NOTES OF AN IIASA COLLOQUIUM

Victor Gruen

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Ladies and Gentlemen,

It is with great pleasure that I follow the invitation of Mr. Harry Swain, the project leader of the Urban and Regional System Group to present, (as he expressed it), to you my "recent work."

Here my first trouble begins. I regard my "recent work" as one which covers a period of about fifty years. That happens to be the time span in which I was fortunate enough to come face to face with the environmental relationships, as they concern the relations between individual and individual, between individuals and society, between us men and our own works and finally between men and all other creations of nature. "My recent work" has covered not only a geographical area of considerable size, Europe and specifically Vienna, the United States and that means most of the States, Canada, Australia, South America, Iran and then again Western and Eastern European countries. It has also brought me into active contact with various interest spheres, like poetry, literature, philosophy, municipal national and international politics, the theatre, with ecology, interior design and, last but not least, with architecture and city and regional planning. My approach was partly theoretical and partly pragmatic. The various interest spheres were nearly always intermingled with each other. Thought processes, and practical applications occurred simultaneously and influenced each other by "feed-back," as it results from successes, disappointments, failures and disillusionments. Since about ten years, I hopefully feel that as a result of continuous exposure, of search and research, I have come to recognize the existence and nature of an overall system. On the basis of this recognition I feel myself able to start with system analysis and to develop in team work, with many others, avenues for the application of that system analysis. In other words, I am in the same business as you are.

In order to help me orient myself concerning the work of your group, Mr. Swain was kind enough to send me the booklet containing the status report of Spring 1975.

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Like any naive reader, I was attracted at first to the four illustrations contributed by Julie B. Swain. I was delighted by the fact that they concerned non-technical, non-economic and thus so-called irrational qualities of the city. However, in studying the seventy pages of the brochure, I was not able to detect any connection between the illustrations and the context.

This fact would have disappointed me, if I would not have found various statements in the booklet indicating that the work undertaken in 1974 was of a preparatory nature and that emerging concerns are now those which lie in the areas of "resource conserving" and "resilient approaches to urban design."

I, therefore, read with some satisfaction on page 55 the words of Mr. Swain, "let me make clear that these are areas in which we have only intentions, not yet accomplishments." "Members of our group share with other projects the conviction that much of the waste, inefficiency and overconsumption that characterizes so much of human society is concentrated in urban regions, and may even be inherent in the nature of modern urbanization processes." "Unless we make some improvements in design, in the broadest sense, and operation, rates of technological progress are indeed likely to be swamped by material scarcity and growth in demand."

A key to the overall approach is found in the introductory words of the paper by Horst Strobel. Under the heading of "motivation" he describes dramatically the environmental, economic and social problems resulting from the increasing use of private cars. He notes that these problems vastly influence the quality of urban living. He then raises the question: "What solutions can be offered?" and lists three kinds:

"1) Change the rule of the game
2) Improve existing systems
3) Provide new technological options."

He then proceeds to deal only with the solutions 2) and 3) by developing a sophisticated study of computerized traffic controls. Now this, in my opinion, is unfortunately comparable to the beating of a dead horse. The reason for this belief is simply, that it has been recognized by all, who thoughtfully deal with the transportation problem, that any attempt to facilitate the movements of private automobiles can only end up in a further growth of this type of transportation, whereby the rate of growth usually outpaces the results of facilitation. Traffic by individualized

machines is comparable to that famous monster of Greek mythology, the "Hydra," which had the unpleasant quality to grow two new heads for every one that was cut off.

I, therefore, feel that we will be forced to choose the first type of solution which Mr. Strobel suggested, namely: "We have to change the rules of the game." This admittedly is extremely difficult, requires great amounts of perseverance, patience and courage. But it is by no means a hopeless task. The rules of the game have been made by men and, therefore, they obviously can be changed by men.

This then is the basic attitude which we all should adopt. In his short article about "resource conserving urban design," Mr. Swain states "it is not clear where we should start. For that reason, the meager resources we are devoting to this topic are exploratory only, intending to pave the way for genuine implementation. Whatever direction we finally take will necessarily have to deal with the application of human values to technical options. It is in this sense that I hope today to make a modest contribution.

My basic conviction, which may differ from that of many others, is that it would be senseless to make such a start with those tools which specialists or experts, may they be architects, engineers, traffic experts, city planners or countless others, employ.

Inasmuch as our task appears to be that of creating "peaceful co-existence" between men and all other expressions of nature, we have to turn to the entire "environmental relations patterns," which embraces the relations between individuals and individuals, between individuals and human society, between mankind and its own works and between men and all other parts of creation. Our approach will therefore have to be simultaneously a sociological and an ecological one. It seems obvious that we are in dire need of an effective teamwork of scientists, natural-scientists as well as humanists who would, however, all have to subscribe to certain ethical principles.

