

10 Theoretical Interlude (III)

The problem of size

The size of systems, especially of artificial systems such as businesses, firms and other different kinds of enterprise, as well as cities, has been an issue in economics only in relation to the efficiency of productive units. The so-called economies of scale and the corresponding law of diminishing returns, are conspicuous cases in point. Economies of scale, in the name of efficiency, tend to favour bigness and, in many cases, even giantism. Efficiency is about output, and about output conducted in a manner that minimizes costs and maximizes profits. If large-scale production and huge metropolitan centres facilitate the satisfaction of such a formula of efficiency, it is such systems that have to be favoured and promoted. The fact that bigness—or giantism—of systems may in itself have an adverse effect on the relative well-being of the people who are a part of them, is, and has been, a subject of no concern to economists.

Although I am an economist myself, I have long been tempted to explore this subject, despite the fact that it is not considered to be part of my discipline. I somehow cannot agree with this view. As a matter of fact, economics *does* deal with the concept of well-being. Indeed, it is one of its central preoccupations. The fact that it handles it in a mechanistic way, for example assuming the existence of a people whose economic behaviour is generally rational, does not impede an attempt to approach it in a non-mechanistic manner, as when

assuming the existence of a people whose economic behaviour is also influenced by emotion and intuition and characterised by unpredictable reactions and feelings.²⁴

The fact is that what receives scant attention today, was once an issue of central importance. On the subject of human beings and the size of their cities, *we* should pay some attention to the words of Aristotle:

First among the materials required by the statesman is population: he will consider what should be the number and character of the citizens, and then what should be the size and character of the city. Most persons think that a city in order to be happy ought to be large; but *even* if they are right, they have no idea what is a large and what is a small city. For they judge of the size of the city by the number of inhabitants; whereas they ought to regard, not their number, but their power. A city too, like an individual, has a work to do; and that city which is best adapted to the fulfillment of its work is to be deemed greatest, in the same sense of the word great in which Hippocrates might be called greater, not as a man, but as a physician, than some one else who was taller.

Moreover, experience shows that a very populous city can rarely, if ever, be well governed; since all cities which have a reputation for good government have a limit of population. Beauty is realised in number and magnitude, and the city which combines magnitude with good order must necessarily be the most beautiful.

A city, then, only begins to exist when it has attained a population sufficient for a good life in the political community: it may indeed, if it somewhat exceed this number, be a greater city. But, as I was saying, there must be a limit. What should be the limit will be easily ascertained by experience. For both governors and governed have duties to perform; the special functions of a governor are to command and judge. But if the citizens of a city are to judge and to distribute offices according to merit, they must know each other's characters; where they do not possess this knowledge, both the election to offices and the decision of lawsuits will be wrong. When the population is very large they are manifestly settled at haphazard, which clearly ought not to be. Clearly then the best limit of the population of a city is the largest number which suffices for the purposes of life, and can be taken in at a single view.²⁵

Even before Aristotle, his master Plato had stated as a fundamental principle that: 'The city should grow only as long as it can do so

without impairing its unity'.²⁶ When one states that 'the citizens ... must know each other's characters', and the other isolates the importance of unity, they reveal a common preoccupation. One could say that they considered true communication between citizens a condition *sine qua non* for the attainment of a good life, ruled by justice and virtue. Such ideals are clearly related to an idea of scale, and more concretely, to a relatively small scale. Giantism, in their minds, was clearly something to be avoided.

It is interesting to note that not only the Greek masters related quality of life with social units of comparatively small scale. None of the later utopias ever succumbed to the temptation of granting merit to giantism. Thomas More proposed an ideal community of 6,000 families. The phalansteries of Fourier did not *exceed* 1,600 people. The parallelograms of Robert Owen received from 500 to 2,000 members, and the same was the case with the cooperative associations of Horace Greeley. In each case the reasons are the same: Platonic unity and the Aristotelian need for citizens to know 'each other's characters'. I was later, while living in Tiradentes, to bear witness to the importance and immense contemporary value of these principles.

