# BETWEEN DYSTOPIA
AND UTOPIA

by CONSTANTINOS A. DOXIADIS

Basically a city planner, as he calls himself, Constantinos A. Doxiadis is respected as an architect, teacher, philosopher, author, and businessman.

Born in Bulgaria of Greek parents, he was raised in a Greek community and received his early schooling in Athens. In 1935 he was graduated from the National Metsovion Technical University of Athens with a degree in architecture. Two years later he earned a doctorate in civil engineering at the Berlin-Charlottenburg Technical University.

Returning to his homeland, Dr. Doxiadis began his work in architecture and city planning and held a number of important government positions. When war came to Greece, he served in the artillery and, after the invasion, headed a resistance group in the underground secret service.

Assigned the task of evaluating the war damage and of drawing up plans for rebuilding, Dr. Doxiadis gained an intimate knowledge of the problems facing his country. He was appointed Minister in charge of the development program.

In 1945 he attended the San Francisco Conference on the organization of the United Nations. He represented Greece in France, England, and the United States on the problems of postwar Greek construction. He headed the Greek delegation at the International Conference on Housing, Planning and Reconstruction and, in 1948,

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Jacket design by Sophia Zarambouka

$3.95

To Joe with love, Lee
Christmas, 1966

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by Constantinos A. Doxiadis

Visiting Lecturer
Trinity College
Hartford, Connecticut
March 7–11, 1966

To Anthy
for helping me
to travel to Utopia

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ACKNOWLEDGEMENTS

Athens, April 1966   C. A. DOXIADIS

FOREWORD

TRINITY COLLEGE was honored to have Dr. Constantinos A. Doxiadis on the campus during the week of March 7th as the 1966 Trinity Lecturer-in-Residence. It was a significant event for the hundreds of students, members of the faculty, and professional planning groups of the community who were privileged to meet with him informally, to attend his seminars, and to hear his three provocative lectures.

Dr. Doxiadis stimulated the thought processes of all of us. No one who heard him relate his doctrine of *Ekistics* to the urban problems existing in the world today will ever again view the city and its complexities of growth with complacency, or without the knowledge that proper planning can help solve the problems, or that the happiness of man is not truly the ultimate goal of all such planning.

We are indeed proud to publish the three lectures delivered by Dr. Doxiadis at Trinity College.

ALBERT C. JACOBS
President

Hartford, Connecticut
May 1966

INTRODUCTION

I WAS SITTING at my desk one evening in front of my office window overlooking the city of Athens which extended in all directions. The sun, nearing its setting to my right, was showing the city in full relief. The western walls were bright, the eastern ones hazy, the narrow streets dark like elongated pits, full of cars and people; and the whole was covered by a cloud which was at its darkest where Plato had taught in his olive groves and at its lightest to my left, far away over the sea. This is the city of Athens, I said to myself, one of the many cities of the world which do not satisfy us in any way, one of the cities that man has built and animated and which he continues to build though they have gotten out of his control.

The last rays of the sun fell on the ancient Acropolis lying in the middle of my picture. This great natural projector, leaving the modern city in the twilight, helped me to travel back into the past and to remember the beauty of classical Athens, the small city of fifty thousand people built on the northern slopes of the Acropolis, where democracy was born – Athens, the cradle of western culture. This Athens of the past is now an empty shell, as beautiful as any natural one on a beach, but as dead as the people who animated it. There is no life in an empty shell – only the existence of the snail keeps it from dying.

It was dark now. The modern city was illuminated by millions of multicolored lights, and where the Acropolis had been only a great black spot remained. By sunlight the ancient shell crowns the modern city, but when modern technology enters the picture it is either erased from it or it becomes its brightest spot – all depending on the engineer of the power company who decides when the Acropolis will be illuminated. Today

the natural relationships of old and new, important and un-
important, depend on how we use a switch! This last thought
is worth exploring. Technology does not simply change the
lights of the city, it changes the city itself. A new railway line
divides those who were neighbors and forces people not to
open their windows any more because of the noise. If a new
factory is built near my residence, the only solution may be
to move to another area – but what are we doing about the
exhausts of the cars? We simply breathe them.

The night was progressing, many of the lights were turned
off, but I was sitting there thinking that the city we are build-
ing is worse than yesterday's city. In this sense it is definitely
a bad place, a *dystopia*. Why then build it? What is the justifi-
cation of my professional activity?

Then came a voice: "Why not build my Republic?" I recog-
nized Plato. Sir Thomas More stole my answer: "It is too
small. You had better turn to my Utopia." I then realized
that my room was full of voices of the past and present repre-
senting dreams of the ideal city – philosophers, statesmen,
architects, and many others – everyone looking at it in his
own way. J. V. Andreae proposed Christianopolis, Etienne
Cabet his Icaria, Edward Bellamy his America, Le Corbusier
his Ville Radieuse, Frank Lloyd Wright his Broadacres City,
and Aldous Huxley his Island. I was following them through
the ages as they built with words and drawings their dream-
land for which there was no place – their Utopia. It was a
long discusion which lasted twenty-four centuries.

Then, the first light of the day appeared to my left, behind
Hymettus. The lights of the city faded, the people woke up and
revitalized the city and its machines! To my right the chimneys
of the plants began their pollution of the air, and in front of
our building the cars of the arriving employees created the

first noisy and disturbing traffic jam. "I now understand why you want your cities underground." I discovered that this was my voice and that I was addressing H. G. Wells. "We have to turn to Big Brother for a decision," said George Orwell.

It was at that time that my assistant came in to call me for the eight o'clock meeting. I had to obey and go into our operations room to hear about the last cables from the cities we are building and to make decisions on what had to be done – because we were not dealing with no-place but are planning always how to build cities which actually exist.

This morning our official projections for the city of Rio de Janeiro would move into the computer – from five million the population will jump to eighteen million by the year 2000; and the slum dwellers, if their rate of increase continues as at present, will be four million. How are we going to face this problem and how can we prevent the new university buildings in Athens from climbing the steep hills? How are we going to house the growing industrial population of Ghana or save the Georgetown Waterfront in Washington, D.C., from the interlocked highways which spoil the Potomac landscape?

These are the cities, I said to myself, which we are supposed to ameliorate by adding new buildings and more modern highways, and what is the result? We turn them into bad places – into *dystopias*. We are certainly not successful! What is wrong with us? Here is reality and here are our dreams – why don't they lead anywhere? And then I came to the realization that they are not properly connected, because reality and dreams move on different planes and at different scales and speeds. What we need is a place where the dream can meet with reality, the place which can satisfy the dreamer, be accepted by the scientist, and someday be built by the builder, the city which will be in-place – the *entopia*.

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Sitting later alone, I came to the conclusion that this is the problem of humanity today: it builds cities which are bad, the *dystopias;* it dreams of cities for which there is no-place, the *utopias;* while it needs *good* cities for which there will be a place, the *entopias.*

TOWARDS DYSTOPIA

WE BUILD bad places – we build dystopias and we live in them! I must now justify this statement, but I also must do something more; I must prove that if the situation continues as it does at present, the human settlements – urban and rural, of all kinds – will turn into much worse places than at present, even threatening the survival of man; because if it is not so, if the situation were to be better tomorrow, then we need not worry so much about the dystopias of the present.

This then is my task: to prove that we live in bad cities and are heading towards even worse ones, towards a dystopia of the worst kind.

The Static Settlements of the Past

True hominids have perhaps existed on this Earth for about two million years, and during the last ten thousand years, that is, only during the last one-half per cent of their life-span, have started settling in permanent rural settlements, in villages. These villages were small agricultural communities with probably never more than a thousand inhabitants, consisting of huts which turned gradually into permanent houses, without any facilities other than a primitive network of roads and public spaces.

This situation lasted for about four thousand years until the first cities appeared about six thousand years ago. These cities had more people, more developed houses, the first organized road networks – a city plan – the first primitive networks for water supply, sewers, and drains, and carried out a much

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This situation lasted for about four thousand years until the first cities appeared about six thousand years ago. These cities had more people, more developed houses, the first organized road networks – a city plan – the first primitive networks for water supply, sewers, and drains, and carried out a much

greater number of functions. Their normal size was up to five or ten thousand inhabitants and gradually even more, but they seldom exceeded some tens of thousands of people. Famous cities of the past like Athens never had more than fifty thousand people; and as far as we know only three cities came close to the one-million mark before the nineteenth century: Rome, Constantinople, and Peking – all capitals of great empires.

The most important characteristic of all these cities was that they were static, they did not grow beyond a certain size, they were in balance with the surrounding countryside, and this quality was even physically expressed by the walls around them. In the same way as the cities, the villages were always in balance with the land they exploited – the technology of cultivation led to a certain limit in the production of food which again could sustain only a limited number of people. The cities relied on the neighboring villages for food, providing in return various services to them, and could thus only support a certain number of people. Land, technology, production, population, and settlements were in a static balance and man gradually became adjusted and used to it.

Because of this static characteristic of his settlements, man understood them and developed them so thoroughly that we, today, admire their qualities, mention them with pride, and if we have any time free for our enjoyment or education, we flee into them even when they are in ruins – much more when they are still alive, like Venice.

The Dynamic Settlements

The seventeenth century brought the scientific revolution, followed by the industrial one, and the revolutions in transportation and communications in the eighteenth and nineteenth centuries. Science opened new horizons, industry helped man

to increase his production, and new technology in transportation and communications brought people much closer together. A rapid increase of the numbers of people and a high productivity in the rural areas meant much greater concentrations in the urban settlements.

fig. 1   urban growth
dynamically growing cities merge into one another
creating large urban areas
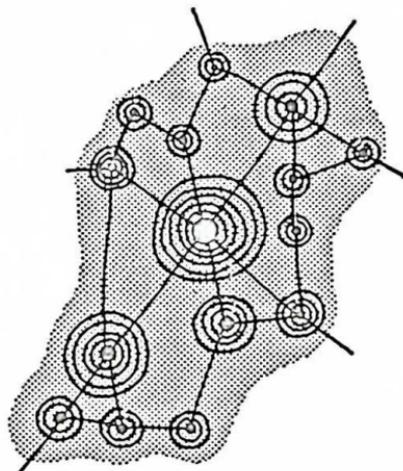
In the year 1800, the population of the city of London reached the one-million mark, and thus London lost the characteristics of the static city for good. London became a metropolis which continued its growth until today it has passed the ten-million mark. The same thing happened to other cities of the world; once the new forces reached them they turned from static into dynamic settlements, growing continuously.

They merged with others, absorbing the smaller ones in their course, eliminating all signs of pre-existing rural developments (fig. 1). The city turned into a metropolis, which has now grown into a megalopolis, and we have no reason to believe that this phenomenon of growth has begun to be checked.

The importance of this growth can be understood if I mention that in my home town of Athens seven people, three cars, and four dwellings are added every hour, and three square feet of area every single second. I could present this pulse of the growing city by knocking my hand on the table every second, twenty inches away from where I knocked last. The result is that the city of Athens, which for three thousand years remained below the fifty thousand mark, has in the last one hundred years jumped to two and a half million.

This is just one (and still among the best) of the many dynamic cities of the world within which people suffer from the growth of the total organism and the new tensions that are created within them, but quite a typical one as the problems are the same in all dynamic cities – problems created by their growing pains.

The Natural Container

If we try to understand how our cities suffer, we must look carefully at all five of the elements which constitute them. We very often forget one or more of them and we lose the real picture. The elements are: nature, the container; man who settles in it; society formed by man; the shells (houses and buildings) created by man; and the networks (roads, water supply, power, etc.).

Nature, the container, is now in a worse condition than it ever was in the past. Not only is natural beauty being eliminated by the bulldozer, but also the air that we breathe is contaminated and the water that surrounds us polluted – we can-

not drink it or even swim in it. Medical societies warn us that breathing the contaminated air is as dangerous as smoking, but we still allow the process to continue, and the contaminated layer of air which is half a foot thick if spread evenly over the entire surface of the earth increases year by year. Certainly we purify the air in some of our buildings, but we throw the contaminated part into the streets and breathe it when we go out to get some fresh air. In what way is this different from the medieval city where the sewage was thrown into the streets? Certainly the air in the countryside is still pure; but we do not live there!

Man

Man becomes more and more a slave of his environment. For the first time in his history he is less safe in his cities than in the countryside. For the first time in his history he is deprived of a basic freedom – the freedom to walk in his streets and to sit in his squares. For the first time in his history he has to close his windows in order to protect himself from the noise and lights of the streets. Within his city he must become a troglodyte, or flee from it. Age-old values and love affairs like the one between man and art have been broken by the machines, while the statues of the generals looking like traffic policemen watch the fleeing man over the tops of the cars.

We do not yet know how many of our phobias are due to the fact that as children we are not free to walk in our cities and how many of our nervous diseases to the fact that we have lost our privacy – even in the outskirts we are deprived of our compound walls, our quietness, and therefore our freedom to be by ourselves – our independence. Physically we are gradually turning into centaurs, half-men, half-cars. At the end we will admire only the machines and thus we will be intellectually tamed by them.

Society

Society does not function as well as in the past. I will try
to explain this very complicated problem in a mechanistic way
which, if properly understood, can lead to very useful con-
clusions. I must first object to a contemporary myth, that we
are now living at higher densities. On the contrary, where a
few centuries ago man lived in densities of about 80 persons
per acre, he now lives at continuously lower density as, for
example, 26 persons per acre in the built-up area of London.
Much lower densities mean much greater distances between
people (fig. 2); they mean that a much greater effort is needed
for daily contacts between people. These, however, are the
contacts which create the city and civilization.

fig. 2   number of contacts in different densities

x contacts   2x contacts

$d_1 = 40\ \text{inh/acre}$ $d_2 = 80\ \text{inh/acre}$
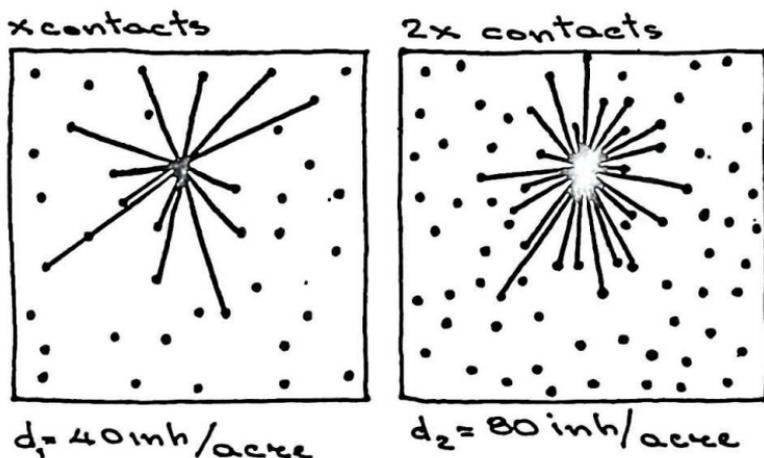
We certainly have motor cars, but it has not yet been proved that, because of them, the daily contacts of all members of the family are as many, as effortless, and as pleasant as they used to be. This could theoretically be done if every person – including small children who used to run to their grandmother's house – had a car, but again this would work only if this car could cover all distances in the same length of time as it used to take people to walk in the past. Certainly the car gives to its owner in a metropolitan area a much greater number of choices for contacts, but how many of them can be actually used, and how about the housewife and the children?

We certainly have telecommunications, but does the telephone replace the contact between sexes, or the television set the talk with a father who is driving back home at the time in the evenings when his children need him? Until it does, we cannot say that telecommunications replace all-important daily contacts, and we cannot avoid remembering that they lead to a mass culture which eliminates many opportunities for the proper development of individual identity.

We could speak about criminality, delinquency, and other criteria, but their interpretations are quite often erroneous, and it will be better to limit ourselves to the safe statement that while our cities grow, the distance between man and man increases. I remember a young friend of mine who said that every year more and more people spend Christmas with less and less people. And at the same time man's opportunities for privacy decrease. We have less social contacts and less privacy. We lose on both the social and the personal fronts.

Shells

The shell is the only element of the five where some positive progress has been made, as houses and buildings are in several respects now much more satisfactory than they were

in the past. But this is true only inside them, and they tend to enclose us more and isolate us from our natural surrounding – by creating an inner space which is much more pleasant than the public space and by connecting us with the world outside in a mechanical and not in a natural way.

We now have much more efficient and pleasant interiors than in the past, but this fact should not lead us to forget that if we continue turning our back on the world outside the buildings, architecture will cease to be necessary – caves could be equally good homes with the same interiors.

Networks

The element which has been developed more recently is the element of all sorts of networks for transportation, communications, and facilities. We develop more and more elaborate systems, but we cannot pretend that they are serving us more. Let us think of the highway systems and our traffic networks. Some are electronically controlled, but have we today a better opportunity to cross our cities than in the past? The answer is no, because we still cross our big cities at nine miles per hour, which was the speed of a horse-driven cart at the beginning of the century.

Actually, the situation is worse as we can now state that the faster the means of transportation, the longer it takes man to reach the center of the city. In the past it took a maximum of ten minutes to walk to the center of the city, then thirty minutes to reach it by train, and now more than an hour by car.

Public transportation could not be mentioned as having yet been satisfactorily operated for man, who is often dealt with as a parcel, and the elevated railways and highways cannot be mentioned as a successful contribution to the creation of a better urban environment.

