Articles

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MAN, CITY AND AUTOMOBILE

SYNOPSIS: In modern cities, the automobile has interfered with the human scale and spoiled it completely outside houses and buildings. It makes a disagreeable noise, contaminates the air, has brought traffic into city centers, and has dissolved the social tissue by increasing the distance between people. However, the invasion of the automobile has also had some positive effects on human settlements: it helped the city to spread and breathe, it brought people into contact with the countryside again, and it enabled them to go anywhere they wanted. The challenge we face is to incorporate the automobile into the system and retain the benefits while eliminating the damage. In future cities, new types of neighborhoods need to be constructed which will be served but not crossed by automobiles, and where there will be no wasted land but as many green areas as possible. Pollution will be either eliminated or channeled into tunnels. The immediate goal is to recreate the cells of urban life on a human scale, while the ultimate goal is to separate permanently all roads for automobiles and those for people to different levels on the ground.

Introduction

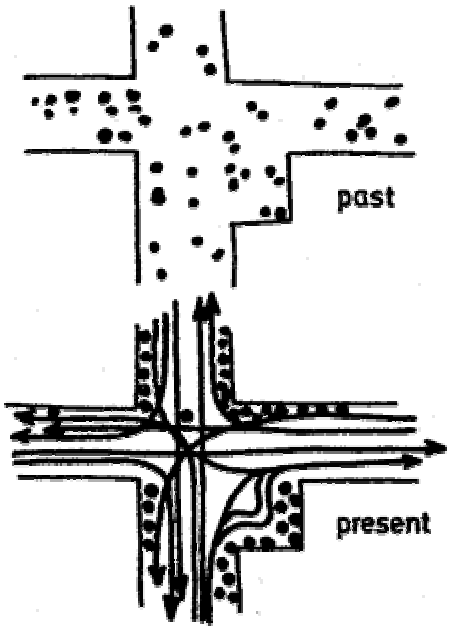
When speak today about transportation we concentrate almost our whole attention on the automobile. This is quite natural, as it is by automobile that we carry out most of Man's movements and the movement of goods on land. By doing so, however, we make two basic mistakes. First we concentrate on transportation and forget that it is movement that is important, and that a large part of Man's movement can and should take place without using any means of transportation just by using his muscles. The second mistake is that we concentrate too much on the automobile, since it is the means of transportation we use most frequently and see around us in the cities. If we want to face the problems of movement in general, of which transportation is a part, we should think of all possible past, present and future means of transportation and their development. Any systematic approach to the problem will require this type of consideration.

It would be very useful, though, if we tried to concentrate on the automobile, as an example of how to look at the overall problem through one type of means of transportation, which has opened many new roads for Man and created many new problems. This is why I want to explore the relationship between Man, City and Automobile, as a case which will illuminate all other

related problems of Man's movements in terrestrial space.

I was a small boy playing in the small green square in front of our home in Athens when I first met the first automobile; from that moment on the small square was never the same, it had been spoiled; today, it is a bus terminal. I used to enjoy the automobile when I was inside it, but it frightened me when I was outside, and it still does. And I, myself, am no longer the same. At that time I was a small happy visitor of the City, and guest in an automobile; today I am responsible for what happens to the relationship of Man, city and Automobile and I am not at all happy about it.

This is what I want to concentrate on: the welding of these three elements - Man, City and Automobile - into one system; the advantages and disadvantages of this system; the problems that are created and the chances of solving them. I will concentrate on the automobile as this seems to be the element that upset an age-old balance and after all, we are at its birthplace as a great force in cities.



The Automobile Harms The City and Hurts Man

One day the automobile entered the city and things began to happen.

First, the automobile interfered with the human scale and spoiled it completely outside houses and buildings. Since it is large, hard and increasingly fast, it has crushed Man who is small, soft and slow-moving. The result of this cohabitation is that Man has abandoned his roads and squares and fled from the danger inside, along and below his buildings.