The advantages of a social dimension on the human scale were maintained both in Athens and in Sparta. City States in the Italian Renaissance followed the same example to varying degrees, as did the notably prosperous free cities of the Hanseatic League. As cities, they were the ones that produced wealth and cultural diversity in spite of the hegemonic impulse of such great empires as the Holy Roman Empire, which finally collapsed under the weight of its absurd and humanly unsustainable proportions.

For more than 2,000 years the empire and the city, both considered in their broadest terms, have confronted each other as alternative ways of living and forms of identity. This is still the case today for, although we lack empires, we have an effective substitute in modern forms of imperialism. Unitarianism or federalism, integration or balkanisation, centralisation or decentralisation, nationalism or regionalism: all these are manifestations of alternative preferences as valid today as they were yesterday. They represent different options and as such they involve 'costs and benefits'. When choosing, one should be

quite clear as to the implications of that choice. If the intention is human communication and participation, then gigantism should be avoided by all means possible.

It seems quite indisputable to me that human beings develop according to the relations they maintain with their environment. All their integrity, their inner and external equilibrium, as well as their alienation, depend on the degree to which they feel integrated with their environment. This depends, in turn, on the dimension and homogeneity or heterogeneity of the same. Every type of environment—economic, spatial, political, cultural and natural—may have both an optimum dimension and a critical dimension. I identify the first as 'humanising' and the second as 'alienating'. In the first, humans are able to achieve a sense of identity and integration, while within the second they can only choose to endorse their individual integrity. Within one, a person feels the consequences of whatever he or she does and decides; within the other, the human being resigns himself to letting others act and decide for him. In the first the development of people is possible; within the second, only the development of objects. The attainment of a dynamic equilibrium between Nature, Human Beings and Technology—which is, of course, a highly desirable goal—is only possible when humans, both at the collective and individual level, *feel* themselves directly responsible for the consequences of their actions within their environment, and this can only happen if the dimension of that environment remains within the human scale.

Since the scale of economic activity has a direct influence on the scale of other systems such as cities, let me go back and analyse its implications a little further. Economics has worshipped efficiency, and on its behalf we have evolved from economies of scale to what I would like to call 'diseconomies of uncontrollable dimensions'. The economic efficiency of this process is incontestable and so is its power to pillage natural resources, its capacity to pollute and its contribution to the rise in heart attacks and hypertension. And once dimensions of large scale have been consolidated, their evolution is possible only in terms of becoming even larger. The system no longer expands to meet the consumption needs of people; it is people who consume

in order to meet the system's requirements of growth*. As long as alienation, boredom, dissatisfaction, rural and urban decay, pollution, insecurity, anxiety and, finally, dehumanisation are not measured as costs of the process, it will continue to be seen as positive, efficient and successful in terms of the traditional criteria by which it is judged.

It should be recognized once and for all that a measure as abstract as the per capita Gross National Product (GNP) is a highly misleading indicator of the standard and quality of life, as it includes any activity, regardless of whether or not it is beneficial to society.²⁷ On the other hand, powerful evidence already exists to the effect that 'the improvement of living standards (basic needs and luxuries) constitutes a diminishing fraction of each new unit of increased per capita GNP; the rest is spent on the structural changes required by growth itself, on its side effects and on managing wastes'.²⁸ It should thus be clear that the constant increase in the scale of economic activity alienates those participating in it and destroys the human element in the surrounding framework.

Under present conditions, to maintain such enormously onerous systems while anxiously seeking some sort of equilibrium, only to continue paying homage to the 'religion of efficiency' is—to say the least—extremely ill-advised. In the words of Fouché: 'It is worse than a crime, it is an error'.

From what has already been said on the problem of dimension, one could conclude that humans, while having been increasingly affected and impressed by large dimensions, have not yet been able to rediscover their own dimension. Inertia their only impetus, people merely strengthen the fallacy. They participate less and less and allow themselves to be led more and more. And so this lack of participation, which is partly a product of the alienating dimensions into which we have fallen, turns into fertile ground for the few to gain even more power

* I strongly believe that as long as a system serves people and their environment, its existence is morally justified. However, when the function of people and their environment is only that of serving the system, the latter ceases to be in the human interest

over the many. And if we remember Lord Acton's warning that: 'Power corrupts and total power corrupts totally', we should realize that *we* are at a crossroads where negligence, indifference and the inability to react have become a form of suicide. And not *even* suicide committed on behalf of a superior ideal, but suicide in defense of stupidity and obduracy.