With other networks, especially in telecommunications and

fig. 3   the growing city

we need:

wide streets
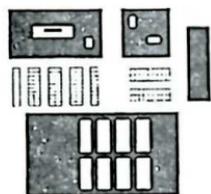
big parking plots
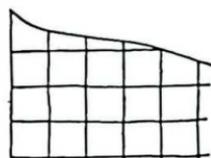
large regular plots

freedom for new designs

freedom for exprropriation

but we have:

narrow streets
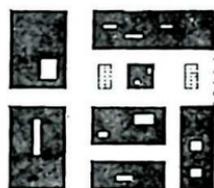
small parking plots

small irregular plots

no room to move

the largest investment.

power, the situation is much better now, but how dangerous our dependence on them can be has been recently illustrated by the complete blackout of the eastern part of the U.S.A. and Canada. A lot more has to be done in order to make such dependence quite safe in peace and war.

Suffering People and Cities

Both people and cities suffer today from great strains – but does this mean that they are worse than in the past? I do not believe that we have yet any system which permits us to compare past and present objectively, but if we try not to concentrate on only one of the five elements, as we often do, on only one part of one of them, then I believe that by computing the totality of the manifestations of our life which is related to our city, we will come to the conclusion that cities of the past offered a more humane life than the cities of the present and a much better chance for man to be happy and to survive as a member of a society. This opens the question of the definition of humane – to which we will come back after looking at the city itself.

Not only man (as an individual and as a member of society) suffers more, but so does the inanimate city. If we only look at it and understand its strains, we will understand how much it suffers (fig. 3). Looking at one aspect of its structure, at the pressures exercised on its center, we can understand how much they increase because of its growth, and how they finally break the old central tissue which is not able to stand present pressures. How can a child whose heart is enclosed in a steel frame grow to become a man? It will die as the centers of our cities do.

But if the container suffers from strains, how can the content, man, avoid them? It is apparent that he does not, and he loses his freedom to live in a humane way. The cities were

built in the past on a human scale – which was gradually developed by man after trial and error to correspond to his body, his senses, his desires. Because of the intrusion of the machine, this scale was lost.

Now man is forced to accept his cohabitation with the machine, disputing the same space with it, breathing its exhausts. We like to say that man is easily adapted to new conditions; this is as true as saying that man is prepared to adapt himself to a dictatorship. But at the beginning he may not have understood the yoke that closes around his neck, then when he does, he does not have the power to revolt, and then some day he either revolts or dies. Where then is the adaptation? I think that Dr. René Dubos is right when he states that it is "erroneous – if not meaningless – to state that man must adapt himself to the new environments created by scientific technology unless one states first the limitations imposed by the biological characteristics that define the human species."[1]

As long as we do not achieve this, as long as we cannot define the real meaning of the concepts "humane" and "human scale," we cannot be certain of our behavior within our cities – whether we are adapted for good or for evil – adapted for the development into a better and happier human species or just tamed into slavery and misery.

Personally, I believe that the latter rather than the former is the case and that this will continue as long as we do not know what city we want to build. Instead of defining human goals and building the city to achieve these goals, we let it happen almost by chance as the result of the action of those who can design and build – sometimes even in perfection – some networks whose design is based on the best flow of sewage or of trucks! Man suffers from this situation and he tries to overcome some of the problems. His most usual thought is for surgery – to cut through the old city. He does so, he attracts
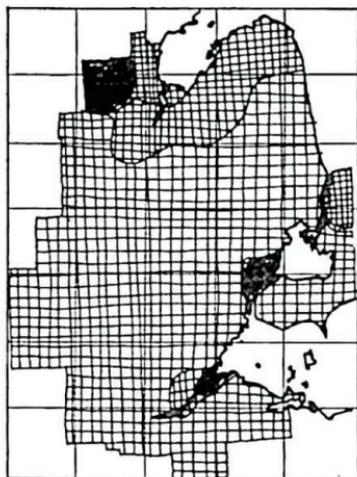
1900
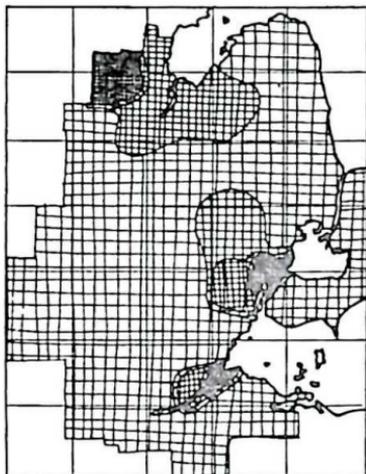
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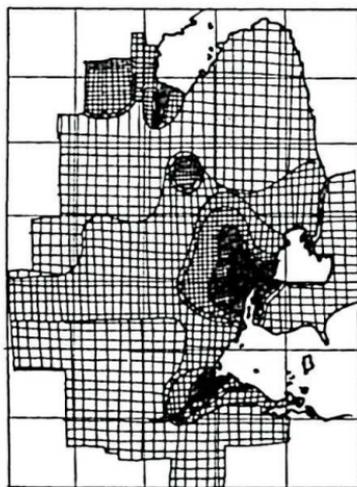
1940
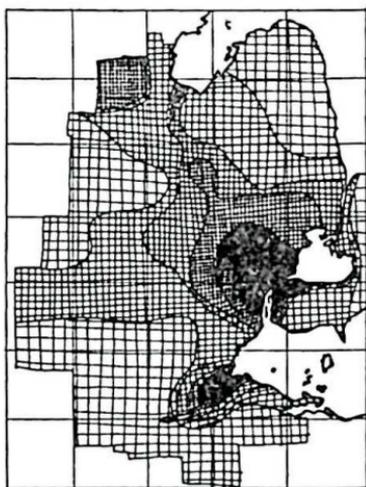
1950   grid 50×50 km

fig. 4   the waves of urbanization spread into the
         countryside
         per cent of land in farms (Detroit U.S.A.)

below 25%
25% - 45%
45% - 65%
65% - 75%
75% - 85%
above 85%

1959   grid 50x50 km
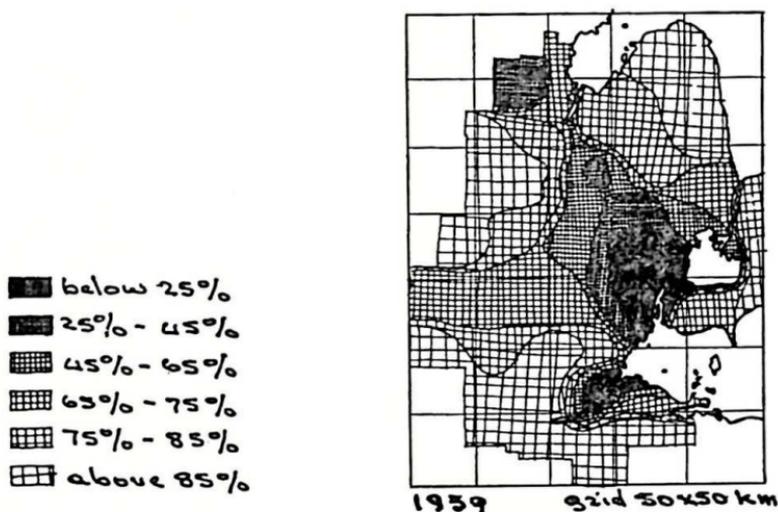
greater pressures, and his problems increase instead of de-
creasing. Another idea is to plan for the expanding city – but
he acts after the facts. By the time he plans, millions of deci-
sions have been taken by people who bought the farms, in-
vested in rising land values, planned for industry and resi-
dential developments, and committed the land for certain
purposes (fig. 4). To call all these interests land speculation
is a naive over-simplification of a very important aspect of
our contemporary way of living.

Heading for Disaster

All the forces which contributed to the formation of the present dystopias are still being deployed; the population grows even more, industry and mechanization spread, productivity increases, and the human settlements almost explode over the terrestrial space. There is no sign that the problems are going to be decreased.

On the contrary, by the end of the century the population of the Earth is going to double and the urban population is going to be four to five times as large as it is at present, the number of machines even larger, and the built-up area more than ten times greater. In a century from now, the total population will be of the order of twenty to thirty billion, the urban population about twenty times larger than at present, the economic forces, the machines, and the area of the human settlements almost terrifying. By then they will be all interconnected in a total continuous universal settlement, into the ecumenic city or ecumenopolis, whose dimensions can be understood if we think that from Milwaukee to Chicago, Detroit, Cleveland, Buffalo, and beyond it to Toronto and up to the Atlantic, there will be one continuous city (fig. 5).

What is going to happen to man within this city, and what is going to happen to the city itself? All signs show that this city cannot function and within its walls it will crush man; between its networks it will choke him to death!

We certainly speak of several kinds of measures such as birth control which have to be taken in order to avoid such a disaster, but our proposals either are not going to have results on time – the population of the Earth cannot remain even by command below the twelve-billion mark – or may not have the expected results at all, as several experts on biological problems warn us, about the real impact of population controls of which we know really so little.

fig. 5 Great Lakes megalopolis

—— main portion of G.L.M.
--- Canadian extension
..... Eastern megalopolis

C.O.F. Research Project
Athens Center of Ekistics

grid 200 × 200 km
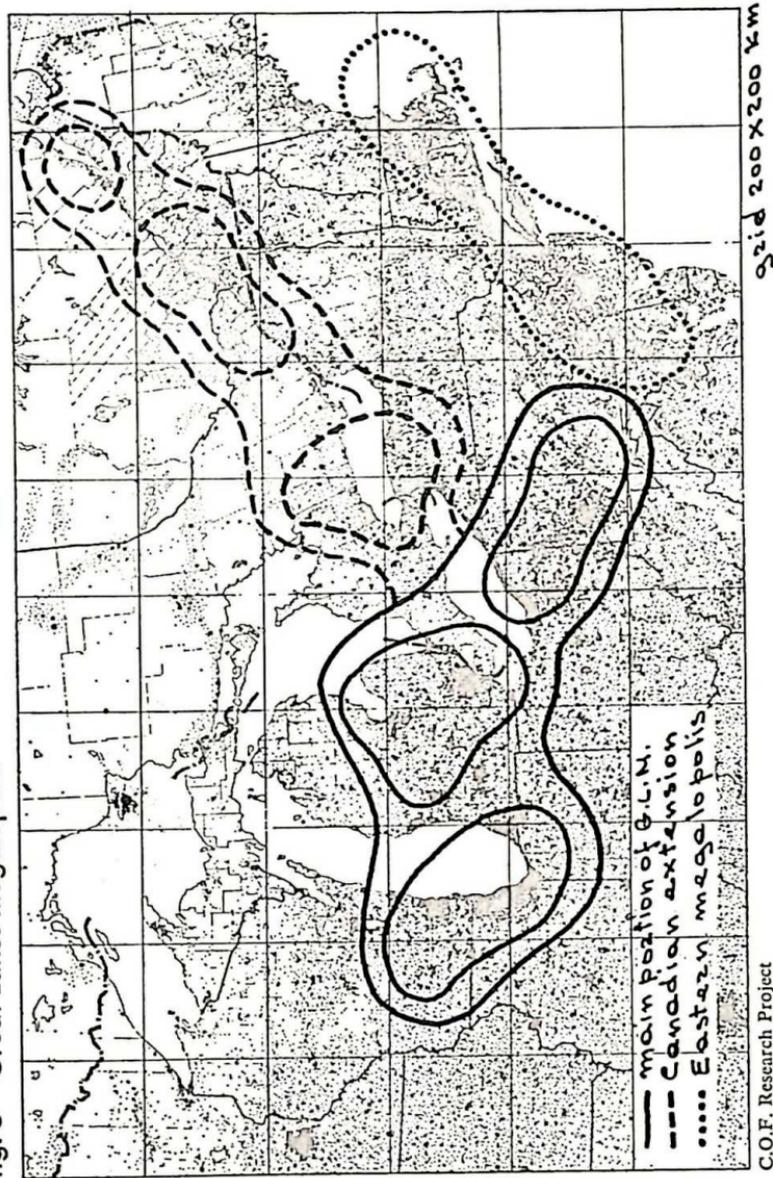
I do not believe that we know or even suspect where we are heading.

Literary Dystopias

When I make such a statement about the lack of knowledge about where we are heading, I mean almost the totality of the population of the Earth including almost all of those who are supposed to know and almost all of those who take everyday decisions about our settlements. I should make some exceptions, though, and remember that at the beginning of our century people like Patrick Geddes[2] began to warn man about his settlements and speak of cacotopias – the bad places – that we now call dystopias. It is in this tradition that Lewis Mumford speaks of cities and predicts the possibility of Necropolis – the dead city.[3]

Another warning comes from literary men and is expressed through novels which present the city of the future as a definitely bad place. This effort begins with H. G. Wells who in 1894 presents in his *Time Machine* the city of the future consisting of an Upper World of ruins and an Under World in the bowels of the Earth where people live permanently underground. Anatole France follows in 1909 with his *Penguin Island,* its city of fifteen million people covered by smoke which is so thick that the population is forced to breathe artificial air. Then in 1929 E. Zamiatine takes us to his bad place in the world-wide Unique State, by his book *Nous Autres.*

In 1932 Aldous Huxley presents in *Brave New World* the dystopia of the whole Earth, inhabited by two billion people – the same as the actual population of the Earth in that year, in what could be called a static society in a static culture where science led man to the point of complete loss of his freedom and turned him into a human object.

The postwar period brings to the surface new dystopias

about people who have lost their freedoms – a result of the experience gained by the momentary ascent of nazism and fascism. Franz Werfel in *The Star of the Unborn* (1946) presents a world with cities built below ground where everything has been standardized and yet there is no dissatisfaction as man's ingenuity has already been exhausted.

Aldous Huxley comes back in 1948 with another dystopia in *Ape and Essence* and speaks of a new society consisting of people suffering from the effects of radioactivity, ruled by a priesthood of eunuchs which, because of a great number of deformed babies, is being gradually wiped out, a community where "ends are ape-chosen; only the means are man's."[4]

A year later George Orwell predicts in his *Nineteen Eighty-Four* a society where total control has been established over man by the Party which can listen to every word he utters and watch every gesture he makes throughout his life. This ruling party is not interested in man, his happiness, or his long life; it does not care to build (all buildings with the exception of the ministries are the old ones); or to allow any travel and communication. It is only interested in power, and thus it leads to extreme centralization of control so that it can reshape people – the Earth, after all, for their conceptions, is the center of the universe.

In 1954 Ray Bradbury presented in *Fahrenheit 451* (the temperature at which book-paper catches fire and burns) a world inhabited by a nomadic society of people living in cars and in houses with four walls of television, whose ears are sealed tight with little seashell thimble radios, who cannot hear normal speech, who cannot see normal forms because of the speed at which they travel – a place where nobody knows anyone, where highways are full of crowds going "somewhere, somewhere, somewhere, nowhere,"[5] I now hear that a film is being produced based on this book.

In 1959, Aldous Huxley revisits his *Brave New World,* explains what disasters we should expect because of over-population, over-organization, and brain-washing and leads to the conclusion that what we need is population control through persuasion.

It is interesting to note that these literary dystopias begin almost at the same time, the turn of the century, as the warnings of scientists like Patrick Geddes, and in the same country, the United Kingdom – the first country which witnessed the creation of the multi-million-people city, one hundred years after London passed the one-million-people mark, the first country to suffer so much for so long.

It took man four generations of suffering to react intellectually to the city he was building and to project it into the future in order to see the road to disaster, a slow reaction but good enough to start man worrying about the future – a reaction, however, which had up to now a greater impact in making pessimism fashionable than in mobilizing human forces against the present trends.

Technological Dystopias

It is interesting now for us to see how man has reacted to these dangers and warnings in building his cities during the early twentieth century when the crisis became, to some at least, apparent. The first remark that we can make is that during this period of the greatest population increase in human history man has lost the ability to build new cities. His only and really world-wide response is to create garden-cities, which are only very small cells in relation to the actual dimensions of his settlements. Confronted with a new task, man shrinks into the dimensions of the past.

The second type of world-wide response was the concen-

tration on some aspects of the human settlements only. A characteristic example is the development of new means and new techniques of transportation, of cars and highways, and the grave mistake of separating such phenomena from the city-total. Thus, great technological progress in one field very often means disaster for man and the city as a whole. The human scale is lost, the time consumed in commuting has increased, communities are split by high-speed lines, and the traffic congestion becomes worse as the story of the lady with the skunk shows when one day a skunk entered her basement and she rang the fire chief to ask what she should do. He advised her to put some crumbs of bread leading from her basement to the nearby forest so that the skunk would leave. The next day she called again and the fire chief asked if the skunk had gone. "No," answered the lady, "I now have two."

Man tried to react to this situation in other ways also, of which the most revolutionary is urban renewal as it is conceived in the U.S.A., but with no apparent success. The reason is, that while the conception of the need for urban renewal and the legislation are in the right line, the implementation lags far behind. In any case, man has not had much experience — possibly only Nero tried this technique. And man has in most of the cases lacked the imagination to see urban renewal not only as an end by itself for small projects but as a process which can help him remodel his habitat, a process which can be successful only as a part of a really overall, comprehensive effort to build the proper city of man.