Our life is in danger in the streets. Almost 50,000 Americans died and millions were injured last year because of the automobile. Because of this danger people are frightened even though they may not consciously admit it; they do not enjoy walking in the streets and children are held by the hand, in this way being taught that they live in a dangerous habitat. For the first time in history Man is safer in the countryside than in the city.

Second, the automobile creates problems far beyond the space covered by its steel body. It makes a disagreeable noise and it contaminates the air. People, therefore, do not simply hide inside buildings, they also close their windows and draw their curtains. The automobile and the city are radiating an evil influence and Man is turning into a troglodyte.

Third, the automobile has turned people out of the city and has dissolved the social tissue-by increasing the

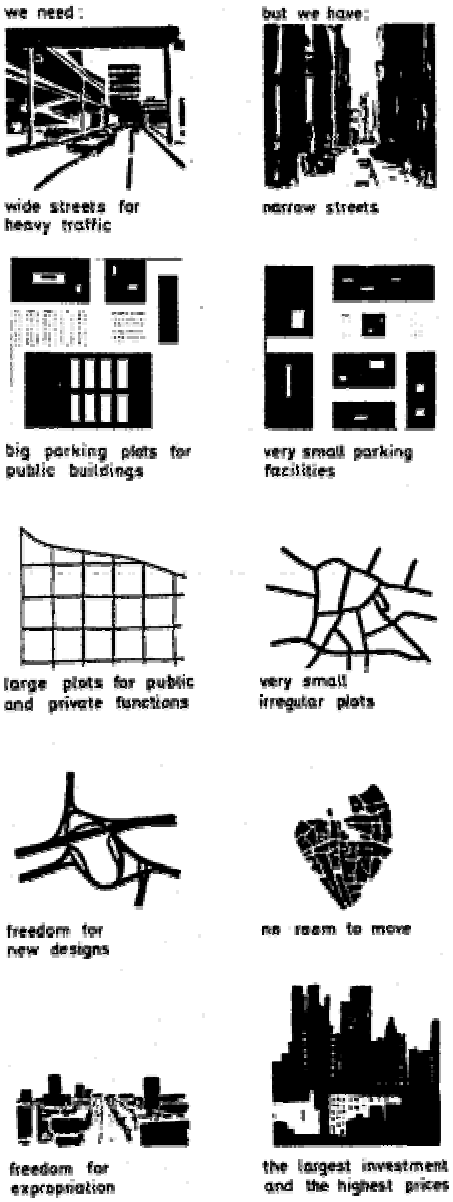


Fig. 2. In the growing city.

distances between people. We claim that people today are closer to one another than they were before; but who is? Not the children below 16, not the aged and infirm, and not the destitute and they constitute more than half the population even in the United States. Social contacts are not as easy as before for a great part of our population (Fig. 1).

Fourth, the automobile has brought much greater parts of the countryside into contact with the city (and is bringing more every day as operating speeds rise) and many more people into the cities. In a way that reminds me of what happened to the lady with the skunk. One day a skunk appeared in her basement and she phoned the fire chief to ask what she should do to get rid of it. He advised her to place some crumbs of bread leading out of her basement to the nearby forest for the skunk to follow. Next day she called again and the fire chief asked if the skunk had gone. "No," answered the lady, "I now have two." This process of more people coming into our cities is a continuous one and therefore our highways and our streets are always tending to be insufficient.

Fifth, what is happening on the highways is even more intense in the city center where the greater load of traffic is concentrated. Under the impact of the automobile and the forces it brings into the city, the center is breaking down, yet we continue to overload it. If we have a generator that can perform up to a certain point we will not insist on doubling its performance even by remodeling it; we will add another one and another one, to achieve our ends. If our automobile is built to run at 100 miles an hour we cannot expect it to run next year at 110, then at 120 and so on. Yet in our cities we insist on expecting greater performances from the same center every day, and we fail. We are not being very wise (Fig. 2).