Let us now return to the city, and ask ourselves what its functions are supposed to be. I should like to make the proposal, based on recognised historical and cultural evidence, that there are at least four functions expected of a city: it should provide its members with sociability, well-being, security and culture. Such functions can only be fulfilled as long as human communication between citizens is satisfactory and genuine, and participation is complete, responsible and effective. Communication and participation were the original preoccupations of this chapter, when we gave way to some voices from the past. It might now be appropriate to explain, in theoretical terms, communication as a function of human space and time.

Subjective human space

Every system comprises a set of interrelated elements that operate together for a common purpose, *i.e.* that of fulfilling or realizing a particular goal. Without a condition of finality it is merely a set, but not a system. An individual human being may be studied as a system, as can a society or a city. In the case of a city viewed as a system, the people are the elements or the sub-systems. Now, if a city is a system whose function is to provide its inhabitants with sociability, well-being, security and culture, the fulfilment of such objectives will depend on the way in which its citizens (or elements) interrelate, both among themselves and with the other elements that make up the system (or city). The other elements may be natural or artificial objects, as well as other living things such as animals and plants.

We will define in the broadest sense any interrelation of elements in which one or more persons intervene (person to person, or person to object) as a bond of communication. It does not matter whether the resulting communication is good, bad, necessary or useless. Such

value judgements do not concern us for the moment, although they will later. The notions put forward so far are sufficient to open the debate with which I am here concerned.

To say that every human communication takes place in a time and in a space seems an all too obvious truth—and it would indeed be so, if *we* were referring solely to chronological time and metrical space. But as *we* are concerned with more subjective meanings, the statement has a special significance. For that purpose, let us define both space and time as subjective human phenomena.

Beginning with space, I propose the following definition: *space (as perceived) is the set of abstract relations that define an object.* The relations may be classified according to form, distance, size, proximity, depth etc., all of which presume the existence of other objects. For example, distance is 'distance with regard to ...'; proximity is 'proximity from ...'; size is 'larger, equal or smaller than ...'. An object cannot be defined and has no meaning without reference to something *else*. Wittgenstein states that: 'Just as we are quite unable 'to imagine spatial objects outside space or temporal objects outside time, so too there is *no object that we can imagine excluded from the possibility of combining with others*'.²⁹ He adds later that: 'Each thing is, as it were, in a space of possible states of affairs. *This* space I can imagine empty, but I cannot imagine the thing without the space'.³⁰

Human beings are responsible for classifications and thus for the abstract relations that define objects. This is the way they perceive spaces and, in perceiving them, they are actually creating them or, to be more precise, creating them *for themselves*. Their bond with space is therefore a bond with a reality that is perceived subjectively. Metric spaces are only conventions that are useful for measuring, evaluating and classifying those changes and distortions that affect subjective human spaces. Let us illustrate this with some simple examples.

Anyone who has seen a house under construction will have witnessed the following phenomenon. When we look at the outline of the foundations, the future rooms seem smaller than *we* had imagined when the plan was drawn up. Once the walls are up, *we* have the strange sensation that the rooms have grown. Similarly, when the rooms are finished but empty, they look smaller than when they are

furnished, provided that—and this is important—the number of objects and pieces of furniture is not excessive. What is the reason for this phenomenon?

Perhaps the most plausible hypothesis is that: *perception of spatial magnitude is a function of the amount of information that the brain receives and stores with respect to the space in question.* In other words an empty room, with its limited amount of information, imposes upon the brain a minimum of abstract relations. The furnished room increases the number of abstract relations and so, as the brain stores an increased amount of information, the space is perceived as being larger. Let us explore another example.

If we lie on our backs to look at a night sky profusely studded with stars, *we* perceive an immense space. The huge number of stars represents an enormous amount of information, as the simultaneous perception of their huge number engages almost all our attention. If we saw nothing but one star, the sensation of the immensity of space would drastically diminish. Finally, if we were surrounded by total and absolute darkness, the sensation of space would disappear almost completely. Thus the spatial magnitude perceived does not depend on the metric distance in which the objects being observed are located, but on the amount of information that such space delivers to the brain.