My old friend, professor Victor Weisskopf of M.I.T., has, especially after his basic work concerning nuclear fission brought him into contact with the building of the first atom bomb, given a lot of thought to the "ethics of science." In a book about this topic he concludes:

> "Human existence is based on two pillars;
> Knowledge and compassion.
> Without knowledge all human action is ineffective.
> Without compassion all action is inhuman."

A second basic rule we may, if we so choose, call "Gruen's law of the 'Justice of Balance'," or inasmuch as abbreviations are popular in academic circles, "J.O.B." My claim is that it is our fundamental "job," through search and research, to establish in the form of a constitutional law the articles of J.O.B. in the field of all human endeavours.

The hypothesis which underlies the term "justice of balance" is that there exists with respect to all actions a threshold of balanced behaviour which, reaching over a certain range, is defined on its lower and upper limits by markstones or threshold points. The markstones of the lower limitations lie above situations of scarcity and suffering, the markstones on its upper limit lie below situations of wastage, over-indulgence and, therefore, of overloading of the human or outer human nature.

If we accept this hypothesis, it is indicated that there must exist certain volumes or "dosages" which on the one hand are large enough to guarantee human existence and on the other hand not so oversized as to endanger it.

We all know of the existence of such dosages, for example, in the medical area. We expect from a knowledgeable doctor that after thorough study of our disease and our organism, he will be able to prescribe treatment, maybe in the form of pills, cures or behaviour patterns, which will give us as patients a chance for a longer and healthier life. If the doctor prescribes pills, they are usually what is commonly known as poisons, and he must therefore be extremely careful with the dosage. If the dosage is too small, it will remain totally ineffective, if on the other hand it is too large, it might kill us. If he prescribes physical exercise, he will on the one hand advise that to get up two or three times from the dinner table would be too small a dosage, but that to run up a steep mountain slope might be a too large one.

I submit now that the importance of the right dosage, or as we may call it "optimal" dosage, does pertain to all human activities, may they be in the fields of science, technology, population, economy, etc. We recognize that there exist optimal dosages, to which we refer as "normal" conditions with regard to blood pressure, body temperature, body weight, body size, etc. Whenever we find the range of normality to be under- or overstepped, we try to take suitable counter-measures. There seems, however, to be nobody around who believes in the existence of such optimal or normal conditions with regard to economic growth, technological development, population growth, sociology, or human behaviour patterns.

Even if such ideas should occur to "thinkers," they are being obstructed by those "doers" who believe in the blessing of eternal growth which they choose to call "progress," but which necessarily must lead us towards the end of what we call human culture and civilization and in all probability to the end of human existence itself.

In our times of steadily increasing manifestations of an environmental crisis, we seem to approach a dangerous polarization of those who are referred to as "orthodox environmentalists" and "nature protectors" and those who are referred to as "practical people" and "protectors of the economy."

A consequent adherence to either of these orthodox directions of thought would involve unbearable sacrifices. Orthodox environmentalism would lead to a "return to nature" and the necessity of sacrificing all that human science and technology has achieved over thousands of years. To gather behind the banners of those who preach eternal materialistic and technological progress, would on the other hand lead to the total destruction of the biosphere and of all human physical and spiritual values. It would also destroy the possibility of safeguarding the values of human society: freedom, equality and brotherhood. What we have to seek, therefore, is a golden middle course, which by steering between starvation and gluttony, will free us from the bondage which we ourselves have brought upon us.

In talking about the planning or re-planning of our urban settlements, with the aim of optimizing the quality of urban life, we must acknowledge that this task is irretrievably tied up with the creation of optimal conditions, achievable only through "justice of balance" in the areas of a well-balanced society, economy, technology and so on.

Though it is only in the framework of this overall attitude that I dare talk about the problems of urban planning, I will not deny that a solution to the urban planning problems is of significant importance because a rapidly growing part of the exploding human population is streaming into urbanized areas.

In the first three quarters of our century the inflation of urban population has reached a dramatic size. Whereas in 1900, 80% of all people lived in rural areas and only 20% in urban ones, we are facing now a condition in which only 33% are settled in rural areas and 67% in urban ones. If no dramatic changes in human behaviour occur, we may be faced with the possibility that by the end of this century about 75% of the world population will live in city-like conglomerations.