The result of this impact of the automobile is that the city has been harmed, that Man is suffering because of the changes in his habitat and that he is no longer the same person. Automobiles chase the weak ones away and give the opportunity for a "discharge of aggression and the expression of other unconscious intent" to quote Dr. Karl Menninger.

Let Us Punish the Automobile!

When, at the beginning of our century, the automobile came to the city, it was an unimportant factor. But since it entered our cities as a new Trojan horse, it has managed to conquer them all, just as the old one conquered Troy. Now the automobile is the conqueror and prospects are that it may become a dictator because of increased numbers and improved performance. The result will be

that the city will suffer even more from much greater pressures and that Man and his values will be completely crushed.

We are beginning to understand how critical this situation is, and some people have begun to see the automobile as the cause. The first cries are being heard: Let us eliminate this third part which has broken up the legitimate love-affair between Man and city by its intrusion. These cries assume many forms, including the hope that mass-transportation media can save the situation. What we really do is follow the advice of the old roving dentist: "Tooth hurts, tooth must be pulled."

But if we are to start by elimination, why not eliminate the other correspondent of the triangle: the city. This thought has already occurred to some, and the most characteristic utopias strongly recommend that we return to the small settlement. Such ideas tempt me to propose the elimination of the third party, presented as the innocent by-stander, Man himself who, after all, created both. Then we will not have to worry at all because of lack both of protagonists and of subject.

The time has come for us to understand that negative attitudes and utopian escapes do not lead anywhere. Rather than just look at the problems that the automobile has created, we should at the same time try to understand its real contribution to our life, and then try and see if there is any more reasonable solution for our problem.

The Automobile Helps the City and Benefits Man

If we change our role from prosecutors to defense attorneys , we must state that the automobile has had many positive influences.

First, the city, under the impact of all forces of population and industry has grown beyond the limits allowed by the normal natural mobility of Man, even assisted by horse and railway, and has become very dense and unhealthy; the automobile has helped it to spread and breathe. London, which had a density of 85 persons per acre in 1900, has 27 today. Several capitals which had an average density of about 80 persons per acre in 1900, now have 30, or 2.5 times less.

Second, the automobile enabled Man to go anywhere he wanted, whereas before he could cover only a mile by walking, or a few miles on horseback; it enabled him to travel not only from station to station as he did by rail but from any one point to any other point on this earth not separated by insurmountable obstacles. For the first time in his history, Man has achieved this complete kitchen-door-to-shop (any point to any other point) mobility without having to put forth any physical effort (since with

this effort he could do that earlier on horseback).

Third, the automobile has brought Man into contact with the countryside again, a contact that had been almost completely lost in the big over-congested cities. Man and nature have come into contact again in suburban gardens, in forests and beaches.

In such and other ways the automobile has given new spatial dimensions to the life of Man and has opened to him horizons which were out of reach before. In the past, on foot, he could contact any one of 30,000 inhabitants; but now he, with his whole family, can contact any of about 7,000,000 persons living in his vicinity. Within ten minutes he can now also visit an area of 675 sq km. (26l sq. miles) as opposed to an area of 3 sq. km. (1.2 sq. miles) in the past. His opportunities for contacts in space have been increased 225 times.

Let Us Save the Automobile

Here the defense attorney must try to reach some conclusions. First he should ask the jury to imagine what would have happened to our cities if there had been no automobiles but the same population, income and industry. In many ways this assumption is unreasonable because I do not know whether we could have reached the same income level without automobiles. It is reasonable to assume that we could not, since our great personal mobility has contributed to economic progress.

Let us assume, however, that this were possible. In such a case our dependence on mass-transportation means would have been very great. Our society would have been much more dependent on one transportation system-as opposed to the millions of private system we have today. The density would have been unbearable, probably two to four times higher than in 1900, and five to ten times higher than at present. People's lives would have been gradually conditioned by the government agencies. We would certainly be moving backwards.

This is the reason why we now have to reach the conclusion that, since the automobile has helped the city to grow normally, we must save the automobile.