The existence of a relationship between the spatial magnitude perceived and the amount of information stored by the brain seems a probable hypothesis to me, although I cannot, at this stage, verify it with proven evidence. In any case, the relationship I am proposing seems to be less than linear. That is, the sensation of spatial magnitude grows with the increase of information, but with less intensity than the latter. The function could perhaps be logarithmic or, if there is some point of saturation, a negative exponential.

These speculations may seem an unnecessary digression. They are, however, essential to the central topic, for subjective space influences people's behaviour in a very determinant way. The human agglomeration of large metropolitan centres may merely imply small metrical distances between people, but in effect the amount of spatial information is so vast, that bonds of communication become very difficult or

impossible. People are, in fact, separated by large subjective spaces. In small towns the opposite is the case, as anyone's experience will confirm.

I therefore conclude that for the purposes of both analysis and planning, urban solutions which start from exclusively metric spatial conceptions do not correspond to the *real* problems affecting people.

Subjective human time

A successful attempt to define time and to penetrate its essence, has been the eternal aspiration of countless philosophers and scientists. I would not be so intellectually arrogant as to attempt to offer an answer here. In fact, I shall confine myself to the suggestion that, just as we can refer to a chronological or astral time, *we* can also speak of a subjective human time. By this I mean the sensation of duration that we as people have of a given event. Over the same chronological period, let us say five minutes, two different events may produce upon us varying sensations of duration. Five minutes of toothache appears to be longer than five minutes spent in pleasant company. So, for our purposes, I would define *subjective human time as a set of abstract relations that link the being with the coming about.*

Robert Ornstein defines this form of temporal experience when he says: ... our normal experience of time passing, of hours lengthening or shortening, of a recent event seeming "a long time ago", of one interval passing more quickly for one person than another or more quickly for one person at one instance than another. It is the continuing, persevering, time in which we live our lives'.³¹ Throughout his book, in which a large number of experiments are examined, we see a clear confirmation of the subjectivity of people's temporal experiences. He demonstrates the validity of what he calls the 'Storage Size Metaphor', and defines it as one which '... relates the experience of duration of a given interval to the size of the storage space for that interval in general information processing terms. In the storage of a given interval, either increasing the number of stored events or the complexity of those events will increase the size of storage, and as storage size increases, the experience of duration

lengthens'. We may add that the same may well happen with what I have called the 'intensity' of information, and that has to do neither with the number of stored events nor with their complexity. A good example is the inordinately long time that it takes a pot of water to boil when we are watching it and waiting for it to come to the boil. The impatience with which one awaits some determined event represents an increase in the size of storage that the brain has designated for processing the information. It is my assumption that the storage size does effectively grow, because impatience involves reprocessing the same information many times. It is my hypothesis that processing, in a determined interval of time, n quantity of different events is more or less equivalent to processing, in the same interval, the same event n number of times.

Léniz and Alcaíno, taking a different approach, suggest that in planning the well-being of people, subjective and not chronological time must be considered.³² They state in this regard that a year 'passes slowly', full of changes and impressions, for children, while it has a tendency to 'pass quickly' as age increases. According to the authors this is so, and it is due to comparisons of any one interval with intervals already lived, not with mechanical units of measure. They propose that time, as perceived by any person, seems to be proportional to the square root of the person's chronological age.

Ornstein's observations concern micro-experiences, *i.e.* singular occurrences, while Léniz and Alcaíno's approach is concerned with the overall life macro-experience. In this sense both contributions complement each other. In the course of studying and analysing these investigations, Professor Carlos Mallmann, from the Bariloche Foundation in Argentina, and I, came to the conclusion that an additional element had to be taken into consideration. It seemed to us that a cultural constant had to be included in any formula that attempted to interpret a person's sensation of the passing of time. We identified it as the 'cultural constant of time valuation'. Its justification as a necessary component of any general formula comes from the fact that different cultures, even different environments, determine different types of links between the being and the coming about. Cultural anthropology has evidence to corroborate this. The bond, for

want of a better word, that places a person in a temporal continuum that involves, carries and determines him or her in his or her own and shared coming about is different for a sedentary country dweller than for a nomadic person. Similarly, the bond of the peasant with time is different, and has different meanings and consequences, from that of the urban individual, especially one who lives in a metropolitan business/industrial environment. There is no doubt that the famous (and very destructive) slogan 'time is money' has no meaning whatsoever for a peasant. The latter is bound to a time that is determined by the metabolism of natural systems; the former, to a time determined by the 'industrial metabolism'.