It is a fact that man is lost within his growing settlements; it is true that he is confused by the new forces; and thus he is often led to the wrong action. When Marshall McLuhan states that the Euclidean space recedes and the non-Euclidean develops,[6] he is right in a general way because of the new horizons opened to man, who can now be connected over a much

wider space than the one normally allowed by his natural physical scale. But many people are confused and think that the new scale should alter the existing one, while we should see it only as a new extension.

A characteristic example of such confusion of minds is given by some groups of architect-planners who pretend seriously that we should live in larger, more inhuman buildings where the construction is more important than the space, the container than the content, the shell than the man, the lines of transportation than the human values. How far these ideas have led has been shown by such efforts as the *Motopia* of 1961, all of whose cars were to circulate on the tops of the roofs of the buildings and, finally, in a 1963 London Exhibition where a walking city was presented with all buildings conceived as steel tanks moving mechanically and probably crushing, like tanks, nature or any person outside them.[7]

Thus, half a century after the literary dystopias – which were a warning – the technological dystopias were born, not as a joke or a warning but as an ideal. This phenomenon should open our eyes to some facts. First, around 1800, the inhuman city was born. Then, a century later, man began to see the disaster and men of science and literature warned us by their dystopias, but the understanding was slow, and fifty years later technologists seriously proposed dystopias as an ideal. This is how man is adapted to new situations and does not react until he will be crushed by them.

Closing the Day

I have spent my day in my workshop struggling over problems which look impossibly difficult, bent over my table, looking at plans and statistics. I need some fresh air and I start climbing to the hill of Lycabettus in order to reach the roof

of Athens. From its top I see the spreading metropolis, but I cannot see its limits; I can see its suffocated center. The verses of William Butler Yeats come to my mind:[8]

> Turning and turning in the widening gyre
> The falcon cannot hear the falconer;
> Things fall apart; the center cannot hold;
> . . .

This city cannot survive in this way. There are too many vested interests in every sense of the word – economic, political, cultural, public, and personal – to allow us to remodel it as we should. Is it doomed to become a victim of its past which has created so many commitments for it? Is it going to die of arteriosclerosis as so many aging organisms do? Is it going to allow man to survive in it, or is it going to turn into hell? Are these machines which move into Athens the locusts of the Revelation, with breastplates of iron, making the sound of chariots with their wings?

Can we really save such a situation by better action for our settlements? Are there enough people who know enough to stop this situation which is out of control? Or should we stop the city, or the world, to get off? In such moments I think of Ezra Pound:[9]

> O God, O Venus, O Mercury, patron of thieves
> Lend me a little tobacco-shop
>   or install me in any profession
> Save this damned profession of writing
>   where one needs one's brains all the time.

Only I don't think of the profession of the writer, but of the builder. Am I not exaggerating, really? Is it not quite common for man always to think that old values are lost, that the days of our parents were better, and the prospects for our children

grimmer? I am sure that in some way I am a victim of this habit, but being aware of this danger I have often tried to examine the situation under this light, and I have come to the conclusion that we really are in danger, that if we allow the present trends to continue we are going to turn our cities, the centers of our civilization, into dystopias, into wasteland.

By now it was late and the city below me was covered with darkness and clouds. Alone I was descending the hill, but Dionysios Solomos, our national poet, who died in the beginning of the last century, was speaking to me: *"With reason and dream,"*[10] he said, speaking of his poetry.

And then, in the darkness, I saw some light: This is our problem, I said to myself, we face our cities *without reason, without dream.* At last I begin to see what is wrong with us. I put my hands deep in my pockets, as I felt very cold, and walked down the hill.

ESCAPE TO UTOPIA

WHEN I am tired and exhausted from my struggle with the city built by man and inhabited by machines and men, I go for a walk in the country, which transfers the stress from my mind to my body and changes the images from man-made to natural scenery. But when the stresses are too great and continuous, a short escape into nature is not enough; I then begin dreaming of abandoning my struggle and retreating to a small island in the Aegean Sea to fish, to think, and to read, and in the evening to drink retsina, the local resinous wine. Greater stresses over longer periods of time drive me to the Fiji Island in the Pacific — there the distance from large concentrations of people increases; there I do not need to fish when I don't care to: I can eat bananas. There I do not need to dress and to collect wood for my fireplace in the winter, and there I hope the very warm climate will not even allow me to think very much.

These are my escapes. The greater the pressure the more I want to avoid reality, the more I want to avoid the cause of the pressures, by increasing my distance from the big urban concentrations, by reducing my long hours of work. This is quite human; everybody is escaping at every moment from something — if poverty is his problem he wants to think himself rich, if he does not have water he sees pools of it in the desert. If he is more consistent in his thoughts, then the momentary escapes take the form of dreams in his sleep or, if he is more disciplined and he is awake, his dreams may take a more concrete form and he may be moved into action by

them. If he is at a relatively small distance from his goals, then dreams are possible; if the distance increases, then even dreams are not possible or, if so, not reasonable in any sense. I base this last statement on a personal experience; at the beginning of the German occupation of Greece when the starvation started, we were still speaking of our need for a good meal – later I do not believe that we were even dreaming of it. We were used to going without food; we were only fighting for freedom and its image was keeping us alive. Personal dreams were impossible. Only great ideals could save us. If this personal assumption is right, it explains our position now. We are at a great distance from our goals; we have lost our courage and we are beginning to yield ground.

Some people have courage and ability and give their dreams a specific form which, with the passing of time, has taken the name of utopia – for which there is no place. Man's dreams, however, do not only lead him to write about a utopia, but also to design it, and then it takes the name of Ideal City – the utopia of those who can think in terms of spatial forms.

Sometimes man's escapes become common to many people and then they become religious escapes and dreams of paradise. In other cases they become more formalized dreams.

Utopia and Eftopia

Utopia was never the same for everybody. Some people thought that it was synonymous with a happy place, a place "of ideal perfection,"[11] an earthly expression of paradise. Others, though, thought of it as a place which does not exist, which cannot exist, which is even completely impracticable. Some even gave to it both notions, and thus the confusion was multiplied.

This confusion became clear – at least as far as we know –

when Patrick Geddes brought into light the fact that utopia may well be derived not only from the Greek οὐ-τοπία, u-topia – no-place, but also from εὐ-τοπία – the eutopia as he wrote it or (to take the Greek pronunciation in order to avoid confusion with utopia), eftopia, as we had better write it, that is the good place. It is time for us to try to define the real meaning of the word and the corresponding conceptions.

I think that both notions, utopia – no-place, and eftopia – good place, are valid and necessary. The confusion is due to the fact that we either take the one for the other, or we mix them both into a confused scheme. The way out is to recognize them as completely separate notions and to try to take them each separately and their combinations for what they are. This can be done by a two-dimensional diagram.

On one side of such a diagram we have the notion of no-place – utopia – which is at one end of the scale and of the existing place – topia – at the other end. Thus this scale presents the degree of possible realization. On the other side of the diagram we have the idea of quality, from the bad place – dystopia, to the good place – eftopia, with all the in-between degrees (fig. 6). On such a grid we can now inscribe all our conceptions either as points or as surfaces. Plato's *Republic,* for example, is high up towards the eftopian side, while Huxley's *Brave New World* is low on the dystopian side.

Such classification brings to light the fact that it depends on many subjective criteria – what is good and what is bad – and many objective but changing ones, on what is possible and what is impossible. Thus we can classify every conception on the basis of two sets of criteria, as a utopian dystopia, for example, or as a 45% utopia and 70% dystopia, but we must be aware that this classification is subjective and, in any case, will change with the passing of time.

Such a method of classification can help us better clarify

the purpose for which our topia, or place, or human settle-
ment, has been conceived. Lewis Mumford has classified
utopias as utopias of escape seeking an "immediate release

**fig. 6   location of conceptions as to their quality
and reality**
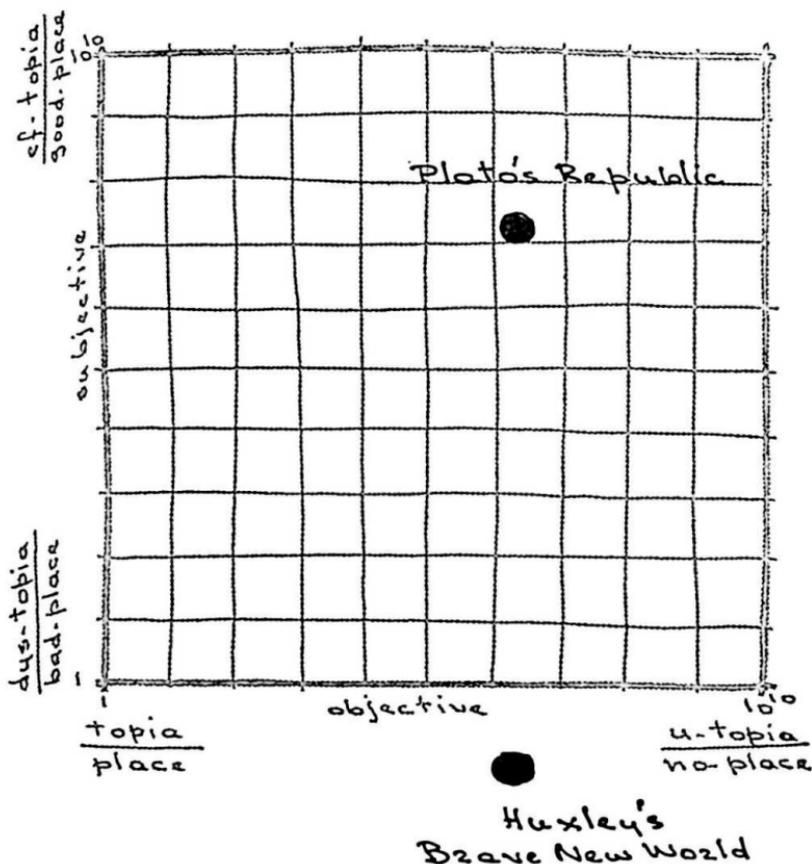
from the difficulties or frustrations of our lot" and utopias of reconstruction providing "a condition for our release in the future."[12]

We can now say that the greater the distance from the possibility of realization, the more our topia is an escape – the

fig. 7   purpose of conceptions
escape and reconstruction
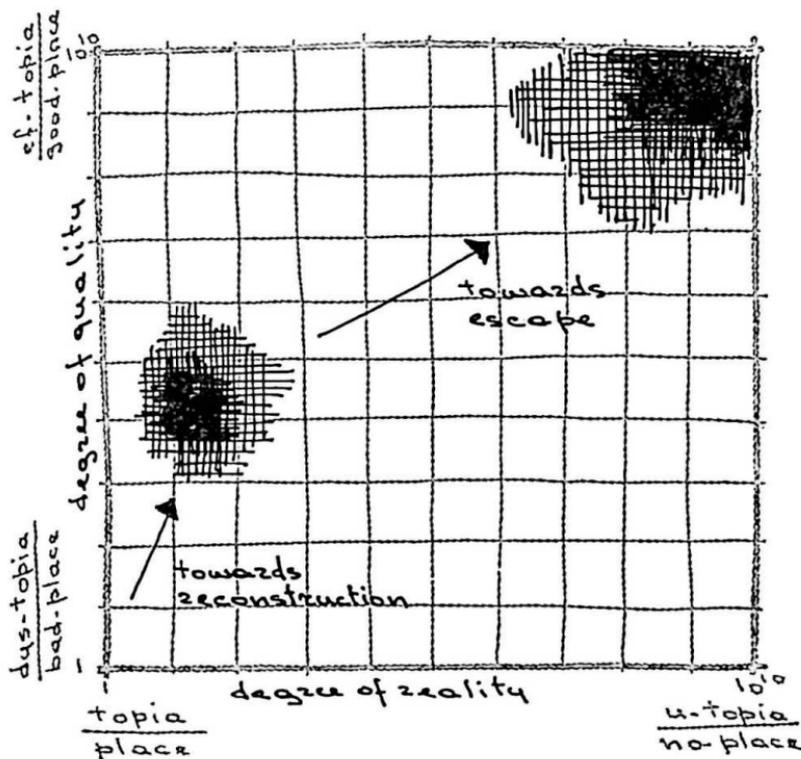
more it can be called a utopia and the smaller this distance, the more it is a topia, a place which can be reached, built, achieved (fig. 7). After all, a u-topia cannot be a condition for the realization of a plan as there is no-place for it. In this way, the purpose of conception can be translated into degrees of the possibility or realization and our grid can, by its two coordinates, classify all our conceptions in relation to quality and purpose and possibility of realization. No one dimension alone can define our thoughts and help us to classify them.

I think that now we can proceed with our investigation and reclassify all conceptions of the past without fear of confusion.

The Beginnings

We do not know when man began to dream or of what he originally dreamed. Did the process start two million years ago or, together with homosapiens, one hundred thousand years ago? Also we do not know when he started giving more specific form to his dreams and how – through religion, art, or philosophy. We can now judge only from the very few documents we have, and thus we must be very careful in accepting all statements about the beginnings of utopian thought only for what they are – glimpses of the surface of the earth through the clouds. The pieces we see may belong to a different pattern from the one we think we see.

It seems that the information we have about the oldest utopia goes back to a half-mythical Chinese sage, Lao-Tzu, who lived in the sixth century B.C., and who, in the vast plains of China, spoke of a small country with a small population, from which people could see the nearest settlement but would not trouble to go there!

The next utopian thoughts are connected with the great effort of the Greeks to settle many new lands between six hundred and three hundred B.C. At that time, they both built and conceived; they were both serious and they laughed about

the ideal city. Hippodamus was the great planner of the fifth century; Plato, Aristotle, and Zeno were thinkers who dreamed of ideal cities; and Aristophanes built his city in the clouds.

Plato, in the fourth century, expressed his ideas more systematically than the others in the *Republic* and illustrated them further in several of his writings like the *Laws* and *Criteas*. His whole attempt was to create an ideal whether or not it existed, as Socrates implied when speaking about justice, that seeking ideal justice was worthwhile, whether or not it existed. In this respect he is rightly called the first utopian. His city is a classic example of a community which is static in character, having only 5040 citizens (that is about thirty thousand to fifty thousand people).[13] It is well organized in order to guarantee happiness, controlling not only the number of citizens but also their wants to a very modest static level by not allowing them to be victims of their passions – and for this reason keeping all artists who express emotions under control.

Others, like Strabo and Plutarch, who present Crete and Sparta in an idealized form, continue the tradition of the Golden Age to think of ideals, but then for a very long period there is no sign of literary utopias. Certainly man did not dream less during the first fifteen centuries of the Christian era, but, as far as we know, his dreams took the form of a hundred per cent utopia and a hundred per cent eftopia – a complete escape which he called paradise, a place of bliss and delight, where the desert blossoms like a rose, with miraculous trees giving food and healing, where he could be free from sorrow, pain, and death.

This was probably the only kind of eftopia which could have a constant value – which could appeal to everybody at any time – to any unhappy soul who could look far away and high up.

The Evolution of the Idea

Before the end of the Middle Ages, thoughts began to move from heaven to man, and St. Thomas Aquinas spoke in the thirteenth century of the need for man of "ethical principles as well as material comfort" and said that "a stable society must integrate the town and the countryside."[14]

The beginning of the Renaissance coincided with the beginning of the second era of utopian thought, which was first expressed mainly as Ideal Cities in Italy and as literary utopias in England. Erasmus, the great humanist, wrote in the first decade of the sixteenth century (in the house of Sir Thomas More) his satire, *In Praise of Folly,* and a few years later, in 1516, Sir Thomas More wrote his *Utopia* and started the tradition of literary utopias in the form of novels. He wrote of an island which was organized as a federation of fifty-four cities with no more than six thousand families in each or, since no family was to have less than ten or more than sixteen members, sixty thousand to ninety thousand people.[15] Cities were basically static. He thought that many of its characteristics were ideal; but how much our ideals have changed can be shown by the fact that Utopia also had a class of slaves.

This basic utopia began to lead man to think that paradise could not be in heaven but had to be built, that it was necessary for men to become specific and express their thoughts on many aspects of their organized life.

The seventeenth century marked a great leap forward in natural sciences and philosophy, but social sciences and history were still undeveloped. In this century, we know several utopias beginning with *Christianopolis* by the Lutheran minister, J. V. Andreae, which lays great emphasis on education, explains the utopia in great detail, and bears a close relationship to Calvinist Geneva. Campanella follows with his *City of the Sun,* designed also in great detail, giving all possi-

ble measurements; and Francis Bacon, with his *New Atlantis,* based on the idea that science can increase man's happiness. James Harrington takes us to the Commonwealth of Oceana, Diderot to Tahiti in *Supplement au Voyages de Bougainville,* J. Eliot to his *Christian Commonwealth,* Gabriel de Foigny to *La Terre Australe Connue,* and Rabelais to the *Abbey of Theleme.*

The eighteenth century created utopias which take us to several parts of the Earth where several utopias with one or more inhabitants were conceived, but none of them was very original, although it was during this century that man became convinced that he could create a perfect life if he only used his reason.