This urban inflation is the result of an immoderate, the laws of justice disregarding, behaviour pattern in the areas of economy and technology. By using the methods of "doping" in agriculture, like huge agricultural machinery, artificial fertilizers, insecticides and other high-pressure methods, have we succeeded to delegate human and animalistic energy, that is to say biological energy, to artificial energy-instruments. It appears now that these doping methods, similar to the ones which are used illegally on racing horses and human athletes, give us short term high productivity, but long term exhaustion of men and of all natural resources.

Whatever the final results should be, it is already obvious that technologized agriculture has driven hundreds of millions of people from the country into urban conurbations which are unable to integrate materially or socially this human avalanche.

If these refugees from the countryside find any type of activities supporting their existence, then they do so either as machine-slaves on the assembly lines, or as desk-slaves in the offices of a largely parasitic industry which serves the "distribution" of goods or money, or the "persuasion industry" which is busily engaged in promoting new needs in order to enlarge the holy "gross national product." Neither the machine-slaves, nor the desk-slaves, who act as tiny wheels in gigantic organizations, can attain those feelings of human joy which result from the direct input of human physical or psychological energy in order to produce clearly recognizable products.

Urbanites, therefore, are a restless folk, frustrated and ill at ease. Understandably, they all strive to shorten the time of tedious but nerve-racking forced servitude by fighting for shorter work days, work weeks, longer vacations, etc. Their desperate attempts, however, to utilize the gained leisure time end, more often than not, in a confused rage for distraction. A senseless utilization of working--as well as leisure time--results in outbreaks of aggression.

Though the "judiciously balanced city" cannot exist as a happy island within a stormy and hostile world, created through the disregard of "justice of balance" with regard to other aspects of life, it could make a worthwhile contribution by creating some of the basic conditions without which a worthy human existence cannot be achieved.

In order to put before you some of the problems and some of the possible solutions, some radical thinking, that means digging for "radices" will be necessary. Let me try to do that in form of a "planning game." As playboard pieces

we will employ a number of abstract terms. We hope that by moving the pieces cleverly, we may approach the aim of the game, namely the creation of the "judiciously balanced city." In moving these pieces mentally, we undoubtedly will find some favourable qualities, which we will try to conserve and unfavourable ones which we will try to eliminate.

The first one of our play pieces is the "Arch-City." This piece symbolizes the historic idea of the city as it was created about five thousand years ago and as it existed comparatively undamaged until about one-hundred-fifty years ago.

The second piece is called "Anti-City." It symbolizes those conglomerations which through faulty development of the "arch-city" came into being and in which most of us live today.

The third piece we want to call the "Futuristic City." It symbolizes those dream cities which are created on the drafting boards of architects and futurologists, or very rarely in small experiments.

The fourth piece finally is our target. It symbolizes the "well measured" city and I will call it, for reasons which I will discuss later at greater detail, the "Livable City." It exists up to now solely as a vision. What the character of this vision should be we hope to find out through the "planning game."

The "arch-city" as the playing piece with the greatest longevity has proven so durable because of its recognition of certain basic human instincts which have led to its creation. The raw material is the human herd instinct, the desire for protection and security and for self-realization, for sociability and for that amount of freedom which is attainable within a well constructed order.

Sibyl Moholy-Nagy affirms in her book "Matrix of Men" her belief in the "arch-city" which she characterizes as the "fate of men." "History," she writes, "was never made in villages. The starting point of all spiritual, socio-logical and economic development was always the city." The "arch-city" therefore reflects all that what we call the essence of urbanity.

In referring to urbanity, I relate this term to three interdependent conditions which, I believe, form its essence.

1) The greatest opportunity for direct human communication.
2) The greatest opportunity for the free exchange of ideas and goods.
3) The enjoyment of human freedom as expressed by a nearly inexhaustible access to a multiplicity of choices.

Freedom of choice is a persuasive attractor. It not only implies the availability of choice with regard to many types and places of employment, education, enrichment of spirit and mind, culture and art and amusement; it also permits, at different times and for different moods and temperaments, the choice between privacy and sociability, the choice between singleness, two-someness, or of experiencing events within groups or with masses of people. Urbanity leads to a rubbing of shoulders among various economic, sociological and ethnic groups. It, therefore, promotes integration and tolerance. Contacts with others can sharpen the wits, improve skills and develop the intellect.

The "arch-city" is essentially a "commune" and an "energy collective." This is expressed in German by the word "Kommunalverwaltung," etc., in English by the word "municipality." Also this term expresses the same content. "Munus," a Greek word means "duty" and "capere" means to take over. The "arch-city" is therefore one in which communal duties are shouldered by the community.

The "arch-city" attracted those who were eager to rid themselves of certain individual liberties in order to gain the greater collective liberty of urbanism. The hunter, the herder and the peasant who chose the "arch-city" as their dwelling place changed certain behaviour patterns.