As the next chapter reveals, I came across vivid evidence of these different bonds whilst living in Tiradentes. In fact, the process of understanding, and integrating with, notions and treatments of time and space that were alien to me, proved to be as important as it was difficult, in spite of all my theories on the subject.

Space-time disruptions

We have already stated that a city is a system whose function is, at the very least, to provide its inhabitants with sociability, well-being, security and culture. The nature and quality of the communication bonds that people establish between themselves and with the other elements that constitute the city and its environs, are subjacent to the possibility of fulfilling such a function. We have also stated that these communication bonds take place in subjective time and space. While it was not necessary to qualify these bonds earlier, it is now appropriate to do so. The purpose is to furnish some arguments in order to establish some characteristics of and conditions for a city that may be more than human (for they are all human)—a city that may be humanizing. The theory (not yet fully developed) that I intend to propose I have called the 'theory of space-time disruptions'. It runs along the following lines.

People who live in a city live in a space. This presents them with two alternatives: *to be* in the space or *to integrate themselves* into the space. To integrate themselves means to be a part of a space that

coincides with the space perceived; that is, with the space which oneself contributes to generate as a determining part of the same and, therefore, creates for oneself. I identify such a condition as a 'human state of spatial synspacy'.* In other words: 'I am part (object/element) of a space that is *my* space, because as long as I contribute to its creation just by being present and make it definable through my presence, by being an element that, in it is**, I attain and acquire identity'.

Simply to be in a space represents an absence of identity. In other words: 'I walk in and move around, float, so to say, in a spatial magnitude that I cannot comprehend, and in which I am too insignificant to aspire to be a necessarily definable "element", able to generate space'. I identify this situation as a 'human state of spatial asynspacy'.

People who live in a city live in a time. This means they are permanently exposed to temporal micro- and macro-experiences. The subjective element of both is influenced by the type and quality of the bonds of communication allowed by the environment. When subjective time, lived over a determined period, inhibits the possibility of creating and satisfactorily completing a bond of communication that the person considers *objectively* possible for that period (chronological period), I would define that as a 'human state of temporal asynchrony'. These asynchronies produce varying degrees of anguish and anxiety, according to the importance given by the person concerned to the bonds of frustrated communication. It is, in this respect, deeply moving to read Franz Kafka's entry in his Diary for the 16th of January: 'This last week was like a total breakdown. Impossible to sleep, impossible to wake, impossible to bear life, or more accurately, to bear the continuity of life. The clocks do not synchronize, the inner one chases in a devilish or demoniac, or at any rate inhuman manner; the outer one goes haltingly at its usual pace'.³³

Subjective time and subjective space might be considered separate

* Just as 'synchrony' is derived from the Greek *syn* = together and *chronos* = time, I have constructed 'synspacy' from *syn* = together and *spacin* = space.

** The word *is* has here the sense of the German *dasein*, which is closer to the notion of existence than of mere physical presence.

, fields of enquiry. However, when a city is the issue, such separation would not make sense, as both influence each other. Out of many examples, I have chosen only two. The first refers to relations between space and temporal micro-experiences, and is relatively trivial; the second refers to space in connection with the temporal macro-experience.

Let us imagine a traffic jam on a metropolitan super-highway. Moreover, let us imagine ourselves to be in one of the vehicles. Finally, let us consider all that happens in the light of the concepts recently explained: (1) a metrically large space becomes subjectively small for us; (2) the subjective reduction of the space produces impatience in us; (3) impatience determines a constant reprocessing of the same information, *i.e.* the information that our brain processes is monotonic but of high 'intensity'; (4) the 'intensity' of the information prolongs our sensation of the duration of the event; (5) this (unwanted) prolongation of the event blocks our capacity to establish and diversify our possible bonds of communication with either other people, the landscape or ourselves; (6) such a blockade causes a degeneration into bonds of anti-communication as *we* honk our horns, shout and insult others; (7) this anti-communication generates even more impatience, and the circuit repeats itself with increasing intensity. We finally get home—and we all know what happens then. Everything disturbs us, there is no time to chat to our daughters and sons, and the most minor problems become disproportionately irritating.