It seems that the impact of this belief on utopian thought follows a century later, because the nineteenth century shows the greatest number of utopian or semi-utopian novels and treatises which range all the way from a *Voyage to the Moon* by George Tucker to very specific treatises on social and political utopias like Engels' *Socialism: Utopian and Scientific.* Almost all of them are socialistic and materialistic in their inspiration. In the midst of them, however, we discover those who, according to Lewis Mumford, represent the "romantic ideology" and wanted to return to nature.[16]

One which influenced the establishment of a utopian community in America is that of Etienne Cabet who published *Voyage En Icarie* in 1840, the story of a country which was isolated from the world not only by the sea but also by mountains and rivers, where everything was based on the plans first conceived by the lawgiver Icarus, starting with its capital Icara (a perfect example of a circular city where everything is symmetrical) down to shoes and head-dresses. There is a model for everything.

Two of the authors have to be especially mentioned. Ed-

ward Bellamy, who published *Looking Backward* in 1888, is important because of his ideas and because of the great impact he had on public opinion, an impact shown by the formation of many political clubs which were inspired by his ideas. William Morris in his *News from Nowhere* (1890) fights against most of his contemporaries by disputing their faith in the industrial revolution and by leaving his citizens free to decide for themselves. He is the only one who asks: "Why should I strive to set the crooked straight?"[17]

The twentieth century does not follow with a comparable number of utopias, although there are important authors like H. G. Wells with his *Men like Gods* (1923), Viscount Samuel with his *Unknown Land* (1942) in the line of the New Atlantis, and several people like James Hilton who in his *Lost Horizons* (1933) discovers Shangri-La. These books have an appeal to the general public, but two world wars and many problems in the new types of society which have appeared give birth and assure a success to dystopias like George Orwell's *Nineteen Eighty-Four* which presents the negative perspectives in a grim way.

Two recent utopias which return close to the older tradition, although they include ideas of their own, have to be mentioned. *Walden Two* (1948) by B. F. Skinner is quite typical of the escape into the small community, and Aldous Huxley's *Island* (1962) is typical of an escape into a world deprived not only of pressures but also of many of the ideas which prevail at present. I think we should note here that these utopias were both written in the U.S.A.

Ideal Cities

A very small percentage of the cities built by man have followed a plan which was preconceived as an ideal. Most of the cities, though, up to the eighteenth century when cities got out of control, represent in a practical way man's conception

of a suitable human settlement. In several cases man was given the opportunity to create new cities, and then he was challenged enough to develop and crystallize his thoughts about his ideal.

A systematic study of ruined or surviving cities can give an idea of how man realized his dreams up to the eighteenth century, because up to this period of human history we know very little from literature about his specific ideas and plans. A study of documents and cities from the eighteenth century to our days shows that man has not realized his dreams and conceptions which always lagged behind the real issues confronting him.

From the ancient world we can learn that Hippodamus of Miletos (fifth century B.C.) was, according to Aristotle, the man "who invented town planning and designed the city of Piraeus."[18] From the ruins of several cities we understand that he had conceived the well-organized city plan which corresponded to an ideal social and political structure – of the city that Plato imagined as ideal and that, as all Greek cities, was static. Roman cities were also static and inspired by the necessity to house the administrative and military power of Rome.

As in the literary utopias, ideal cities appeared again during the Renaissance; some of them were built and many others were designed by artists such as Albrecht Dürer, by architects, engineers, and military experts. They are all small and static – and all very close in size and conception to the cities which existed. Only the design became purely geometric.

The great confusion began when cities, because of their size and rate of growth, got out of control. When the industrial revolution created urban slums near the industrial areas, the movement for better housing for the working classes gained momentum in the middle of the nineteenth century. It was, however, an escape movement, which did not lead to any

ideal city as it dealt only with individual cells. When later the growing cities created unhealthy conditions, not only for the workers but for all urban dwellers, we witnessed at the end of the same century the garden-city movement. This was again an escape of small numbers into what they thought could remain the countryside – which it could not – for very soon these isolated cells were engulfed by the spreading city.

Cities continued to spread in what seems to be a non-organic pattern and man, overwhelmed by it, reacted in a very small scale. Because of the "revolution of movement,"[19] the theories of linear cities by Soria Y Mata (1882) and the industrial city by Tony Garnier (1901–04) came into the light. They are not escapes but only deal with small fragments of the actual city and they do not lead to solutions for the real problem – the city that turns into a metropolis and then a megalopolis.

Only two people tried to face the problem as an entity, Le Corbusier by a series of proposals from *La Ville Radieuse* (1925) to *L'Urbanisme des Trois Etablissements Humains* (1959), and Frank Lloyd Wright with *The Living City* (1932), presenting his Broadacre City. Corbusier accepted the dimensions of the problem but not the dynamic character of cities like Paris; thus his plans lack in one of the four dimensions, that of time, and cannot be considered as practical, overall conceptions of the ideal city of the twentieth century, but he remains the only man I know of who tried to face many of the problems of the ideal city, down to many details, including houses and their interiors. Frank Lloyd Wright, on the other hand, rejects the very basis of the twentieth-century city, its size, and tries to dissolve it into a pattern of built-up and non-built-up areas which create the lowest density ever proposed for a city.

They both had a great positive impact on thoughts and discussions about the ideal city and its implementation, but their effect was also negative, as their followers tried to build these cities, whose plans could not lead to a realistic implementation and certainly not an eftopia – a good place – in spite of the humanistic intentions which inspired them.

Cosmopolis

While some people, in several parts of the world, dreamed in terms of small or large utopias, others dreamed of a unified world covering the whole earth, their cosmos. Following the Greek tradition, they named it cosmopolis which, unlike paradise, was on the surface of the Earth, and, unlike utopias, had a specific place and in some vague way was supposed to be eftopia – a good place.

This movement in the West started with the Cynics in Greece, in the first half of the fourth century B.C., who did not believe in the world-city (as their word cosmopolis has gradually come to imply) but, on the contrary, believed that man should have no city of his own – the whole cosmos should be his dwelling place. At that time, other Greek philosophers were trying to find a meaning in the whole cosmos and "in the third century B.C. the Stoics connected the external universe of man with the concept of a world state."[20] It is interesting that this happened immediately after Alexander's conquests and the creation of his empire.

Similar ideas were developed during the period of the Roman Empire, although nobody regarded the Empire itself as cosmopolis. In China also, where philosophers dreamed of a universal state, we witnessed again the creation of a great empire in the third century B.C., as also in India at the time of the great Buddhist Emporer Asoka (third century

B.C.) when, according to W. Wagar, "Utopia and Cosmopolis merge in a single splendid image."[21]

In the Christian West, the idea of a universal state appealed as much as the idea of paradise did: during the period of the Empires, it coincided with political goals; during the feudal periods, it was related to the notion of one church. In a similar way, the Arabs were moved by the dream of an Islamic World to create their empires.

In the modern world, several proposals for a unified Europe came up in the seventeenth century, and the nineteenth century produced "more prophets of world integration than any other in history, but more than ever they were voices in the wilderness, scattered and impotent."[22] This is true in many countries, especially in Europe and Russia. It is useful to remember that the greatest number of utopias was produced in the same century.

In our century, which begins with H. G. Wells, and his "world brain," people like Arnold Toynbee, Lewis Mumford, Aldous Huxley, and Erich Kahler defend the necessity of a World Order and a World State, that is, of a cosmopolis, and Teilhard de Chardin speaks of the noo-sphere or sphere of ideas – in a different sense, the brain of cosmopolis.

W. Wagar, who in his book, *The City of Man* (1963), studied the evolution of the notion of cosmopolis, thinks that "unlike utopia, cosmopolis has been the animating ideal of real civilizations."[23] It thus resembles the impact that paradise has had on the minds of people, although paradise was offered by religion and cosmopolis by philosophy. Is it safe to assume that the appeal of these two ideas was due to the fact that they both represented an ideal – heavenly or earthly – but they were so vague that they could not provoke controversies? Is it safe to say that the great abstractions in their conception made them both acceptable as dreams for a better life?

Need of an Evaluation

These series of thoughts, related to the appeal of such notions as paradise and cosmopolis and to the contempt with which people face the notion of utopia, have made it necessary to ask ourselves some questions in order to define the importance of utopia. Our first question is: why are utopias written? We usually answer: because of a need for escape or reconstruction, but we should be aware that almost all such efforts contain to a certain degree both these desires and there are many possible combinations of these motives.

Then comes the question: when are they usually written? The accepted reply is that this happens in periods of upheaval, disorder, and violence, when new social and political problems appear. But then why do we have such great numbers of utopias in the nineteenth century and not in the twentieth? Was not the upheaval of two world wars and the many changes they caused enough? But even if we assume that this statement is true, when are utopias written and at what phase? When humanity takes off for new achievements? When it reaches a peak? When the problems are of economic, or political, or cultural nature?

I do not know the answers, as the total number of utopias or semi-utopias which we know of since the beginning of history is very small. On the basis of less than one hundred utopias and semi-utopias of which we know, I do not think that we are allowed to draw any definite conclusions or allowed to paint the picture of the Earth just because we saw a few spots between the clouds. But we should not reject the material either. We should not even ignore the "fake utopias and social myths that have proved either so sterile or so disastrous during the last few centuries," as Lewis Mumford advises.[24] I think rather that we are obliged to examine the entire body of material which we have at hand in order to

find, not just the eftopia, but also illustrations of how people's minds worked towards an eftopia, material which could illuminate several spots of the picture we are trying to draw.

Any place on the Earth is of interest to man if he can settle on it so that it turns into his human settlement. Once he has done so it consists of the five elements – nature, man, society,

fig. 8   the five elements in Plato's republic
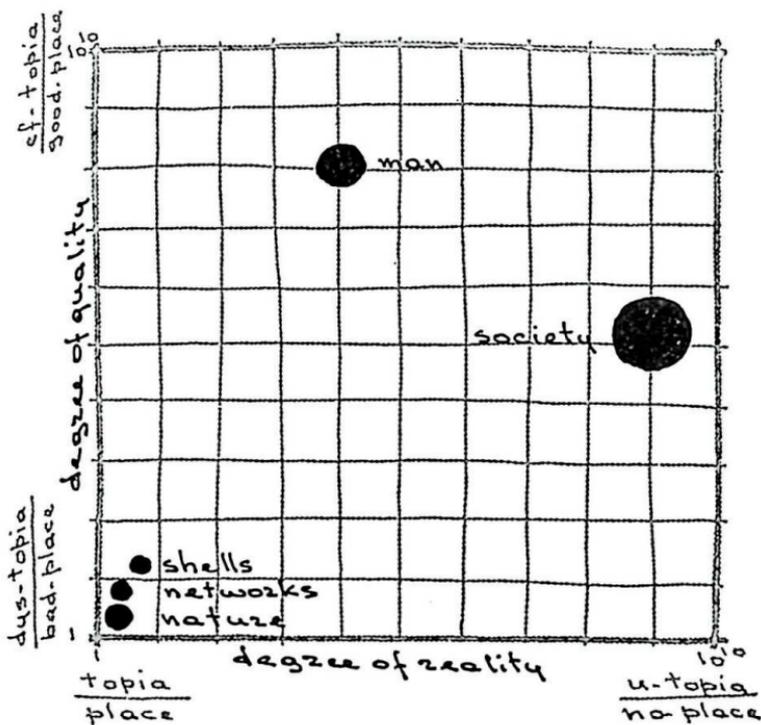
shells, and networks – every one of which can be seen through different disciplines – economics, social sciences, political sciences, technology, art, and culture, or as a synthesis of them in Ekistics – the science of human settlements. Thus, every utopia or eftopia has to be analyzed in this way so as to let us understand how far it goes into every element and then as a synthesis of all of them (fig. 8). In this way we can define the area covered by a sociologist's utopia and Le Corbusier's

fig. 9   a sociologist's utopia
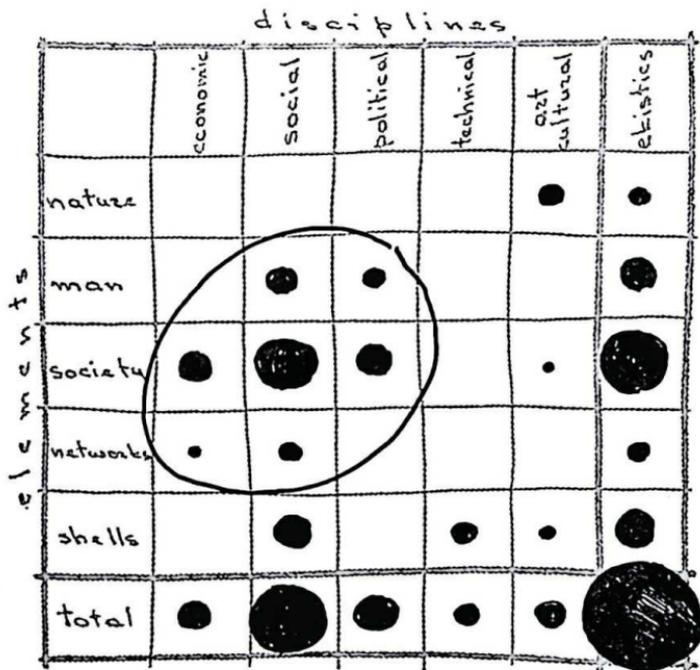
ideal city and then we can proceed further and express views about the quality of their proposals (figs. 9 and 10).

We can now return to the table of evaluation of the nature of every proposal and inscribe the proposals for the elements as far as their quality and reality is concerned. Only then can we really say how far this is a topia or utopia, a dystopia or an eftopia, but we should not think that we can find the center of gravity of the five circles (nature, man, society, shells, net-

fig. 10   Le Corbusier's ideal city
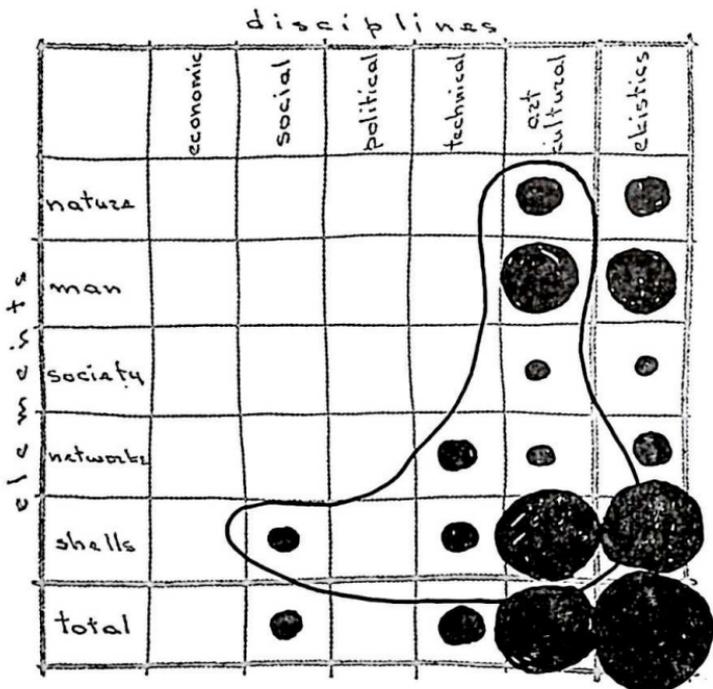
works) representing every single conception because if one is utopian, the others cannot pull it into reality! And this is a basic weakness of all utopian conceptions: they cannot be placed anywhere; their elements often belong to different pictures and there is no connection between them which defines the whole.

Considerations on Size

Such a systematic evaluation helps us to concentrate on specific aspects of the different proposals, of which the size of the city is of the greatest importance. Here we can recognize three schools of thought, those who are not concerned with size, those who think that they should interfere and control it, and those who accept a size very close to the actual situation around them. Authors of the first category interestingly enough are those who are not so important from other points of view also. Avoiding dimensions is a very great weakness for any conception. Even in abstract art we need dimensions. It was Henry Moore, the sculptor, who said that there is a right physical size for every idea.

Those who are in favor of a small and controlled size are Plato (thirty to fifty thousand inhabitants), Aristotle (forty to sixty thousand), Sir Thomas More (sixty to ninety thousand), and lately Skinner (one thousand), and Aldous Huxley (small settlements in an island of one million). In this category, we also have the ideal cities of the Renaissance, the Garden Cities of the twentieth century, and Frank Lloyd Wright's Broadacres. They all plan for small communities with a static population of no more than a hundred thousand people.