We have, however, one more reason for trying to save the automobile. If we do not, the average citizen of the world will do it, because the automobile has given him a much greater freedom of movement over wider areas, and he is not prepared to lose this freedom any more than any other he has gained. We have very good proof of Man's dependence on the automobile in the works of those utopian writers who can be called escapists, since they dream of the return to the very small city. Both Aldous Huxley in *Island* and B. F. Skinner in *Walden Two*, speak

of automobiles. Two are specifically mentioned in *Island* and several in *Walden Two*. Even in utopias designed to use fewer machines, automobiles, but not trains are essentials. They cannot be abandoned any longer.

If, however, the automobile is saved, it will be at the expense of the human scale, the health of Man and other important values, since this is the very strong trend of evolution. With this understanding we reach a more reasonable but very crucial decision: we cannot eliminate the automobile, but also we cannot allow it to eliminate the human values of our cities.

Our real challenge is to act in such a way as will enable us to retain the benefits of the automobile without letting it harm Man in any way; or in other words, to maximize the advantages and minimize the disadvantages that it creates for our lives.

In some ways, the automobile fills the role of the horse, but much more intensely. Man was able to tame the horse and minimize its disadvantages by turning it into his obedient servant. Why not try to do the same thing with the automobile?

Towards A New Synthesis

If this is the situation, if we have to save the automobile but also to control it, we must ask ourselves whether we have been right in concentrating our attention on the automobile only. In such a case we will recognize that what went wrong is not the auto-mobile, but the system of Man-City-Automobile. As one proof, I will mention that most of the traffic accidents are due not to the automobile but to the fact that pedestrians and automobiles are allowed in the same space (20% of the deaths in 1966 are of pedestrians) and a great number to clashes of automobiles coming from opposite directions or going off the road to collisions with railroad trains, bicycles, etc.

Mankind has not failed to build the right type of automobiles-this is a relatively minor failure-but to build the right type of a system of Man, city and automobile. This is our much greater failure.

If this is the situation, we need to re-evaluate all elements and all their aspects in a systematic way and arrive at a new synthesis, that is at a new system. At this moment we have to remember that this is the great task ahead, to create the new system of Nature, Man, Society, Shells and the Networks of which the roads and the automobile represent the more important and influential one.

First we must ask ourselves whether we can eliminate any one of the three elements which do not fit properly into our system: Man, city or automobile. We have answered

this question in the negative for the automobile, and I do not believe that we can argue about the other two.

The second question is which one of the three elements should be changed so that they can become compatible. I do not believe that we are entitled to try and adapt Man- he is already running the danger of being adapted to lose his freedom and his rights. After all, he represents the oldest industrial product of the three he has developed after more than a million years of trial and error versus 10,000 years of the cities and less than 100 years of the automobile, and he is our best client! It is more reasonable to try and remodel the two younger elements, the city and the automobile, and we can do so both for their benefit and for that of Man.

Our first basic point is that we have gained in mobility, but only under certain conditions, and over long distances-the farther we go, the higher the average speed- and we have lost our freedom to move over small distances. The answer then seems to be: to increase the speeds even more over large distances and to decrease them over small ones; or remove the automobile from the small scales where Man should be able to move freely. These considerations will lead to new types of neighborhoods and communities which are going to be served but not crossed by automobiles (practice has shown that they can be up to 1000 yards long) and in any case, to the separation of the paths of Man and automobile. The fact that we are going to need even greater numbers of automobiles should not lead to the incorrect conclusion that we must live with them in the same space. We have to separate our paths for a happy coexistence.

The second point is , that between the pre-automobile over-congested big city and the thinly spread present one, there is a reasonable, balanced solution: higher densities within small communities which should be compact to allow for proper functioning; no wasted land; and as many green areas as possible within the city, interconnected into a system allowing every part of it to breathe normally.