This apparently frivolous model describes the consequences of a 'human state of space-time disruption'. I suspect that these states of space-time disruption are responsible for many a family crisis in large cities. The resulting stress severely hinders the successful achievement of those bonds of communication that are indispensable to the maintenance of balanced human relationships. Taken in isolation the model described may seem somewhat trivial. Yet, however trivial these types of disruptions may be in themselves, they are systematically repeated, day after day, in most big cities, so that their detrimental effects are cumulative.

The second example deals with the temporal macro-experience.

Every one, no matter where he or she lives, is simultaneously affected by three forms of ageing: chronological ageing, biological ageing and social ageing. I shall concern myself with the last two, since the first is important mostly for legal and bureaucratic purposes. Biological age is comparatively straightforward and does not require much explanation. Social age, on the other hand, is more complex. It is that which society assigns you, in actuality and in attitude. You *feel* it' by the way society treats you and especially by the increasing amount of opportunities no longer open to you. If biological ageing and social ageing are not synchronized, the result can be deeply disturbing, and this is precisely what I wish to analyse.

Biological ageing may be influenced by, among other factors, heredity, environment and habits of life. Social ageing is influenced mainly by environmental and cultural factors. If we consider habits of life as a part of culture, then the influences of culture and environment are common to both forms of ageing. Anyone who has lived in both a large metropolitan centre and in a rural community or small city, must have noticed that there is a subtle difference to the process of ageing in the former as compared to the latter category. Or to put it another way, the implications are not the same. In a business/industrial environment, the institution of forced retirement is society's official sanction of old age. The practice is less prevalent in rural areas. Furthermore, if retirement is accompanied by a lack of alternative activities, the person may *feel* useless and a burden to her family who, in turn, may begin to consider her a nuisance and so, eventually, another inmate for an old people's home is packed off. This sort of social ageing can dramatically accelerate the process of biological ageing.

In rural communities and small cities, it normally happens that a person of advanced social age becomes respected for his or her wisdom, and is granted new functions. He or she is listened to and actively participates in and influences decision-making. They remain active, *feel* integrated into- society, and hence useful.

Gerontologists and psychologists agree that biological ageing is accelerated if a person feels redundant and useless. Such feelings of redundancy are certainly more common in large urban centres than in

small cities or rural areas. We can therefore say that if social ageing is more rapid than biological ageing, we have a 'human state of temporal asynchrony'. Moreover, if social ageing tends to be more rapid in metropolitan centres than in small cities or rural communities, *we* are faced with a situation where 'space-time disruption' is affecting the large urban conglomerates.

Cultural factors are also important. As far as I know, social ageing in Oriental and African countries is not as dramatic an experience as it is for Western people but, even there, it may be better to be old in a small environment than in a very large one.

A city for human beings

Now I do not wish to give the impression that I am some sort of 'smallness' fanatic. There is a relativity to everything. There are, for instance, large cities and large cities. We *feel* better in some than in others, however similar in size. It is interesting to speculate on the reasons why.

At the risk of being repetitious, let me state once again the four minimal conditions that a city is supposed to fulfil: sociability, well-being, security and culture. And now let me ask the reader to examine his own experience of life, in his own city, against these four conditions. I would be willing to bet that, if the four conditions are satisfied in his large city, it will turn out to be a city with smallness inside its bigness. Let me explain, drawing on my personal experience. One of the happiest periods of my life was the years that I lived in Montevideo, Uruguay. It is a large city, housing half the country's population, yet I felt that the four exigencies I have enumerated were fully satisfied. This was fifteen years ago, an important point, since in recent years my visits have turned out to be quite disappointing. When I lived there, sociability was to be found on every block and in every corner bar or café. Well-being was to be felt in the relatively modest material ambitions characteristic of most Uruguayans when compared to other nationalities. Security was guaranteed by an almost over-extensive welfare system and by a relatively low rate of criminality compared to other Latin American

capital cities. Poverty existed, but not intolerable misery. Culture was accessible in all its manifestations and in great quantity. There were theatres and concerts sufficient to satisfy anyone's needs. There was a public library which never closed, where people were to be seen at all times of the day and night. It 'was a city where walking was a pleasure. It was full of mysteries, yet invited discovery. It was a city in which one felt in a 'state of space-time coherence'.