The others, like William Morris, who wrote of an England of thirty million people (almost the population in his days); H. G. Wells, who speaks of a planet of two hundred and fifty

**fig. 11   evolution of the actual and the ideal
   sizes of cities**
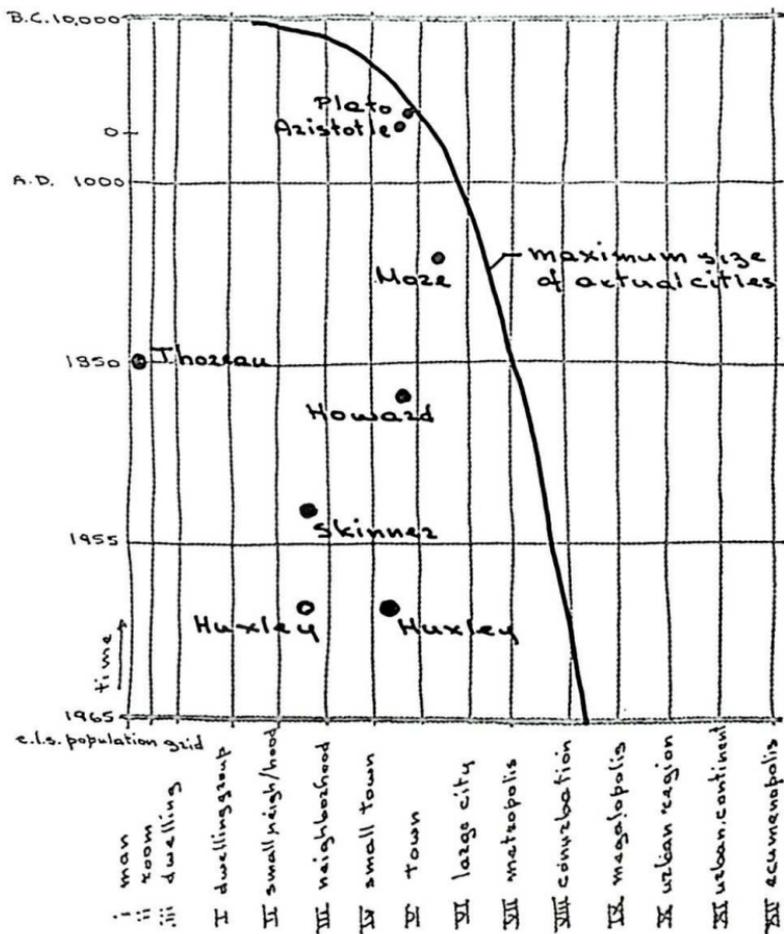
million (much less than in his days); and Aldous Huxley, with his two thousand million for the whole planet; postulate a static population, using methods of control that are unavailable or unacceptable to us. Le Corbusier postulates a static Paris of three million people. They all do not face growth.

Such thoughts, seen in relation to the growing world population and size of cities, allow the conclusion that man, in dreaming of the ideal city, did not conceive of anything larger than what already existed. On the contrary, he was tending always to limit the size, to consider the city as a static cell, and, when he took a definite position about ideal size, he thought of it in terms of from one man, like Thoreau, up to ninety thousand, like Sir Thomas More, but never beyond it (fig. 11).

Considerations on Elements

A systematic study of the elements of the human settlements can lead to very useful conclusions. All utopian writers are concerned primarily with society under which community structure is their main concern, followed by religion and culture, public administration, and public health. The basic weakness of almost all their proposals is that they want an authoritarian organization of social life. Man as an individual is also of interest but to a lesser number of authors. The basic weakness of the utopian proposals on this subject is that they want man to represent the ideal type in which they believe. Nature is dealt with by quite a number of utopias, more in the sense of beautiful surroundings and climate than the requirements for survival like non-contaminated air. They very seldom look at it as the source of raw materials on which a better production could be based. Houses and buildings come next and last come all the different types of networks, although today they form one of the main causes of dystopia. In this

respect utopias belong to the past. The ideal cities, on the
other hand, deal with society without going into the substance
of its problems. Their main concern is the container of the

fig. 12   areas mainly covered by conceptions of
           ideal solution
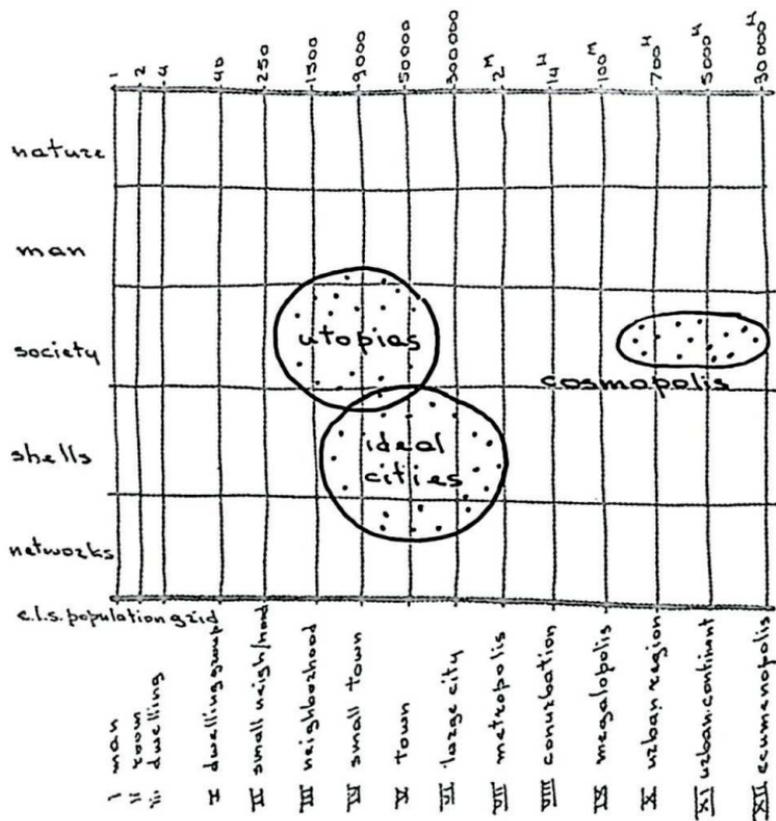
settlement and especially the houses and buildings. They are very unrealistic about machines, networks, and their impact on the city – and this is a basic cause of failure of the modern conceptions of ideal cities, especially because they usually speak so much of man and the human scale.

Cosmopolis is even more limited in its outlook than utopias and ideal cities, for almost all of those concerned with it concentrate on the element of society and only several aspects related to it.

We can now present the areas covered by these three conceptions – utopias, ideal cities, and cosmopolis – in relation to their elements in a simplified way which would show how each one concentrates on a different part of the total spectrum of elements in the different sizes of human settlements (fig. 12). What is more important, though, is that within all these schemes the connections between the elements are not well elaborated – sometimes not even mentioned – and thus the final scheme, in addition to the fact that it does not cover the whole area of the subject, lacks an internal cohesion; it only is a partial view of the complicated task lying ahead of us – the building of our cosmos (fig. 13).

Are Utopias of Any Value?

Many opinions have been expressed on whether utopias and, in the same sense, conceptions of ideal cities or of cosmopolis are of any value. People are for or against individual conceptions, but the great majority recognize the value of these dreams of a better and happier life.

The fact is that utopias had very often had no other immediate and direct value than to warn people of what they should avoid. Such are, in particular, the very authoritative conceptions of government, some of which go into details of private life as when it is ordered that "all citizens must marry,"

as in Sybaris;[25] or the utopias which are based on the word of God, that is the author John Eliot's God, or rather Jesus; or rather the protestant conception of Jesus.[26] Such utopias are still useful sometimes in a negative way as they warn us what dangers to avoid.

In a positive way, many utopias had a great impact on actual life, although the degree to which this was achieved ranges in belief from those like the Mexican humanist, Alfonso Reyas, who states that even "America is a Utopia,"[27] to those who believe that specific settlements like the Greek cities or the colonization period, utopian communities of the seventeenth, eighteenth, and nineteenth centuries in the U.S.A., the Kolkhozes in Russia, and the Kibbutzim in Israel are the results of utopian theories. The same is true of the impact of the ideal cities on actual life. We can now recognize the origin of many good and bad schemes in these ideal con-

fig. 13   connections of elements
internal cohesion of conceptions
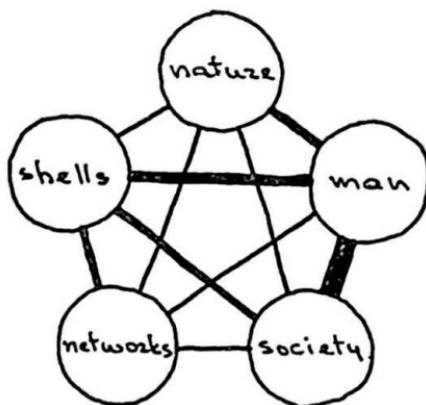
ceptions, and as a whole we can state that the development of ideas about better or ideal cities has had more of a good effect than otherwise.

This fact has been gradually recognized by humanity and many thinkers have expressed their different thoughts. Very few express only doubts by stating, like H. F. Russell, that "Utopias are generally regarded as literary curiosities which have been made respectable by illustrious names, rather than as serious contributions to political problems which troubled the age at which they appeared."[28]

The great majority join Anatole France in stating that "without the Utopias of other times, men would still live in caves, miserable and naked. It was Utopians who traced the lines of the first city. . . . Out of generous dreams come beneficial realities. Utopia is the principle of all progress, and the essay into a better future."[29] Or, as Oscar Wilde presents in his statement that "a map (of the world) that does not include Utopia is not worth glancing at, for it leaves out the one country at which Humanity is always landing. And when Humanity lands there, it looks out, and seeing a better country, sets sail. Progress is the realization of Utopias."[30]

For those who wonder how practicable speculations can be, I answer by the words of Phaidrus in Paul Valéry's *Eupalinos*, "The extreme of the speculation sometimes gives weapons for realizations."[31]

Closing the Journey

It has been a long journey into dreamlands created in the past and now, in the darkness of the night, I stand alone in the middle of a great city and I try to dream the dreams of the present – and I find none. On the one hand we state that many utopias have been realized, on the other we do not have any more dreams of our own – except perhaps for the five-year

development plans and the master plans – but I assure you that the long tabulations of input-output and the drawings of land use and right-of-ways are not at all dreamlike. After all, short-term projections for the solution of problems that were created long ago are neither realistic nor dreamlike.

Now we witness technological progress, but we do not know where it leads as we do not have any conception of the dreamland that we want and can create. But dreams are necessary and they must precede the technological achievements. Progress is based on dreams which mobilize the mind, cause discussions, start movements, and lead to realizations.

But we do not dream a whole, although the common man always dreams and has no chance to see his dreams realized. In a *New Yorker* cartoon, a man in a travel agency, with depression on his face, was asking for a ticket to Shangri-La, and the agent, turning to his colleague, asked, "How can I tell him that there is no such place?" Our society does not dream although we badly need common dreams and their realization!

My long journey into the dreamland of the past has ended again, as it always does, in the wasteland of the present. I am lost between them. There is too much dreaming in the past, too much suffering around me. I am reminded again of the poet Dionysios Solomos and his "reason and dream." Why is it that the dreamlands of the past have not helped us to build our city – or at least to replace it with another dreamland? I remember Oscar Wilde saying that even when our feet are in the mud we can look at the stars. Why do we not now? I think it is because we float between the wasteland *without reason, without dream,* and the dreamland *with dreams, but without reason.* And this is not enough.

I still have to continue my walk into the dark night!

NEED OF ENTOPIA

With Reason and Dream

I still walk into the dark night. I pass through cities and they are wastelands. I remember T. S. Eliot:[32]

> What is the city over the mountains
> Cracks and reforms and bursts in the violet air
> Falling towers
> Jerusalem Athens Alexandria
> Vienna London
> Unreal   .

I pass through dreamlands and they are in the clouds. I feel like being in Aristophanes' Cuckoonebulopolis in the clouds, but I cannot walk in its airy streets. I do not even know if I want to.[33]

I feel that I am in danger, but this is not the first time that it has happened either to me or to my city. The day before yesterday Athens was burned by the Persians, yesterday Athenians were dying in the streets because of starvation imposed by the occupation forces of the Axis. We are always endangered by something, but in this case there is one difference: the danger is continuous and in all centers of civilization – if it continues – there is nothing that can save us. In this respect it is a unique danger for humanity.

The present city – without reason, without dream – leads to dystopia and disaster. Utopias – without reason, with dream – cannot get us out of the impasse. There is only one road left – *with reason and dream* – which should take us out of the bad

place into a good place, which is not out of place, but in place – an entopia.

In the vast space penetrated by man's projections into the future, somewhere between dreams and reality, between utopias and topias, we have to conceive entopia – the place which

fig. 14   entopia
halfway between utopian dreams and plan
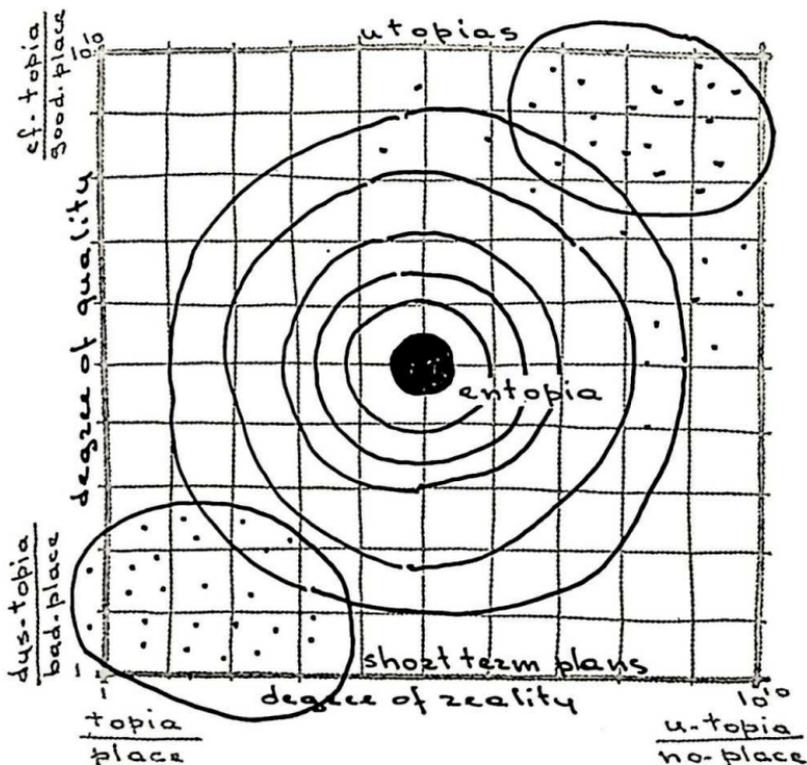
satisfies the dreamer and is accepted by the scientist, the place where the projections of the artist and the builder meet (fig. 14).

This is now our task: to go beyond fears and dreams into projections and expectations. To achieve it, we must bring reality and dreams, which now move on different planes, onto the same one, so that they can meet. For this we need a very careful reappraisal of man's action in order to find his mistakes; and, as this is very complicated and confused, we must try to do it in a very systematic way, without forgetting anything that has happened, anything that was dreamed, whether it was a success or a failure.

This is now the task ahead of us. To face it in all its details is impossible – we must, however, create a framework for it and let others elaborate on it, until some day it can become a reality.

Sometimes people ask me about my dreams for the future, and I answer that they should not have any interest in them; they are my personal affair. What they should ask is how I interpret the dreams of humanity, their own dreams; because this is our task: to create the place which corresponds to the dreams of all of us. We must not forget that our dreams have remained utopian because they were very personal, very subjective. What humanity needs is the realization of common dreams. What each of us needs is the realization of his own dreams, within the framework of the common dream.

In reality, what we need is both an entopia common to all of us and personal entopias for each of us. Our concern here is only for our common entopia.

Entopia

This is the moment for humanity to think seriously of the future as an entopia, unless it wants to join K. Jaspers in his

fears and believe that our freedom has been only "a real but passing moment between two immeasurably long periods of sleep," those of the life of nature and the life of technique.[34]

Past history does not teach us when and how we should dream of the future. It is significant, though, that the greatest number of utopias and conceptions of a world state were written in the nineteenth century – and great changes occurred in the twentieth century. Does not this alone show that we should be encouraged to dream about the future, but in a more specific way? Don't we know by now that man creates theories before he creates tools and solutions and that the builder has the image of his cathedral in his mind before he starts building it? We do not yet know what space travel is going to teach us, but are our minds not open enough to understand that we cannot expect external help in this bubble in space where only solar energy enters? It is time to conceive our own entopia.

We should not be afraid of the task lying ahead of us. Man is gradually acquiring the ability to think historically and to project into the future, at least for phenomena that can be measured. The more experienced he is the further ahead he thinks. Also, we should not forget that projecting in the macro-scale, with which we are now concerned, is easier than in the micro-scale. It is easier to predict where the future population will settle in one generation than what type of house, or dress, a certain lady is going to like next year.

We should certainly not expect our predictions to be completely realized. This is impossible for the simple reason that we are still limited to thinking in straight lines while evolution takes place in curves. The great challenge for us is to think always of an entopia in such a way that the great spiral of evolution will move in the right direction by tending not towards dystopia but towards eftopia.

Entopia and Utopia

After such a description of entopia, I can expect the question: then why not achieve our common goals through utopias? Why do we need a new conception? The answer is simple. A utopia – as the word implies – deprives us of the obligation to implement it, to make it work. Plato's utopia could eventually be realized if a dictatorship were imposed; Huxley's and Skinner's only if others outside their escapes would work at them, producing cars, inventing pharmaceuticals. On the contrary, by definition, we have to make entopia work.

This is the task. However, might it not be answered by five-year plans and programs? Yes, but such plans are deprived of the notion of dream and long-term projection. Entopias in this sense are inspired by dreams and can be realized through programs and plans. In this line of thought, entopias lie halfway between utopias and short-term programs and plans: from the former they take the dream, from the latter the reality.

Another difference lies in the fact that utopias start with a premise that is not realistic, as, for example, that man is perfect, or that he is prepared to be perfect and the only thing that he needs is a push from the author. Or, utopias concentrate most of their attention on only one of the five elements that form them or one of the disciplines through which we try to understand these elements. Unlike utopia, entopia tries to establish how people and the world around them are and tries to help to build a better world of man or anthropocosmos for them. To achieve this, entopia relies on a scientific, systematic knowledge of the situation as it is now in 1966. In this respect, it has firm and hard ground from which to take off. In such a way, entopia can appeal even to people like Lord Macauley who said that "an acre in Middlesex is better than a princi-

pality in Utopia"[35] and to poets like William Wordsworth
who said:[36]

> Not in Utopia – subterranean fields, –
> Or on some secret island. Heaven knows where!
> But in this very world, which is the world
> Of all of us, – the place where, in the end,
> We find our happiness, or not at all!