The rural dweller gets his water from individual wells.	The city dweller relies on a communal water system.
The rural dweller uses individual cess pools.	The city dweller is served by a communal canalization system.
The rural dweller defends himself by using his own weapons.	The city dweller relies on the protection of the communal police.
The rural dweller produces to a large extent his own nourishment and clothing.	The city dweller relies on the communal market system.

Similar attitudes hold true for schooling, for participation in cultural, artistic and social events.

The "arch-city" is clearly recognizable as an "energy collective." With regard to all those services which collectively can be rendered more efficiently, than through individual effort, the city succeeds to save human mental and physical energy, so that it may be used in other areas of human endeavour, specifically in those of culture and the arts.

If we consider form and structure of the "arch-city," we notice that as a rule, it was a clearly defined unit which within walls and fortifications formed a human "artefact" in sharp contrast to the surrounding men-influenced landscape or unspoiled nature. The "arch-city" was comparatively small and relatively compact. One moved about in it, by the now nearly forgotten method, to put one foot in front of the other. Even a small upper class, which owned horses and carriages, could not move much faster. The speed of movement, however, proved sufficient thanks to the fact that population density was high and all urban activities, whether they served various social groupings or various activities appeared in a pattern of small-grained integration. Thus distances were short.

The "arch-city" offered opportunities for neighbourliness and intermingling. Many of the urban virtues of the "arch-city" were the result of capability limitations. Compactness and high population density resulted from the necessity of defence against natural and human enemies. The small-grained integration was a response to the incapability of moving at high speed.

Though I seem to be praising many of the qualities of our playing piece the "arch-city," it is not my intention to nostalgically refer to the blessings of the "good old time." Obviously, it was not especially good, but in certain aspects very bad. The cities of the past suffered from social injustice and the risks and dangers which resulted from the absence or poor quality of hygienic systems. Citizens lived constantly in uncertainty and fear of elementary events, like floodings, fires and earthquakes. Thus, if we want to move this piece in a desirable direction, we will have to learn from certain qualities of the other playing pieces.

The second playing piece the "anti-city" was not planned or desired by anybody. It just happened accidentally, through the influence of certain economic and technological forces.

An important factor is the withering away of capability limitations which originally formed the "arch-city." Technological progress in the area of armament for example, has rendered the walls, which tied the "arch-city" together, superfluous. The progress in transportation technology and the blessings of the welfare-state have opened up the possibility for many to utilize means of individual transportation, enabling them to master long distances.

"Anti-city" developed rapidly in a cancerous fashion because we disregarded the ethic principle, that the growth of capabilities must go hand in hand with a growth of self-discipline. In disregarding this maxim, "anti-city" developed into a monster not directed towards serving human interest, but those of the technical apparatus of the economic establishment.

In a positive sense, new developments have given us better plumbing facilities, better sanitation, and at least outwardly a higher degree of social justice. But in concentrating solely on the activities of the physical and sociological plumber, we have "thrown out the baby with the bathwater" and thus lost the inherent qualities of urbanity and community. "Anti-city" also has sinned against the concept of the energy collective. Recognizing collectivity as a significant quality of the city, it is apparent, that in destroying collectivity in one important aspect, namely the one of physical communication, by using hundreds of thousands individualistic "people and goods-movers," we are endangering the meaning and effects of collectivity altogether. We might just as well have returned to the individual cess pool, the individual well, the individual shotgun. Illogical behaviour with regard to collectivity in certain important aspects must necessarily end with the downfall of collectivity altogether, the end of community, the end of urbanity.

Our game piece, the "anti-city," quite generally enjoys a high degree of unpopularity. It is regarded as "life-hostile" and uncomfortable. "Anti-city" is generally a product of inflation according to the original meaning of the word "inflare" which means to blow up and thereby to overstrain the capabilities of the "blower" as well as those of the inflated object.

The inflation of the city occurred simultaneously with the blowing up of economy and technology. The blowing up of the city resulted in the "exploding metropolis" and in the growing together of such exploding units into "megalopolis."

The activity of "blowing up" necessitates the input of such amounts of energy that no energy remains for other tasks. The inflation of the city, therefore, necessarily ends in a deflation of culture, the arts, civic pride and quality of life. "Urbanity" was sacrificed on the altar of economic and technological progress.

The evolution from the "arch-city" to the "anti-city" is a product of the erroneous idea that one could make a big city out of a small one just by the process of mechanical enlargement of each one of its parts. By utilizing this method, small working places which were integrated in the fabric of the "arch-city" became huge industrial centers, or office centers. The dwellings which were to be found in the "arch-city" above stores or workshops became, through the blowing up technique, huge amassments of sterile sleeping quarters with thousands of beds.