Buenos Aires has also, in the past, held a considerable attraction for me. I have given these experiences a good deal of thought, especially when I've found myself reacting very negatively to other metropolitan centres in which I have lived. My conclusion is that the large cities I have liked, by which I mean the cities where I have felt good, are large yet contain a lot of smallness. A city such as Montevideo is comprised of many small quarters (*quartier* in French, or *barrio* in Spanish) that have their own characters, conserve their own identities and traditional ways, and preserve a flavour of intimacy. There is a sense of diversity that avoids monotony. That is what makes them attractive and, above all, liveable in. But why are such characteristics to be found in some large cities and not in others?

It seems to me that if one were to pick out some other cities that reflect the same image as the one I have just described, one would probably find that all of them had become big before the period of rapid industrialization. This would certainly be true of Latin America, at least. Cities which grew as a consequence of industrialization tend to lack character and seem oppressively monotonous. In addition there are many cities—Sao Paulo being a case in point—where all the pre-industrial charm was simply bulldozed away in the name of progress.

My image, then, of a city for human beings is either one which is small, or one which offers the alternative of smallness inside bigness. Since 'humanising' dimensions are small dimensions, wherever there are insufficient large cities with this internal smallness, the sensible thing to do is to revitalize the small cities that are struggling to survive—victims of a mistaken concept of progress. An attempt along these lines is contained in the story which unfolds in the following chapters.

Notes

1. See Moberg, Vilhelm, *A History of the Swedish People*, P.A. Norstedt & Söners Stockholm, 1970, Vol. I, p. 2.
2. Ibid., p. 2.
3. Ibid., p. 2.
4. Genesis, Chapter , verse 28. (The italics are mine.)
5. See Ferkiss, Victor, *The Future of Technological Civilization*, George Braziller, New York, 1974, p. 7.
6. Ibid., p. 68.
7. Engels, Eriedrich, *Dialectics of Nature*, Inte^rnational Publishers, New York, 1940, pp. 291-292.
8. Ferkiss, Victor, op. cit., p. 68.
9. Georgescu-Roegen, N., *The Entropy Law and the Economic Process*, Harvard University Press, Cambridge, Mass., 1974, p. 2.
10. Georgescu-Roegen, N., op. cit., p. 2.
11. Ferkiss, Victor, op. cit., p. 63.
12. Some of the most interesting proposals are contained io *What Now: Another Development, The 1975 Dag Hammarskjöld Report on Development and International Cooperation*. The Dag Hammarskjöld Eoundation, Uppsala, 1975.
27. Georgescu-Roegen, N., op. cit., p. 1.
28. Georgescu-Roegen, N., op. cit., p. 19.
29. Georgescu-Roegen, N., op. cit., p. 6.
30. Hardin, Garret, 'Lifeboat Ethics: The Case Against Helping the Poor', *Psychology Today*, 8, 1974. For good criticism of Hardin's ideas see Bay, Christian, 'Toward a World of Natural Communities', *Alternatives* No. 4, Spring, 1981.
31. For the first two points I llave taken ideas from Ferkiss, because I identified with them oven before reading him. I have added the third aspect (which he ignores as do most) for reasons that I consider quite obvious. I have added it because I consider it logical and essential to consolidate the factual possibility of the other two. No form of humanism makes any cense to me without a drastic redistribution of power.
13. The detailed information of this history has been taken from Julio Estrada Ycaza, *Regionalismo y Migración*, Publicaciones del Archivo Histórico de Guayas, Guayaquil, Ecuador, 1977.
14. Juan Mangache mace bis second visit to Quito in 1598, accompanied by bis two sons, Pedro and Domingo, who were painted. Their portrait is to be seen in the Archaeological Museum of Madrid.
15. The quotation has been taken from the first chapter of Ma^fshall Wolfe's Elusive *Development*, published in 1982 by the UN Reserarch I nstitute for Social Development and the Economic Commission for Latin America.
16. Ibid.
17. Eduardo Ribeiro de Carvalho died in 1979, in bis early fifties. His untimely death represented an irreparable loss tu all those who, under bis stimulus, were allowed tu advance and promote the most audacious and innovative ideas, something rarely found in international organizations.
18. Tiradentes means literally `Toothpuller'. It was the nickname of Joaquim José de Silva Xavier, leader of the first independence attempt in Braza, in the late eighteenth century. The attempt was known as the 'Inconfidencia Mineira'. Tiradcntes was executed ih Ouro Preto alter the movement was crushed. His bode was dismembered and the head and limbs were exhibited in the main towns of the arca as a warning tu the population. I le was born Glose tu the town that today bears bis nickname.
19. In this respect, a fundamental contribution has been nade by Tibor Scitovsky in *The Joyless Economy*, Oxford University Press, 1976. He does not concern himself with the problem of size as I do here, but he does 'look deep into the consumer's soul'.
20. Aristotle, *Politics*, 1326a and 1326b.
21. Plato, *The Republic*, 423b.
22. See Valaskakis, K., et al., *The Conserver Society*, Harper & Row, Publishers, New York, 1979.
23. Bent Sorensen, *Energy and Resources, Science*, Vol. 189, No. 4.199, July, 1975, pp. 255-260.
24. Ludwig Wittgenstein, *Tractatus Logico-Philosophicus*, Proposition 2.012, fourth phrase.
25. Ibid., Proposition 2.013. (The italics are mine.) I agree with Wittgenstein that we can *imagine* an empty space, although with some difficulty, since some form of object will tend tu appear as a boundary or limit of that imagined empty space. However, we can certainly *not perceive* an empty space.