I am now prepared to continue the discussion on whether
utopias have any value. I would say that their value increases,
provided they are properly conceived. The fact, however, that
utopias can now be realized more easily than they could in
the past (I am thinking of material things, food and clothing
and housing for all) creates a great danger: man's inability to
dream of a better world of a higher quality for his life. In this
respect, man needs now, next to his entopia, as many utopias
as possible, especially utopias about quality in life. For the
first time in his history, man will need a greater ability to
dream in order not to become a slave-machine.

In this way, entopia has an additional task: to help us to
dream and to create utopias, not only in words and designs,
but also in practice. A successful entopia should become the
framework for normal life but also for as many utopian
groups as possible, from pagan nudist camps to deeply re-
ligious communities – provided that all of them respect the
basic laws of entopia.

Entopia and Cosmopolis

Man has very often dreamed of an ideal state sometimes as
paradise, as the kingdom of heaven, as a kingdom on Earth,
or, last, as a universal state. There was a place for it – the
surface of the Earth – but the conception was vague and ab-
stract. Entopia covers the same place, the surface of the

Earth, but unlike cosmopolis it is not vague and abstract – it has real dimensions and forms.

The conceptions of cosmopolis are usually idealistic and limited to the social aspects of the problem of unification of all nations of this Earth. Unlike it, entopia has to be practical and to deal not only with society but with nature, man, networks, and shells, or be seen from the economic, social, political, technological, and cultural aspects. Now the time is riper for cosmopolis than ever before. Man realizes that he lives in a capsule which does not reasonably expect any outside attack and has all means and all pressures to solve its internal problems and stresses. But cosmopolis sets only the conceptual frame; the real subject we have to face is the universal city in its true sense. Its realization is entopia.

In this way, we can now foresee when cosmopolis, the dream of a unified world, can be reached. The cities of man are tending towards each other, extending their tentacles until sometime in the twenty-first century they will meet in an international network. At that time, the city-polis will have moved from a cell on this Earth to the stage conceived centuries ago as cosmopolis, which, however, now only takes the form of a physically existing universal city – or ecumenopolis (fig. 15). Civilization then will become ecumenization and man will enter a new era of his evolution. Whether this is for better or for worse, we do not know. It all depends, not on the frame and size which is inevitable, but on whether entopia is going to face all types of problems of all types of people in all types of areas in the interests of man. This depends on the structure and function of this new system and the goals which it is going to try to reach.

The structure of major human settlements confuses us very often. We are used to defining order in minor spaces, rooms, houses, neighborhoods, small cities, but not beyond them. We

fig. 15 ecumenopolis in 2100 A.D.

50-200 inh/ha
10-50
2.-10
05-2
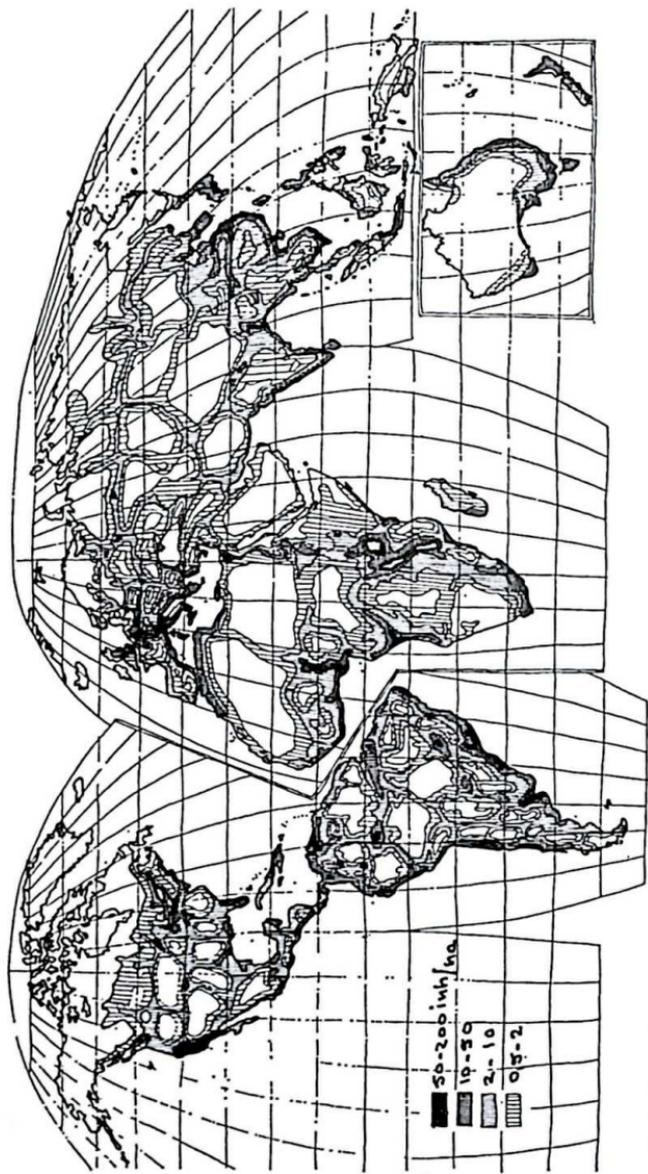
are afraid of this task. But the task does not change and our approach remains the same. Space needs some proper structuring, which defines the relationship of every unit to the other. This has to take place on the basis of hierarchy of units and their relationship. Units of a lower class, like rooms or neighborhoods, belong to units of a higher class like houses or cities. Their interconnections depend on their relationship. In a house, the kitchen does not need a door to the bedroom, but all neighborhoods need connections to the others close to them, otherwise the city does not function properly. In the same way, all cities have to be properly interconnected into a national network, and all nations and states into an international one. The closer and easier the relationships, the better it functions, the less are the dangers.

Entopia and Ideal City

Man has often struggled with what in some ways is the physical and material expression of utopia – the conception of the ideal city, a conception which is much more concerned with brick and mortar than with man and human institutions, but which is still an element of the human settlement. Even people in different fields begin to think that the cities of mankind should be expressed in physical forms, although nobody as yet has given a form to this city, or even insisted on the need for it to take shape. Man still thinks of cities (in relation to what they actually are) in miniature sizes.

Entopia in its form must also cover this aspect and fulfill the dreams of man for an ideal city. To achieve this, we should not escape from reality. We should accept the very big city as a concept because it is already a fact, and as long as we do not recognize it we will not achieve anything. Our challenge is to give a practical form to the coming ecumenopolis, the universal city of man, which will help man to survive and

realize his ideals. We should not be afraid of our subject, we should face it and tame it – before it tames us.

Large sizes for cities and their dynamic growth are already facts; our task is to organize these great cities of man and give them a structure which will allow them to function properly and serve man. This means that entopia should create the framework for a very orderly formation of the universal city at all its levels. This can be done by defining its organization, its subdivisions, its density. Such a proper conception of the whole can help us to define the role of every part and of every cell. This is the part that has to be conceived in the name of all of us because it is of concern to all of us.

And now we should ask ourselves what has happened to the experience and the dreams of mankind from Plato to Howard's garden-city; to Skinner and our many contemporaries who dream of the small or very small city as an ideal or, even more, dream of the big city eliminated and life re-established in the small static community. Are they wrong? They are not wrong about the size of our cities. How could they be? Man has had a long experience of satisfaction within the small community. But they are wrong about their desire to escape from reality by building their small community in isolation from the world, because this is not reasonable any longer. They are wrong in confusing the small city we dream of with the large urban areas of the present and taking the one for the other. Entopia should provide for small human communities within the big cities (fig. 16).

But big cities also have to grow dynamically. Is man wrong in striving for a static city? I think that he is right, but there is no reason at all why we should not build a dynamic city consisting of static cells (fig. 17). Entopia has to provide for dynamic cities which can be built with static cells, everyone of which corresponds to the ideal city of man, the whole cor-

responding to the dynamic settlements of the present, to dynapolis, dynametropolis, etc., to settlements based on planned dynamic growth, including the creation of new ones of a higher order. The solution then is not de-centralization but new-centralization (fig. 18).

It is within such static cells that we can save man from the city that will crush him; it is within them that the community can have complete freedom for its expressions, and man for his life. Someday, if people should bring their cars into the human part of such a community, we will laugh at them, as we do now at people who have entered a drawing room wearing their muddy boots.

**fig. 16   dynamic city with static cells**
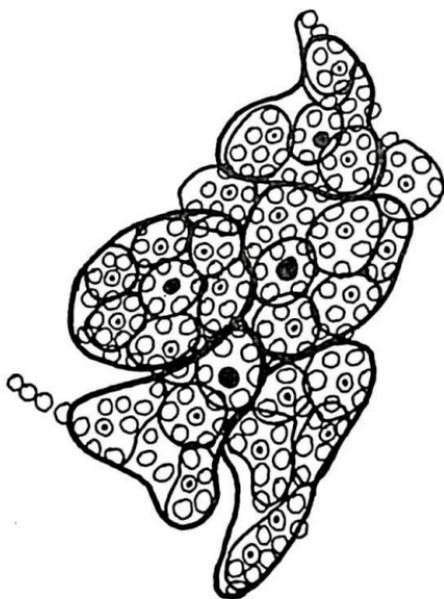
Entopia 1966–2100

We have now to conceive and build entopia. To do that we
need a recipe: from reality, from topia, even from dystopia,
we have to take facts and dimensions; from the utopia, the
desire to dream; from eftopia, the contents of the dream; from
cosmopolis, the frame; and from the ideal cities, the cells of
the organism that we want to create. We can thus proceed to
a design, but not a design for living; this has to be decided by
each one of us. What we need is a design for a frame which

fig. 17   the ideal dynapolis

in the past

the city

the center

expansion
of the
city

expansion
of the
center

in the future

the city

the center
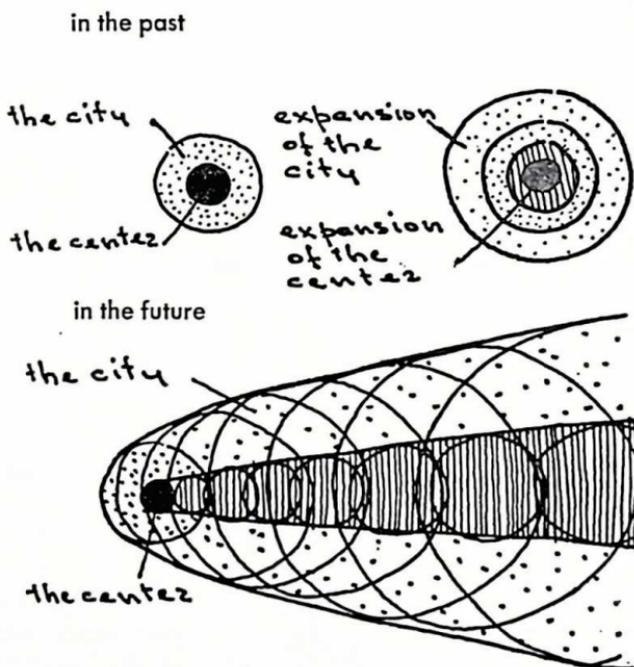
can give people the opportunity for a better and happier life.

Entopia has to be conceived and built with reason and dream. Reason cannot be introduced into our frame unless we give it dimensions, unless we proceed with measurements of all dimensions in space and time. In a recent meeting, I was distressed to hear a young expert propose that we abandon the plains to cultivation and build our cities on the hillsides as in the old days. He could not realize that the situation has changed from the days when villages were built on mountains for security and to avoid malaria. Industry and transportation systems cannot be created on hillsides, and even for residential areas this becomes so uneconomic that only very rich people – or very poor, deprived of facilities – can live on them. Entopia has to be the result of very special measurements and estimates.

fig. 18   new centralization

the new center

the old center

the old center
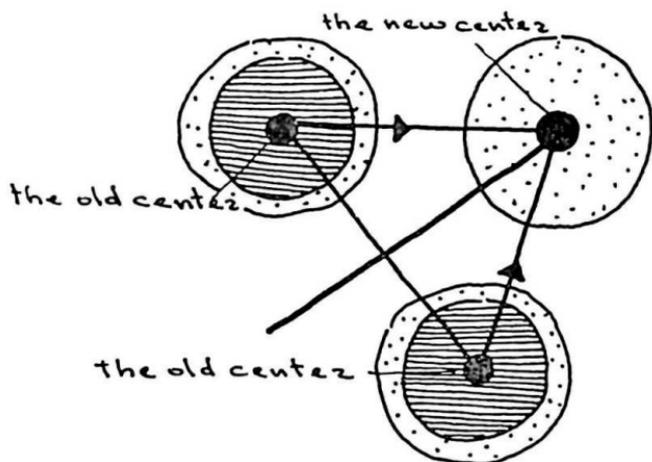
This notion of specific measurements leads to specific sizes and forms, but our settlements are dynamic and change. This means, then, that unlike utopia, which may or may not lead to an ideal and final situation, entopia has a certain size and form for every given moment, which will have to be changed for the next moment. It will evolve continuously, and when

fig. 19   definition of entopias
           by two points
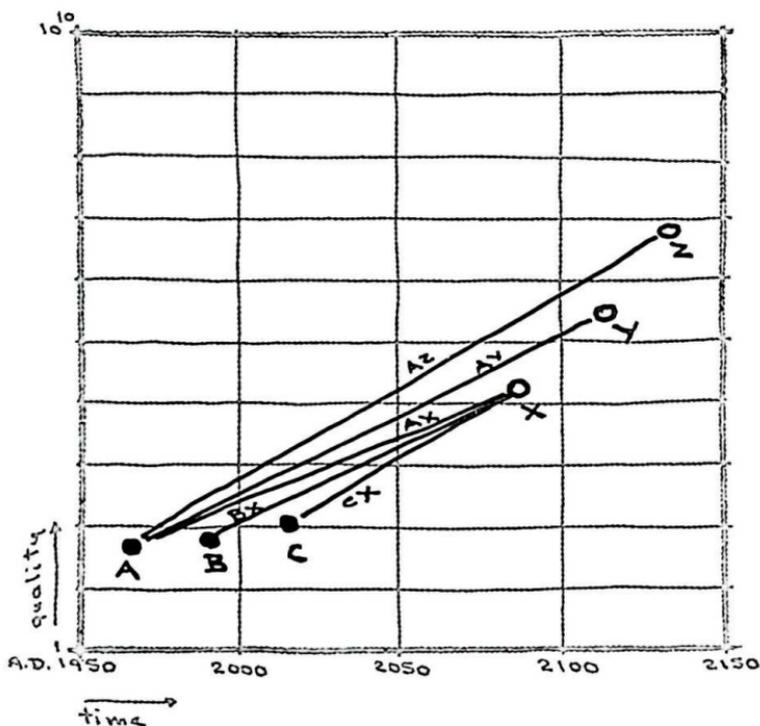
it ceases to do so the death of the whole organism will occur. This continuum of entopias can be called X, Y, Z (fig. 19). But entopias have to be conceived in advance, at certain moments A, B, C. Thus every entopia has to be expressed in two dates, of conception and realization, as AX, AY, AZ, or AX, BX, CX, depending on whether we think of changing times of realization or of conception, or both. On the basis of such ideas an entopia has to be revised continuously. What I am doing here, then, is introducing a system for the development of the notion of entopia.

Entopia has to provide for man's welfare and happiness. In doing so, it has to take care of all five elements of the anthropocosmos – nature, man, society, shells, and networks – and provide for their synthesis. In his book on self-renewal, John W. Gardner says that "it might be possible for an impoverished nation to harbor the delusion that happiness is simply comfort and pleasure and having enough of everything. But we have tried it, and we know better."[37] Although I believe that I agree in substance with what John W. Gardner says, I think that I should make the point that Americans do not have enough of everything – they do not have a normal habitat, a human scale, a healthy city, a quiet street. If everything is the specific item, a house or a car, there is no synthesis of them into a total. Entopia has to provide for that.

In doing so it cannot overlook any aspect of our total problem. When, last year, I finished the presentation of a new master plan and program for Rio de Janeiro, proposing among other things the elimination of the slums, the favelas, I was asked a very important question: "Who, in this case, is going to write the sambas?" or, in other words, are we sure that man's soul can be equally well expressed if he lives in a modern housing development; is it the slum and the sufferings in it that lead to sambas, or the human scale that modern de-

velopments do not have? These are very important questions in building the hard part of the anthropocosmos, but we should not forget that this is only the shell of the soft part, of man. *His* reactions are of the greatest importance.

When studying the synthesis, we should not forget that it is not enough to place all our elements side by side; we have to answer how the one meets and blends with the other – man with man, man with nature, society, shells, and networks. It is at the points of encounter that the difficulties, but also the interest, lie – the wide sea and a great plain are not as interesting as the seashore where the waves break on the rocks.