The little shops which were sprinkled throughout the fabric of the "arch-city" grew into shopping districts and "shopping centers." Small inns were enlarged to hotel and restaurant rows. The small City-Hall, originally an easily accessible assembly point, became a huge civic center in splendid isolation from the citizenry.

The tremendous enlargement of each of the urban elements enlarged the distances between those elements, in such a manner that they could be mastered only by the permanent use of mechanized transportation facilities.

Theoretically one should assume that because "anti-city" is so much larger than "arch-city," this should manifest itself in a growth of the "freedom of choice." Unfortunately, this is not the case because "anti-city" asks, in return for the lending of opportunities, usurious interest rates in the form of dangers for the physical and psychological health, of wastage of human time and energy and of destruction of natural resources. As the citizens are unable and unwilling to pay these usury rates, they have no other choice than to renounce the advantages of urbanity.

How did all of this happen? Generally it is assumed that all is the fault of architects and planners and that our urban conditions are unbearable because our cities are poorly planned. This is a false assumption. The truth is that "anti-city" was not planned at all.

In the pre-industrial past, cities have slowly and organically developed on the basis of a multitude of human wishes and needs. Generally, individual wishes played an important role, which found their expression in anonymous

architecture and organic planning. But in certain cases and in certain parts of the "arch-city," shaping-forces with specific design intentions often existed. It was the wishes of those clients which architects, planners, artists and artisans had to respect. Such clients were those who held great power in worldly and religious affairs. They acted on the basis of militaristic, representative, sometimes even artistic motivations.

In our age of tyranny of world economy, all anonymous, autocratic and aristocratic motivations have disappeared and were replaced by technocratic dictatorship. Whereas the historic influences on the shaping of the city were the effect of human thought and feeling, good ones as well as bad ones, are the influences of technocracy basically inhuman and directed not towards the fulfillment of human requirements but the satisfaction of the needs of the apparatus.

All those who call themselves or whom we call "city planners" or "regional planners" are in reality only called upon to establish, as an afterthought, some semblance of order into the gigantic garbage-heap which has accumulated as a result of naked profit mentality. Also today's architect, who still likes to think of himself as a creative artist, lives in a world of illusion. In reality, he is like his colleague, the planner, no more than a docile servant of technocracy, who, with some luck, is permitted to enjoy himself as an interior or exterior decorator.

Understandably, planners and architects are plagued by frustration. They eagerly clutch to those few opportunities which their technocratic masters are willing to offer. One of these opportunities is that of a chance to act as a charwoman, to clean up the mess and to make a little order. Thus the frustrated planner becomes a "law and order fetishist." Enthralled by this task, he starts to sort the merchandise. He carefully labels various types of human merchandise and, by means of the land usage plan and zoning regulations, he tries to store the various brands in various compartments. The sortment is divided into lower-middle class, middle-middle class and very-upper-middle class. A further distinction is "factory new merchandise" (like children and teenagers), "used merchandise" (the middle-aged) and "old merchandise" (politely referred to as senior citizens). Beyond that there are specific labels for retail goods (single persons), wholesale goods (larger families), imported merchandise (like immigrants or guest-workers) and coloured merchandise (black, brown or yellow). The aim of the planner as "charwoman" is to store each of the many

merchandising categories into specifically designed sleeping compartments.

As far as those activities are concerned which take place outside of sleeping hours, they are also compartmentalized into specific "ghettos," for example those for factory work, desk work, shopping activity, learning, pleasure, leisure, sickness and even death.

Out of this striving for large-scale separation of various types of human merchandise and various types of activities, there results, in a most welcome fashion, a very difficult task, which poses to our so-called "planners" not only complex but never-ending challenges.

In order to fulfil the major purpose of the garbage heap, namely to produce a maximum of consumption and production, it is obviously necessary to bring all the representatives of the human merchandising brands in contact with all the types of concentration camps of urban activities. Inasmuch as this task is insoluble, it appears most interesting to the planner and he concentrates all of his energy on trying to prove that he can achieve the impossible.

Here he has finally found an opportunity to plan and even to see his plans realized with the help of tremendous financial means. In the planning of urban freeways, road widenings, under- and overpasses, clover leaves, etc., there are most fascinating possibilities offered. Additional satisfaction is drawn from the fact that all the newly planned facilities prove themselves, within a relatively short time, as inadequate, so that one can always start fresh again. It is great fun!