31. Robert Ornstein, *On the Experience of Time*, Penguin Books, New York, 1975, pp. 21-22.
32. Léniz and Alcaíno's paper was presented at the Seminar on 'Time, Quality of Life and Social Development', Bariloche, Argentina, October, 1980.
33. The embryonic theory that I am presenting here was greatly inspired by this dramatic paragraph of Kafka's.
34. Tiradentes is located at the base of the Sao José Sierra which is a haven of spectacular and rare flora as well as interesting fauna. It has been, and still is, in constant danger of depletion and destruction. Some species have already vanished. Tiradentes itself contains an invaluable colonial cultural heritage, in spite of its long abandonment, deterioration and decay.
35. For an interesting exposition of the idea that follows, see Michael Todaro, *City Bias and Rural Neglect*, The Population Council, New York, 1981.
36. See *IFDA Dossier 17*, International Foundation for Development Alternatives, May/June, 1980, pp. 11-13 and *Development Dialogue* 1981:1.
37. The Foundation contributed to the financing of the Third Latin American Meeting on Research and Human Needs, sponsored by UNESCO, in Tiradentes in October, 1979. Although I was coordinator of the meeting, it was not properly an action of the Project.
38. They were: Fernando Rocha Pina Sampaio, painter; Vania Lima Barbosa, economist; Olinto Rodrigues dos Santos Filho, regional historian; Ann Mary Fighiera Perpetuo, secretary; Edson dos Santos, office boy. Their ages ranged from 19 to 28 years.
39. Norma Nasser and Ademar Salomao. A II the information and data that follows about children has been taken from a preliminary (unpublished) version of her paper 'Visoes da Infancia; o Caso de Tiradentes'. This version was produced in 1980.
40. It was the Third Latin American Meeting on Research and Human Needs, sponsored by UNESCO and carried out in Tiradentes in October, 1979. The subject of the meeting of that year was 'Human Needs and Childhood', hence the presentation of our research on that occasion.
41. Exactly the opposite had been the finding of Eleonora Masini who had studied children in small towns of Italy. Her research was contained in her paper 'The role of childhood in different development styles', presented at the Seminar mentioned in notes 37 and 40.