Our approach is not going to be the same for all elements and all combinations of them. We have to be very conservative when we deal with man – let him decide on his evolution –

fig. 20   the five elements of human settlements
          classified as to their age
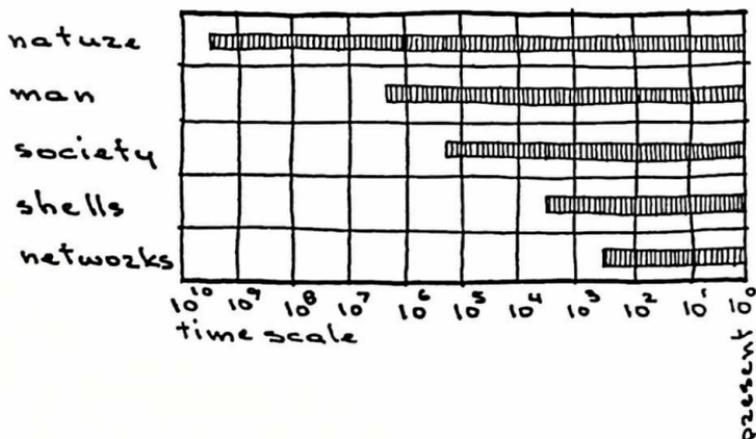
and very revolutionary when we deal with networks – they are so young and we have not had enough time to develop them to man's benefit. Our intervention should be related to the age of the element we deal with; the older it is, the less we should alter it (fig. 20).

We have now to conceive a specific entopia. For all practical purposes, it seems that such an entopia should be placed four or five generations from now. It could be the entopia 1966–2100. There is nothing symbolic in this year 2100 – we have only to think that it is quite different for the Jews, the Moslems, the Chinese. It is a year, however, beyond the lifetime even of the youngest of us (therefore in the dreamland) but not too far away, as in such case it would be so vague that it could not mean anything.

But, although there is nothing symbolic in this year, this is an important period for the evolution of humanity. By that year, we can expect to enter a new phase of its evolution. Population will be static again, as it will have reached a new equilibrium with terrestrial space – the same equilibrium which in the past existed between city and state, castle and feudal domain. By then, local and native civilization and national cultures will be eliminated, as Claude Levi-Strauss confirmed during the Smithsonian Institution's Bicentennial celebrations. The world by then, for better or for worse, will have been unified. Thus, the selection of this entopia 2100 is not only reasonable from the point of view of the man of 1966, it is important because it means the new phase of human evolution, that of the universal city, ecumenopolis, for which we must be prepared. In order to do so, we must accept this fact – the inevitability of this city coming into life. If so, we must stop being afraid of the big city that we build and try to give it its proper shape by dealing with all its elements.

Man

In order to face the five elements which form the anthro-
pocosmos in a rational order, we must, this time, instead of
taking them by order of age as we did when describing the
existing situation, start with man. The reason is that we can
only understand the way to deal with the other elements if we
relate them to man whose welfare and happiness is our ulti-
mate goal.

Man has been biologically almost the same for the last one
hundred thousand years, and to the best of our knowledge he
is going to remain so for the period of our projections, but he
is continuously evolving and developing from the psychologi-
cal and social point of view. While he retains many of his
initial characteristics, he also acquires new ones, but we are
not in a position yet to define how far he is adjustable either
biologically or socio-culturally. In this respect, we are entitled
to join Alexis Carrel and speak about "man the unknown,"
which leads us to the necessity to deal with him with very
great care and, as we do not know what the evolution is going
to be, to give him the chances to be adaptable.

Such considerations lead to the conclusion that we should
not exclude any variation of human species and that entopia
should be the place to serve all human types, which means
that it will be a frame and not a solution. As we expect great
potential for the development of his mind, entopia should be
geared to serve man and help him develop intellectually by
creating the proper conditions for this development.

It is now that the question arises: Development for what
purpose? I hope I will be excused when I state: For man's
happiness. I know that when I use this word people smile and
that meetings of wise men have not come to any conclusion on
this subject – but I also know that the average man wants to
be happy and that we can set some criteria for such a course.

One of the criteria is economic, and everybody agrees on it; time is the second, as this is our most important commodity; and satisfaction is the third. Their combination can lead to useful solutions, provided that we remember that their value depends – and here we go back to Aristotle – on safety and security. We must achieve our goal on the basis of such criteria. We have to help man develop intellectually by showing him a way of life; not by training him as a consumer of quantity, as at present, but of quality.

Such requirements will remain vague unless we can express human needs in very specific terms and measure them. I take the notion of human scale as an example. Man needs a certain space for his body, for his sensory organs (he needs to see and hear in specific distances), for the production of his food.

fig. 21   man the R.P.T.

Receiver   Processor   Transmitter

lack of   complete
balance   balance
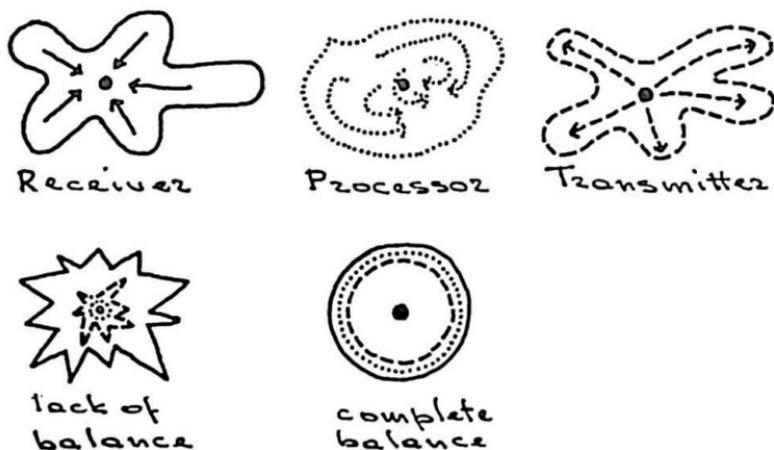
We can gradually measure these needs and thus develop a knowledge of man's relation to space which is basic for man's relationship to nature and shells, or for the physical formation of entopia. In the same way, we can begin measuring man's relationship to others or himself by expressing his relationship with the world in terms of what he can receive, process, or transmit (fig. 21).[38]

If we proceed in this way by measuring man's needs and interpreting them in organization of society and dimensions and quality of space, then we can hope to form entopia which is, after all, nothing but a great snail-shell relationship which serves all the needs of man.

Nature

Now we can proceed and examine nature because we have established some criteria about what we want from it. There is a great tendency to look at nature as an element of beauty only, but this is wrong, because nature's main value for man is that it supplies him with air and water, food, and raw materials. It is the container in which he can live. We have reached the point at which the growing city endangers nature as the container of man's life. The dimensions of the problem impose a fresh examination.

Entopia has to guarantee all values provided by nature for the purpose of allowing man to survive under the best conditions for him. This does not mean preserving only the parts of nature which we know as indispensable for man's survival, like oxygen, but also those minerals, plants, and animals which seem to us to be of no value at all for man, because we do not yet know whether they will be of great importance in the future.

In practical terms, this means that we are not allowed to contaminate the air. We must devise a plan either not to con-

taminate air at all or, if this is impossible, to contaminate it in a limited space so that we can purify it before it comes out into the open. This idea leads to elimination of chimneys and the suction of the exhaust into treatment plants from which pure air will come out. It also leads to the notion of tunnels for all the types of traffic which create contamination so that the air can be controlled.

We will have to deal with water resources in a similar way. Full treatment of all sewage and waste is imperative in order to save all our water resources and this will lead to the resurrection of many elements of animal and vegetable life which are in danger of extinction.

Dealing with available land is a matter of measurements. Ten billion acres are now habitable. Out of them only 3 billion are cultivated and this can be reasonably increased to a maximum of no more than 4 billion acres. From the remaining part of habitable land, that is the 6 billion acres, no more than 50% should be settled and even if this settlement has a density of 16 persons per acre, that is 16 times higher than the Eastern Megalopolis, or 16 times higher than the present ratio of man to cultivated land, then the Earth cannot reasonably contain more than 48 billion people, irrespective of how many can be fed from the 4 billion acres which can be cultivated. From this point of view, this would have meant a productivity per acre 12 times higher than at present – or assuming that we can actually increase arable land to the maximum imaginable limits and grow food in the ocean and other difficult areas of the world, a productivity of several times higher than the present one.

We can certainly take some of the steppes and deserts, mountains, polar areas, and even the oceans for man's settlement, but this will happen at a great cost and thus it becomes apparent that man cannot reasonably increase the 10 billion

acres to more than 12 billion. Of these, 4 are indispensable
for cultivation, and we assume 4 for open land, and 4 for
settlements. A maximum reasonable gross density cannot go
beyond 8 persons per acre, which means a maximum possible
population of 32 billion people. As, by the end of our century,
population will be more than 7 billion, by 2030, it can be 16
billion, and by 2060, 29 billion,[30] it is clear that great strains

fig. 22   total population of the earth
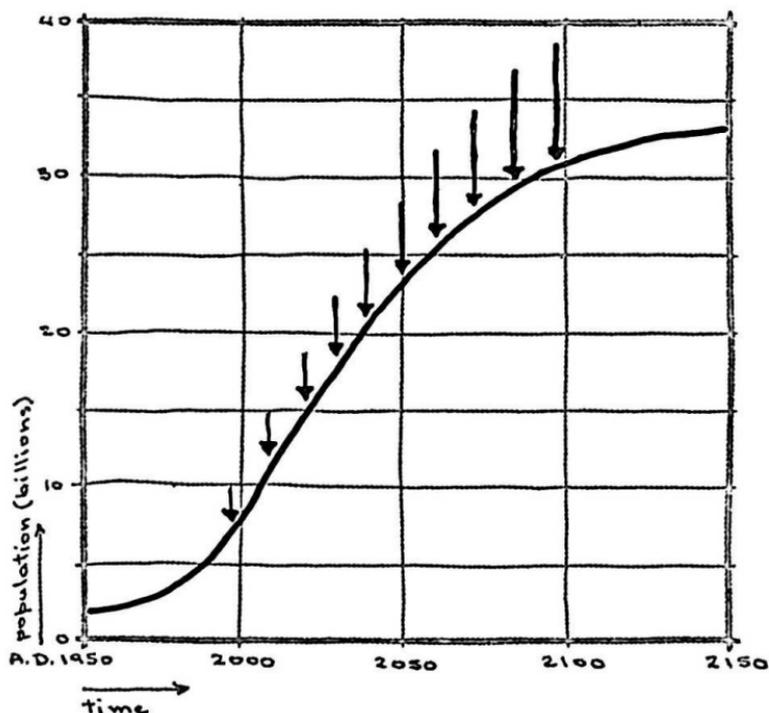
are going to be apparent in the first quarter of the twenty-first century and only well-defined policies on how to live at higher densities can save man from disaster (fig. 22).

Similar considerations on special elements like oil and copper lead to the conclusion that it is time we started thinking how entopia is going to turn the whole Earth into a closed circuit where every natural resource will be used and reused but never destroyed. In this way, we begin to see a new role for man on this Earth, that not of the great consumer as he very often is, or the great producer, but that of the great conservationist who controls the use and conversion of all natural elements of inanimate and animate life in a circle ever renewing itself.

**fig. 23   number of human contacts**

Society

Society is based on proper contacts between its members, but lately – because of larger cities and lower densities – the choice of greater number of contacts increases, but the actual contacts per person decrease (fig. 23). It is the task of entopia to re-establish the possibility of a greater number of actual contacts and this can be achieved through higher densities within the units depending on natural movements of people. In such a way, we can have more open space for parks and sportsgrounds.

We have committed a grave mistake in dissolving the human community of the past. Entopia has to re-establish it and make it the basic unit of social organization in the same way in which the family home is the basic unit of family life.

fig. 24   organic structure of society
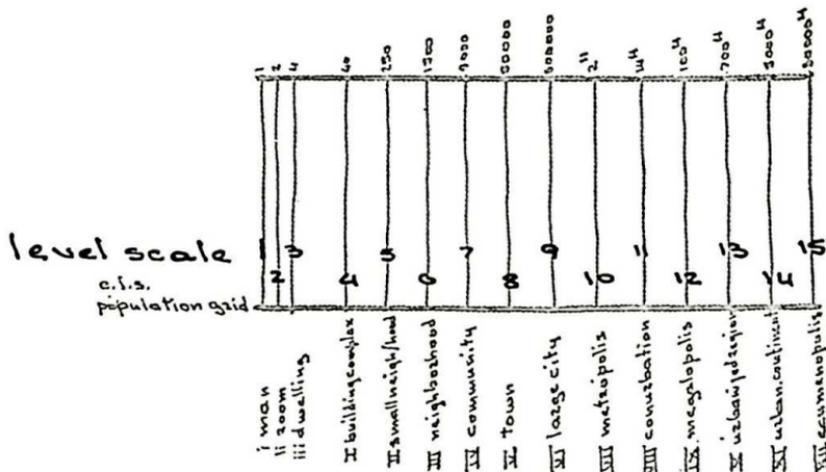
Otherwise, the minds of people are going to be always confused about where they belong in the whole structure of society (fig. 24).

We have already recognized three types of units which are indispensable for entopia and these are man, family and its home, and the human community based on natural connections between its members, with a population of up to nine to ten thousand people. A careful analysis proves that there is a total of twelve levels of units now and fifteen in the future, from man to the society on the whole Earth; and entopia has the task of organizing its population correspondingly. Such a social organization will be expressed in entopia physically by a proper structure of the city at all its levels.

fig. 25   level of decision-taking
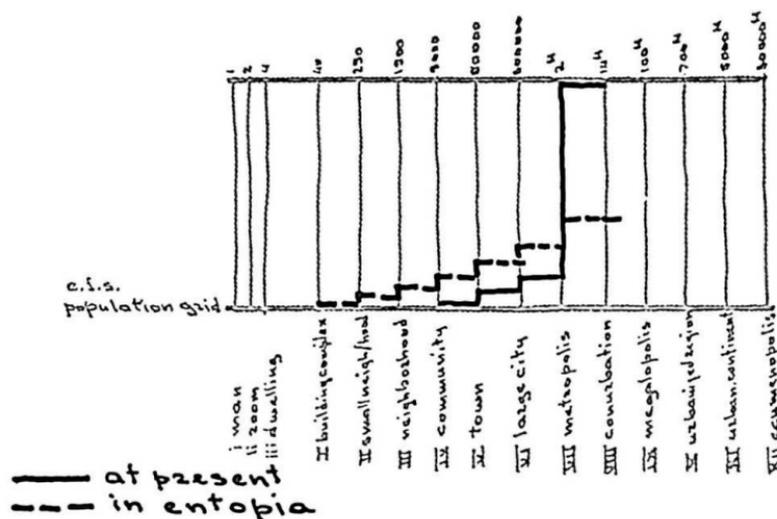
When I speak in these terms, people are afraid that they are going to be imprisoned within a rigid social and physical frame. There is no danger of that. People are not prisoners in their homes as long as there are doors. The walls provide protection – the doors, liberty.

On the contrary, a proper organization of society and its settlements is going to allow the highest imaginable degree of freedom at all levels. As long as we have one city of ten million people, we have a unified administration of it and all decisions have to be taken at the highest level, which for such a city corresponds to a community of high class (Class VIII according to the classification we have introduced at the Athens Center of Ekistics). If, on the contrary, the city has the proper structure, then there are many decisions which can be taken at lower levels such as in communities of Class III, which is a neighborhood of 1500 inhabitants, or Class IV, which is a small town of 9,000 inhabitants, giving much greater freedom and choices to its citizens (fig. 25).

In such an entopia, the best type of democracy can operate, the one which guarantees the optimum of freedoms at all levels, by easily centralizing decisions when necessary, by leaving all other decisions at the lowest possible level in every occasion where the personal contact between people is easier; and thus the operation of society is based on better understanding of its needs. Such an entopia can more easily educate its people to be free and live together, think by themselves, and contribute to the common pool of knowledge in order to lift society to greater heights.