Unhappily, the citizens do not seem to share in the fun. As refugees of the plagues of transportation, they are constantly attempting to escape. They emigrate from the city cores to the periphery, from the periphery to the region. When they unhappily find that escape is useless because the machinery of transportation catches up with them wherever they go, they look for other escape routes, like second and third homes in the country, regular weekend trips and journeys to far-off lands. When even these escape routes prove to be blocked, they escape into unconsciousness and the usage of alcohol and drugs.

The search for a solution has brought about our third playing piece the "futuristic city." Most of the designs for dream cities are based on the recognition that compactness and high population density represent certain promising conditions for the retrieval of the lost virtues of urbanity.

But also the futurologic architects and planners are escapists. They turn away from the problems of the present and the foreseeable future and engage in wishful dreaming. They escape also geographically and they place their dream castles into arctic and antarctic zones, onto the tops of steep mountains, into the middle of oceans or deserts. Futurological cities spring up in the brains of their inventors as ready-made creations. Most of the "futuristic cities" assume that mankind will have forever at its disposal an unlimited supply of artificial energy, of raw materials and nourishment. Most of them assume ever new triumphs of technology. Today's sky-scrapers appear as dwarfs when compared with future designs of sky-scraping structures. Masts are envisaged from which dwelling units dangle down like bats; with the help of system analysis and the computer a model has been developed which resembles a forty-story high ant-heap which contains, under conditions of artificial illumination and airing, all the needs of the urbanite.

In order to arrive at the target of our "planning game," we can also learn from this third "play piece" because the phantasy of their creators opens up certain avenues which might give inspiration. Thus, using certain elements of all of our three play pieces, we now want to attempt to create the fourth one, the "livable city."

We will have to begin with a "vision." A vision is something which one may not hope ever to completely achieve, but which like the "pursuit of happiness," visualized in the American Constitution, is something like a lodestar which we can try to approach. Undoubtedly, it will take a long time span during which, through thousands of little steps, the target vision has to be pursued. But the existence of the vision will permit us to take the thousands of little steps all in one direction and in a logical time sequence. We expect, from this vision, that it will be guiding us not only with regard to brand new cities, but also to the re-shaping of our existing ones which we certainly should not regard as "throw-away" merchandise.

In calling this fourth playing piece the "livable city," I want to indicate that it should be more than just a "humane" city, that means one which is inhabited and used by human beings, more than a "just city," or one of social justice, more than a "health protecting" or "hygienic" city, more than one which offers the earning of one's livelihood, or the "economic" city, more than one in which the transportation and other municipal services function, the "functional" city--but one which makes living in it worthwhile and which, therefore, is not just <u>livable</u>, but also <u>lovable</u>.

I submit that only such a livable and lovable city will be able to effectively eradicate the steady urge of its citizens to run away from it and, through this half-flight to the suburbs and the regions, destroy all those areas, which are essential for the growing of our food supply, for the gaining of our raw materials, for physical and psychological leisure, for the conservation of flora, fauna and oxygen.

In order to gain the qualities of "livability" and "lovability," we will find that the investment of so-called "rational" or quantifiable measures will not suffice. Beyond that we will have to consider much more intensely than usual, those aspects, which we summarize as irrational because they cannot be counted, weighed or quantified, for example heart, soul, feeling and moods. The "livable" city will, therefore, have to be one which does not just please our brains and our ratio, but one which considers our feelings and emotions. There is one German word which expresses this quality, namely "Gemütlichkeit." It is difficult to translate, but it can be circumscribed with the quality of feeling quite at home, of snugness, of feeling congenial and cozy.

This feeling of "Gemütlichkeit" cannot be achieved through tricky architecture, through intellectualized planning schemes, through technical excellence. To reach it, one needs a deep understanding of the human psyche and a sincere longing to understand and consider all those deeper instincts, which are embedded in the human being.

One of the outstanding tasks is the removal of fear, of that fear which forces us to be eternal nomads, hunting on the one hand and fleeing on the other. Thus the "livable" city must create the feelings of security, well-being, a chance for self-expression, stimulation and identification.

If I now attempt to describe some of the characteristics of the "livable" city in greater detail, I might bitterly disappoint you, because I cannot present exciting architectural renderings to you. I am neither willing nor able to show you a beautiful bird's-eye perspective, nor huge models as one may expect them from a "famous" architect. I think that such devices are misleading, because they transmit only that view which the pilot of a helicopter, or a bird, or the angels in heaven might enjoy. How the city looks from far away or from the air is in my modest opinion completely irrelevant. What's important is how those, who live in it, move in it, work in it, feel about their environment.

