by the process of nuclear seeding rather than comprehensive economic planning. This implies instilling into a number of independent rival cities across the land an aesthetically, not economically or technically, determined nucleus of such urban beauty that it can compete with the monopoly power of social attraction of towns whose historic development, in the hands of the masters of the past, has given them a head start which the contemporary masters have so far proved unable to beat. And the internal measure is a duplication of the external one. It transforms the integrated mononuclear metropolitan sprawls, back into polynuclear systems of rival communities such as characterized the large towns of all earlier periods. Instead of dissipating our resources by intertwining each of us perpetually with us all, it restores both the humanity and the individuality of proportions by limiting our involvement to the limited dimensions of a society of neighbours. For those alone can

be meaningfully encompassed with the small stature given to man.

In sum, just as a healthy city is a federation of separately flourishing squares, a healthy metropolis must be a federation of separately administered cities. And to strengthen their position as effective traffic scattering rivals, each of them must not only be given its own identity, its own flavour, its own administrative and political centre. It must also be seeded with its own distinctive kind of urban beauty.

Both the aesthetic theory of industrial location (extending the conventional theory) and the nuclear theory of city planning (supplanting the comprehensive theory), represent an attempt to draw attention to the overriding importance of beauty in all fields concerned with social planning. This is therefore as good a place as any to deal with some of the objections which invariably crop up if the charm of Aphrodite is introduced when the work of Hephaistos is under study.

In the first place, to talk aesthetics amongst theorists of industrial location and other economists nowadays is like raising the question of sex amongst pre-Freudian child educators. Half of them cannot grasp the connection, the other half are shocked. In their eyes nothing could be more irrelevant if not outright frivolous than the injection of beauty into economic or other utilitarian debate. Yet, not only are aesthetic considerations, as every jeweller, car designer and musician knows, amongst the most outstanding determinants of economic forces such as consumer demand; it was the discernment of the possibility of dissolving aesthetics, as everything else that is based on the mathematics of proportions, into a system of laws that put Adam Smith on the path that caused him to become the much admired father of modern economics. Thus, what led him on to Hephaistos was precisely the appreciative eye he had for Aphrodite.

Secondly, it is said aesthetics is too subjective a field to furnish the objective criteria without which urban and economic

planning would remain nothing but a quagmire of unreliable uncertainties. Yet, again it is the field of economics which experienced one of its most revolutionary theoretical advances after Smith when, to the everlasting distress of examination conscious students, the Austrian School turned such a seemingly unmeasurable subjective magnitude as that represented by the utility of a commodity which is different for every person, into one of the most powerful tools for determining price, which is the same for all. For while my personal concept of utility may be as elusive as an atom flitting around in unpredictable freedom, the aggregate effect of the utility of all takes the shape of as objective, predictable, and useful a statistical magnitude as the critical mass that explodes a uranium bomb.

Thirdly, if one does, as I suggest one must, accept beauty as a standard of all urban and economic planning: What is beauty? Who is to be the judge? M.I.T.? The Museum of Modern Art? Fidel Castro? The Chairman of the Planning Board? I? The answer is similar to the one that solved the problem of utility of which beauty is after all nothing but its aesthetic twin. Thus, while the individual concept of beauty, be it Picasso's, yours, or mine, differs with every person and is therefore useless as an acceptable standard of urban design, the concept of social beauty is an objectively thoroughly verifiable and measurable aggregate. It is not cause but consequence: the determinable result of the interaction of that many indeterminable variables. And as aggregate utility finds its operating dimension in the form of price, social beauty finds it in the form of public taste, communicating itself through elements such as the frequency and intensity with which the aggregate of citizens, the public, is drawn into worshipping it, enjoying it, beholding it and, in particular, staying close to it. To gain a statistical image of the social beauty of Luquillo Beach, we need do nothing but look at the number of admissions; of the Caribe Hilton Hotel at the number of its guests; of a slum such as the entrancing slope of La Perla falling down from the walls of San Juan to