The third point is that once we gain contact with nature, we should not spoil it. Going a long way outside the city to build residences that pollute the small lakes and rivers does not make sense. We should only move to the extent that we do not spoil natural, irreplaceable resources. We must either stop the pollution of the air, or control the polluting factors in tunnels, where in any case the automobiles will be able to move much more freely.

Fig. 3. Urban renewal. Eastwick, Philadelphia, Pa., U.S.A. (1960).

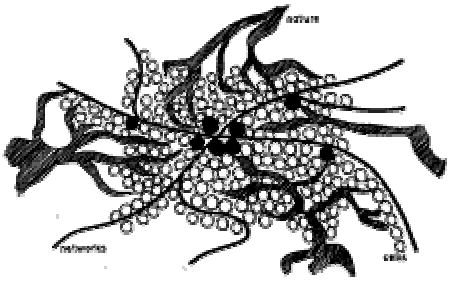


Fig. 4. The human city.

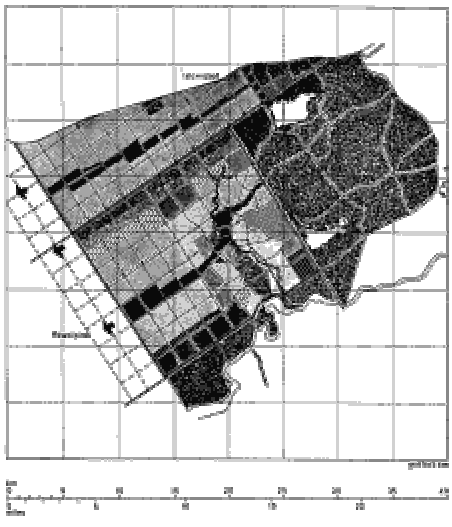


Fig. 5. Master plan of the metropolitan area. Islamabad, Pakistan (1960).

A New Balance Between Man, City and Automobile

The points already made show that we need a new conception for the overall system of Man, city and automobile, a conception which will lead to a proper balance between these three clashing elements, a balance within the broader system that we have to build with Nature, Man, Society, Shell and Networks. In order to achieve this, we must first be able to set goals , and then determine the specifications of the products we need in order to pursue those goals.

Our goal is to create a human city which will make Man happy and safe, and provide him with the maximum of choices. Only in this way can we give him, in a practical, operational way, the freedoms for which we are supposed to fight. In order to achieve this, we should not, for example, reach the conclusion (as some people do) that the ratio of automobiles to people is going to level off, because their usefulness will gradually become questionable in over-congested cities. We must ask ourselves whether we do not need more automobiles; even perhaps, as I believe one automobile for every citizen young or old, poor or rich. If so, we must specify the city and the automobile correspondingly. Only then will the goals define our further action.

Personally, I believe that we need a much greater number of automobiles. Theoretically, we need one automobile for every living person, child or adult, healthy or unhealthy, including all disabled people. I do not mean that we should have the same type of automobile for everyone and I certainly do not mean that they should have the same speeds, the same requirements , or even drive on the same roads. What I am tending to develop is the necessity for every person to have his own vehicle. This vehicle may differ completely from one person to another; it may serve in a different way. But today we can see that even small children want small automobiles as toys, and we can certainly understand how much they will be assisted in their development, if in the earliest years of their life they do not only learn to crawl and to run, which we always wanted them to do for better human development, but also to guide their own vehicles. Theoretically, therefore, we should prepare ourselves for a city in which every person will have his own vehicle, and in which special vehicles will exist for the transportation of goods-probably without any drivers, since I do not see why we should think of the need for drivers of goods in an era where we can automate so many of the processes.