It's a strange phenomenon that the so-called layman, who hasn't been manipulated by being exposed to specialized training, knows instinctively much more about "Gemütlichkeit." He reacts to the atmosphere which a public room, a public space, or his private surroundings possess, by avoiding those which in one way or another are out of proportion or not "judiciously balanced." All man-made spaces which appear, in relation to their purpose, too high, too large, too brightly illuminated, too hot, too cold, too droughty, too noisy, are instinctively judged as "ungemütlich" and therefore avoided.

Also the overblown inflated "anti-city" with its overgrown and unproportionately scaled usage areas is, therefore, judged as life-hostile and "ungemütlich." Thus, instead of utilizing the wonderful equipment, which I know I can find in this institution, to project some pictures on the wall, I will try to paint a word picture, giving you some of the significant points which would have to be adhered to, in the creation of a new "livable" city, or in the re-creation of an existing one, in order to make it "livable."

1. The Livable City must be an Articulated City.

Even a huge urbanized area cannot be allowed to be a huge and large caricature of a proportionate, well measured urban unit. It may very well, however, be a federation of autark or semi-autark cities of a sensible size, possibly with between 40,000 and 80,000 inhabitants. In such an organic and harmonic federation, each of the city units would encompass a complete range of urban activities, relying on other neighbouring cities or even a central one, only for unusual demands as they may occur from time to time.

2. Each of the Livable City Entities is Sub-Articulated.

This further articulation could be expressed through districts, quarters, neighbourhoods, communities, family groups, etc.

3. Each Unit and each Sub-Unit is of Strictly Defined Form.

That is to say that each one is separated from the next one through greenbelts, parks, bodies of water, etc. The entire federation, of course, also is a clearly defined entity, without the usual raw edges and spill-overs, but bordered by greenbelts, recreational areas, forests, agricultural areas, or landscape.

4. A Small-Grained Integration of all Social Groupings, and all Urban Functions is a Necessary Prerequisite.

In every urban element and in every sub-element, there must be established the most intimate possible intermingling with regard to economic, national, ethnic and age-characteristic of their inhabitants, as well as an intermingling between dwelling places and all other urban functions, may they serve employment, culture, learning, pleasure, health and so on. Such a small-grained integration, however, is obviously only achievable if every particular urban function is of reasonable "proportionate" size and if all striving for gigantism is avoided.

5. The Livable City is in its Concept and Implementation "Multi-Dimensional."

This is to say that the usual two-dimensional planning approach, which arranges functions only in the horizontal sense next to each other, and which is a product of mental laziness, must be overcome. The third dimension of heights, or depths and the fourth dimension of time must be considered. Thus, it will be possible to achieve the aim of small-grained integration, not only through neighbourliness in the horizontal sense, but also through one in the vertical sense.

6. In the Livable City, Technical Accessory Services are Strictly Separated from Human Activity Areas.

Quite in contrast to the striving for the closest integration of all human activities, the "livable city" segregates its technical servants from their human masters. The three-dimensional planning approach opens the possibility of locating all major technical facilities and all utility lines, but also those facilities which serve for mechanical transportation (of people and goods) on lower levels which for human activities are less desirable. Thus all technical equipment, in the broadest sense of the word, is to be arranged underground, or under artificial platforms, with the aim to see, hear or smell as little as possible of our mechanical slaves.

7. All Urban Units and Sub-Units are, as Far as Their Shape is Concerned, Nearing Ball-Shaped or Cluster-Like Formations rather than Linear or Ribbon-Shaped Ones.

Theoretically the geometric form of the circle is ideal, as in relation to its circumference it encompasses the largest surface and because all points of the circumference

are equally distant from the center point. This, however, should not be misunderstood to mean that the circle should be adapted as a form giver in a strict manner. Consideration of geography, topography, climatic conditions, tradition, will lead automatically to highly irregular shapes which should, however, in principle approach the form of clusters rather than of long-stretched ribbons.

8. The Livable City is One with a Judiciously Measured Population Density.

The question of population density has, for a long time, led to heated discussions between experts. But here also, there exists a certain range which is defined by markstones or "threshold values" on both sides. Too small a "dosage" of population-density makes the creation of urbanity and the conservation of natural assets, like land, water, air, fauna and flora, impossible. An unproportionately high density on the other hand, leads to death through suffocation. It throttles the spirit of urbanity and undermines human physical and psychological health.

If one considers the present range of population density in various cities, one finds it reaching from one extreme to another. Los Angeles, for example, has a density of 2,2 persons per acre, whereas the WAH-FU estate in Hong Kong possesses a density exactly ten times as many, namely 2,200 persons per acre. Both, the extreme low and the extreme high densities, are life-hostile. One of them leads to jams of people and the other to jams of automobiles.