Networks

Entopia requires a very revolutionary conception of all types of networks, from transportation to power, because these are the youngest elements of the anthropocosmos, these

can be developed at a much higher speed than the others and these are the more deficient ones. Much greater technological development will mean much greater services to people; as can be shown by projections which prove that the U.S.A. expects by 1970 eight times higher income from overseas telecommunications in relation to 1960, because of the Comsat, while without it the increase would have been only four times, that is fifty per cent of the one expected now.[40]

All types of much more developed networks are going to turn the whole Earth into one neighborhood, as Morse in his time predicted would occur over the whole country, because of the new channels of telecommunications (fig. 26). In power, expanding networks based on solar and atomic power are going to help decentralization of production, while universal connections are going to mean better utilization of the capacity for production – the peaks of some countries are going to be served by the lows of others.

fig. 26   networks on the earth

in the past   in entopia
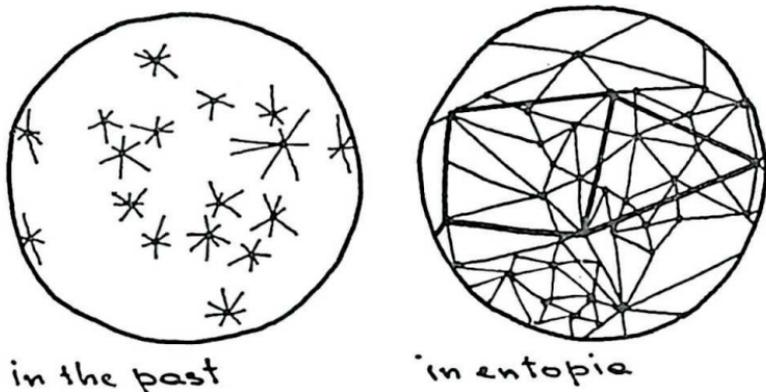
In transportation, entopia is going to rely on much higher speeds, of many hundreds of miles per hour, for the connection of its cells. Thus, urban distances are going to have a different importance; people will not mind how far they travel but how much the travel costs, as all time distances are going to be matters of a few minutes. Their time budget should not be influenced by urban commuting because otherwise life will be inhuman.

fig. 27   deepways

airways

— first system
— second system
— third system
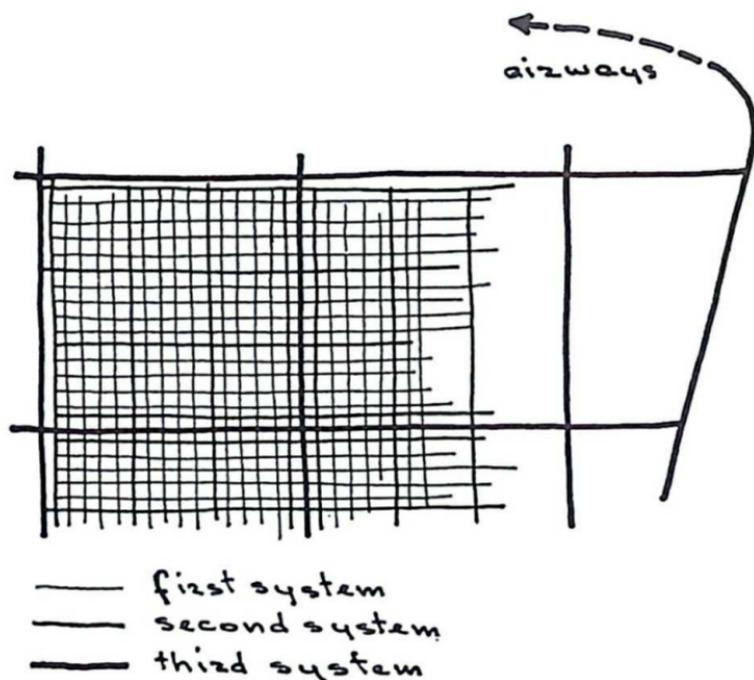
To achieve such higher speeds, man will bring all major lines of transportation in underground tunnels, not highways, but deepways; the higher the speed, the deeper they will go as in our body. For major distances of thousands of miles, they will rely on rockets which will take off and land in tunnels (fig. 27).

With such an achievement, the surface of the Earth is going to be free from lines of transportation and of machines and given back to man who will develop a continuous texture

fig. 28 the human scale and the machine scale

☐ man
— machine
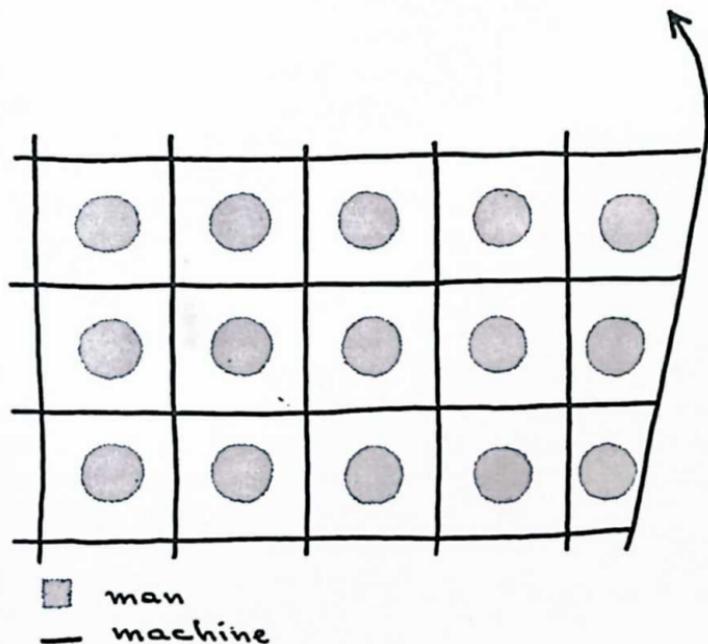
consisting of cells, every one of them representing the human community in a natural human scale, all of them interconnected by mechanical means, which will not hurt man, which will not deprive him of his natural dimensions, but will add new dimensions to his life (fig. 28).

Shells

Next to the networks of all kinds, shells are the youngest element. Thus we can approach it with greater freedom for reforms – but still – it is several thousands of years old and changing it for entopia will require great care, not to change the best just for the sake of change as happens today. Building the shells of entopia we should have their purpose in mind; to cover man and to guarantee his best connections with other men, with nature and society, whilst protecting man from overexposure to any one of them.

In entopia every person should have his room where he can isolate himself from the others in the same way in which he is now entitled to his personal clothes and chair. It is very basic for human freedom to give to everyone the opportunity of his second shell – in the same way every family should have the room connecting its members, every neighborhood the lanes, squares, and buildings connecting its members, and every community of higher order the space connecting its citizens.

The personal shells are going to expand from clothing to room and transportation bubbles and are going to be the room and the basic cell of the total settlement, the human community, the dimensions of which have been found by humanity, after trial and error of six thousand years, to be equal to no more than two thousand yards square. Our task is to create these basic shells properly. To achieve this, entopia is going to have a very strict organization of the shells; this will not

limit the movements of the people, in the same way in which the house walls do not.

These cells will provide for the maximum facilities for man and allow him to move without being bothered by the weather. This is not a new idea, arcades have played this role in the past, and James Silk Buckingham, in his *National Evils and*

fig. 29   human community and machine

☐ man
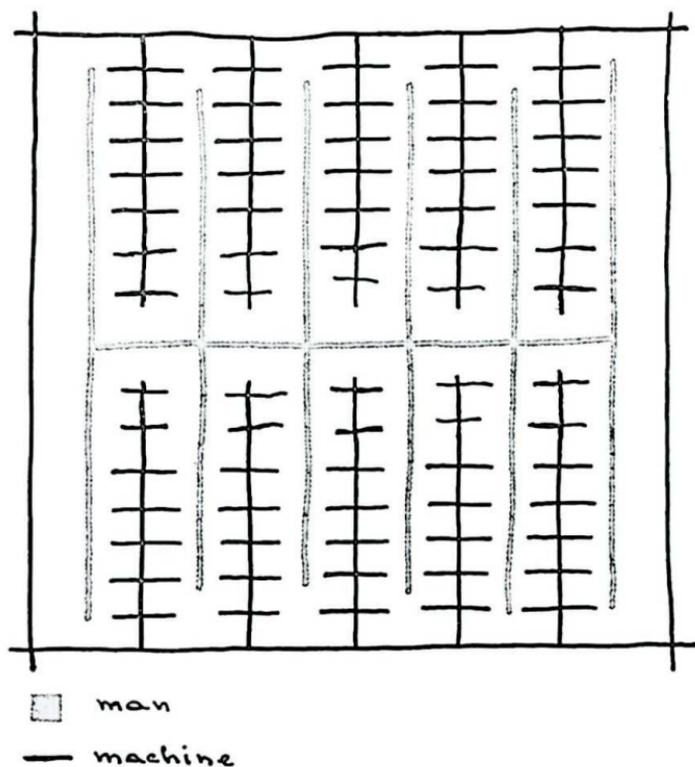
— machine

Practical Remedies, demanded in 1859 "ready accessibility
to all parts of town (his town) under continuous shelter
from sun and rain."[41] In addition to that, man should never be
bothered by the proximity of the machine – their paths should
be separated first at the same level, then at different ones
(fig. 29).

In such cells, formed properly into shells fitting human
needs, man will feel at ease to move in a human way. And

fig. 30   skin of the earth

man

natuze

machine
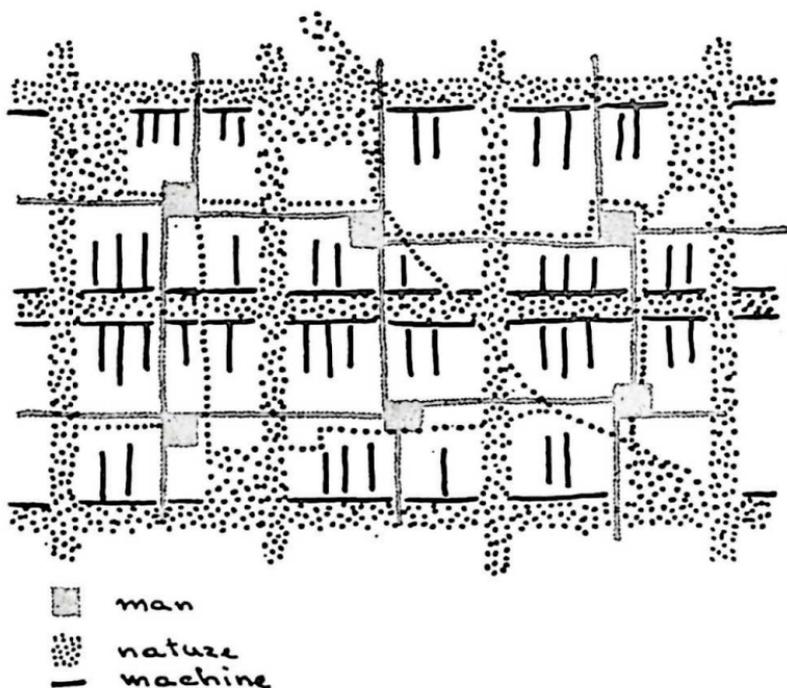
then, when he wants to move to a distant cell, he will descend one floor lower, enter a plastic bubble, dial the code number of his destination, and relax in his own way for a few minutes. Thus the surface of the Earth will be free for shells – buildings in the human scale which will not disintegrate, which will not be demolished (fig. 30). Such buildings will allow the creation of architecture in the best sense of the word – architecture as an expression of continuity beyond our own lifetime. When I visited the Chapel of the Trinity Campus and was shown by the Chaplain and the students the chessboard of a former president carved on a bench and the faces of the workers who had built it in stone, I had an excellent sign of how architecture can lead again to expressions of the greatest importance for our culture.

Between the Idea and the Reality

Sometimes, when I think that I have conceived a system which can lead to entopia, I feel satisfied and I sit back to look at my plans and drawings. But then, when I lift my head far enough from the drawing board, T. S. Eliot's verses come to my mind:[42]

> Between the idea
> And the reality
> Between the motion
> And the act
> Falls the Shadow
> > *For Thine is the Kingdom*
> Between the conception
> And the creation
> Between the emotion
> And the response
> Falls the Shadow
> > *Life is very long*

How can we go beyond the idea and the conception into reality and creation, I ask myself? I often sit back and think. Life is very long.

One. We need the idea, the "idea sword," as the Greek poet Costis Palamas[43] called it, the idea which can cut through inertia.

Two. This idea, however, is not enough to lead to results. If we do not elaborate on it, if we do not turn it into a science, if we just present it as an idea, we will finally end up indulging in an exhibitionism of ideas as many people do. If, on the contrary, we do elaborate, then we can judge objectively, acquiring the ability to develop the proper policies. We can then be both conservative and liberal, depending on the case; we can conserve the existing values and create new ones, find our balance, keep the system in action; we can act wisely. Two is the elaboration of the idea, the specific scientific approach.

Three. My mind goes back to a meeting which we had with a small group of people to discuss how to solve the problems of our cities. I always remember the expert who, after a long and constructive discussion which he probably could not follow, said that we should not worry about the big city because, after all, we can turn back to Frank Lloyd Wright's ideas and dissolve the big city, go to live in the fields, in Broadacres. Three, I say to myself, is the obligation to fight the myths. We have to dissolve them in order to have clear ground and proceed.

Four. I'm thinking of the two personalities opposed by Paul Valéry in his *Eupalinos,* the philosopher and the builder. I'm thinking of which one we need and I think how dangerous it is to rely on either one of them. Four, I say to myself, is to decide to be a philosopher at night and a builder every morning.

Five. My mind goes back to a high, Latin American plateau

which was visited by a group of experts on food production who saw peasants sitting idle and underfed in the middle of fields which could produce all the food they needed. "Does wheat and corn not grow here?" they asked. "Oh yes," was the answer, "if we plant them they will grow." This I remember when people are reluctant to reverse our road in urban affairs. "Did you try it?" I ask. "Oh, if we try it . . ." they almost say! Five, I say to myself, is the will of man to dare and to act.

Six. I think of the need to start building entopia now in order to experiment and to lay foundations. Six, I say to myself, is to start building. It is morning. This is why I feel the need to be a mason and to build.

EPILOGUE

A MASON thinks at night and builds during the day. In his small way, he has to reconcile the two personalities, the thinker-philosopher and the builder-architect. If he has thought enough about his work, he knows that he cannot play God. If he has built enough, he knows that in the morning he *has* to pour the concrete.

It is a dark night, and I sit in my office and think about past, present, and future, about the cities choking man to death, the bad place – the dystopia – about dreams lost in no place in utopia, about dreams of a good place – the eftopia – and about the need to build on our Earth a good place – the entopia. To build! This concept remains in my mind; we need builders! Why turn to the philosophers and the poets?

Then I remember Vannevar Bush who asks that philosophy "return to its mission in its day of glory," as "it can dream and it can guide the dreams of men," and to achieve it, it has "to present its visions humbly, and in the concepts of the universe that science offers."[44] I agree with him, I say, philosophy and science, that is what we need – philosophy to conceive the goals – science to create the frame.

And the poets with their utopias, are they unnecessary, should we pity them? "No," the Greek poet Odysseas Elytis said to me in a recent conversation. "I don't pity the poet left without a public, but any public left without a poet." Again I turn to Solomos with his reason and dream which define the entopia. Is this really possible? Can man ever create entopia?

The city of Athens lies dark in the plain, but the first rays of the rising sun illuminate the Acropolis which sparkles in the half-light, and as I look at it I know that, yes, it is possible. It is up to man!

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GLOSSARY OF TERMS

Anthropocosmos: a word coined by the author, is from the Greek words *anthropos* and *cosmos,* man and world, meaning the world of man versus the great world or cosmos beyond man. It was first used in a lecture delivered at the Swarthmore College Centennial Year Celebrations in 1964, entitled *The Human Crust of the Earth.*

Anti-utopia: is a twentieth-century English word, created to present the anti-ideal place. It is often used incorrectly to mean dystopia, an evil place, but it does not.

Cacotopia: is a Greek word which still exists and means a bad place. It is used for mountain paths, passes, etc., and also sometimes for a bad or doubtful situation. Patrick Geddes used it in 1914–1915 and Lewis Mumford used it in 1922 to mean hell. Others use it to replace anti-utopia – though they do, on occasion, use anti-utopia as well.

Deepways: is a word used by the author to mean the whole system of underground lines of comunication for private or mass transportation vehicles, few or many, travelling at all speeds, which is indispensable for the solution of our urban problems.

Dynapolis: is a term used by the author to mean the dynamic city or dynamic polis. The ideal dynapolis is the city with a parabolic unidirectional growth which can expand in space and time. (C. A. Doxiadis, *Architecture in Transition,* Hutchinson of London, 1963, pages 102–106.)

Dystopia: comes from the Greek word *dys* and *topos. Dys* signifies difficulty or evil. It is the opposite of *eu* – good. In this combination and context, *dystopia* is another and much more precise word for what anti-utopia was supposed to mean. V. L. Parrington (1947) uses it instead of anti-utopia. It is a new word, as is the concept, and not often used.

Ecumenopolis: is a word used by the author to mean the coming city that will cover the entire Earth. (First used in an editorial in the October 1961 issue of *Ekistics,* published by the Athens Centre of Ekistics.)

Eftopia: is the same as eutopia, but with a different spelling in order to avoid confusion between the pronunciation of eutopia and utopia.

Entopia: is a new word proposed by the author. It is from the Greek

words *en* and *topos*. *En* means in, thus in-place, or a place that is practicable – that can exist.

Eutopia: is from the Greek words *eu* and *topos*, meaning good place. It is used by many writers as a more specific term than utopia since it does not connote impossibility or unreality. Patrick Geddes used it first in *Cities in Evolution* (1914–1915) and it was used later by Lewis Mumford in *The Story of Utopia* (1922).

Ideal City: is mentioned by several authors especially in relation to the physical aspects of the city and the disciplines of architecture and physical planning. Throughout the past, and also in the present, people have made designs of ideal cities.

Megalopolis: means the greater urbanized area developed around a conglomeration of cities. It was used in 1961 by Jean Gottmann in his book *Megalopolis; The Urbanized Northeastern Seaboard of the United States*, published by the Twentieth Century Fund, New York, 1961.

Topia: is from the Greek *topos*, meaning place. It was first used by K. Landauer in *Die Revolution* (1923) to mean every existing and ongoing social order.

Utopia: was first used by Sir Thomas More for an imaginary and ideal country in his book *Utopia* in 1516. It means an imaginary and indefinitely remote place, a place or state of ideal perfection especially in laws, government, and social conditions. It is a Greek word, a combination of *ou*, not, and *topos*, place, meaning nowhere or no-place.

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