9. The Livable City Offers the Greatest Opportunity for Individual "Self-Expression."

Freedom of individual self-expression can be attained in the articulated and sub-articulated city, because all of its structures and spaces can be shaped by tens of thousands of creative forces in intimate cooperation with their users. Super projects, which can be designed only by super-planners and super-architectural organizations, are characterized by built-in sterility; they will not exist in the "livable city."

10. Enforced Mass Mobility is Reduced to a Minimum.

Thanks to its structural cellular organizational pattern, to the reasonable high density and the small-grained integration of all human groupings and functions, distances dwindle to a minimum and can be easily negotiated by walking, cycling, or the use of small communal electrical accessory vehicles. Communication between the various cities of the federation and between the entire federation and

outer recreational areas can be established by energy-saving and environmental-friendly means of "collective transportation."

11. The Livable City will Encompass Outstanding Structures, but They will be Those which Serve Outstanding Purposes.

In the life-hostile "anti-city," we find that those structures and facilities which serve purely materialistic aims are mostly those which are the largest, highest, or those which excell by their quality. In the "livable" city, those structures and facilities would appear as outstanding in every respect which serve important communal, cultural and social aspirations.

12. The Vision of the Livable City is Applicable, Not Only to New Urban Units or Sub-Units, but Also to Existing Ones.

In certain respects, the re-shaping of existing urban organisms is more promising for the achievement of the qualities of "liability" than the attempt to start completely new. The reason for this is that the quality of livability encompasses also an integration with regard to time and history. Wherever we can achieve a harmonious intermingling of the very old, the old and the new, the chances for success are greatest.

The greatest obstacles which hinder the design of the "great plan," which we must have in order to set ourselves a target, and which make difficult the execution of the thousands of little steps necessary to approach the vision of the "great plan," are not as is often assumed our lack of knowledge, or of suitable technological tools. Those obstacles are also not entailed in the capability of natural resources. The hindrances have their roots in man-made laws, regulations and conventions. History has shown that man-made errors must and can be removed by man-made actions.

One of those man-made laws which presently defeats effectively all attempts to move even the best ideas, which enjoy general acceptance to implementation is our completely out-dated and unusable concept of land ownership and land usage. The laws which regulate these important aspects were taken over from the legislation of the old Roman Empire. Basically they state, that every owner of land shall enjoy his ownership to the fullest extent and should, therefore, be entitled to determine the usage of this land at his own discretion. Such discretion applies not only to the surface, but reaches according to the letter of the law, from the center of the planet earth to the limits of the atmosphere.

In most civilized countries, this unconditional control is somehow limited by the sentence "as long as the usage of the land does not interfere with the interests of the people." As an effect of this limitation, there exists an abundance of building regulations, zoning laws, etc. They generally hamper, but do not seriously interfere with the one and most important aim, which ownership and especially corporate ownership of the land entails, namely to utilize urban land in such a manner as to bring the greatest financial gains. Inasmuch as in cities the highest financial returns can be expected from the erection of structures which serve the purposes of the "distribution and persuasion industry," or as dwellings for the very rich, it is economically completely logical that owners prefer these types of usages of their land. As a result, we observe that all other functions are pushed out of the cities and especially their core-areas towards peripheral and regional areas, thus promoting the sprawl of urban conglomerations and in the process destroying agricultural land and landscape. As long as we stubbornly maintain the completely outdated concept concerning the usage of land in accordance to the whim of its owner, all plans for the improvement of urban areas and regions will remain meaningless pieces of paper. There are various ways by which this hopeless situation could be remedied. The most extreme one would be the ownership of all land by the representatives of the people. However, experience in the countries of the East-block have shown that this alone represents no solution. Private ownership of the land seems to show advantages in all those cases, where individual initiative of the farmer, the home owner, or even the owner of a workshop, or a small factory results in optimal usage. A more suitable tool might be the ownership of all land by the community, but one which gives through long-term leases specific usage rights to individuals.

What seems to me significant is not so much the ownership principle but that of absolute control of the community over the manner and extent in which land is to be utilized. The presently existing extremely complex legal package which contains certain restrictions and restraints could without any great difficulty be modified and simplified in such a manner as to serve as an effective instrument for the undertaking of all those little steps which are necessary to pursue the vision of the "livable city," once we determine what this vision and the great plan leading towards it is to be.

I believe that urban and regional planning are of such importance that they cannot be delegated to city planners or architects. They constitute tasks of sociological, psychological and environmental natures which do not lend themselves

to the capabilities of "know-how, know-where, know-when specialists." They are on the other hand a promising field for the efforts of those who have gained experience in systems analysis with other words of groups and teams similar to those which you in IIASA are fortunate enough to represent.