Once we have set such goals we can proceed and see how we should create the right type of city, at every scale, and the right type of automobile for every scale and purpose. Such considerations , combined with the findings about our communities, lead to two courses of thought about automobiles. One is to have many sizes and types from

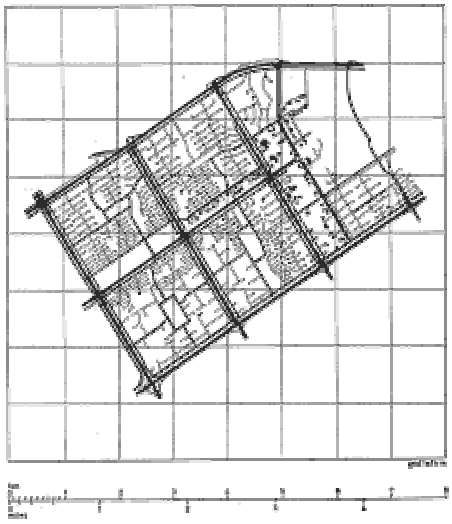


Fig. 6. Circulatory network of Dynametropolis, the first four sectors (communities class V), Islamabad, Pakistan (1960).

the small, individual, slow automobile, to the large, common, high speed one, utilizing all sorts of different road systems. The second is to have one standardized capsule of an automobile which can perform up to a certain level of speed, and can become a part of a major vehicle-container which will reach much higher speeds over special roads.

I do not believe that we can at this point choose the course we should follow; but if we can set proper goals without being confused by the present crises, we can hope to determine the proper specifications and eventually reach very satisfactory solutions.

In order to be practical we can set two separate goals: the immediate and the ultimate one.

As an immediate goal, I can see us changing the small areas of our neighbourhoods in such a way that we can re-establish human values in them, let our children run to school, let ourselves walk, create better human surroundings and enjoy them. Let us recreate the cells of urban life in a human scale

This effort has already been going on for years now around the world, in experiments with communities where the movement of pedestrians are separated completely from the movement of automobiles. These communities are successful because people can again use their own bodies in the proper way, and can intercommunicate without the interference of machines. Children can play in the streets. Neighbours can meet together and gossip, and in this way the community becomes much better for the individual from the point of view of his development and his social contacts

Such a community is already under construction in the United States. It is the Eastwick community in southwest Philadelphia, in the largest urban renewal project in the United States. Although only a part of this community is already built and inhabited, a visit to it can demonstrate the values of the implementation of such a system (Fig. 3).

As an ultimate goal, I can only see the complete separation of all roads for automobiles and men at different levels in the same way as nature has done in its most developed organisms, in mammals. We must create underground systems for automobiles running at much higher speeds and leave the surface of the earth free for Man and his human development.

If we think of what we can learn from Nature, we will see that in natural organisms the systems of transportation and communications are below the surface. The higher the speed of transportation and movement within the natural

organism, the deeper the lines of transportation are buried. In the human body, for example, and in the other mammals, only capillaries are on the surface of the skin. If the speed of the blood in the capillaries is considered as equal to one, it increases in the arteries and veins as they go deeper into the body, until in the central aorta, the speed of the blood is 400; i.e., 100 times larger than in the capillaries. If we think reasonably, we will understand how rational this is. There is no reason at all to expose our transportation system on the surface of an organism. The greater the importance of the system, the deeper it will have to be buried in order to be more protected and in order to avoid, and here I refer to the cities, all problems of interfering with other functions, such as the networks of water supply, sewage, etc.

No matter how this problem is studied, we will see that the ultimate solution can only be to take all our systems underground. In order to achieve the highest possible speeds with the maximum economy of the most direct connections, we can only go underground, where it is possible to make all possible connections from point to point without having to go around comers or avoid other obstacles, etc.

If we can achieve this, then our cities in the future will resemble a system consisting of cells, each one of them being a human community, infiltrated by transportation systems, first on the surface and then underground (Fig. 4). Such cities are already under construction, the most typical example being Islamabad, the new capital of Pakistan (Fig. 5). Islamabad has been conceived as a dynamically growing city with systems of transportation allowing for speeds of up to 100 miles on the main axes. It is separated into communities of 2,000 x 2,000 yards within which speeds are much lower, until the level of the pedestrian is reached in small streets which do not contain automobiles (Fig. 6).

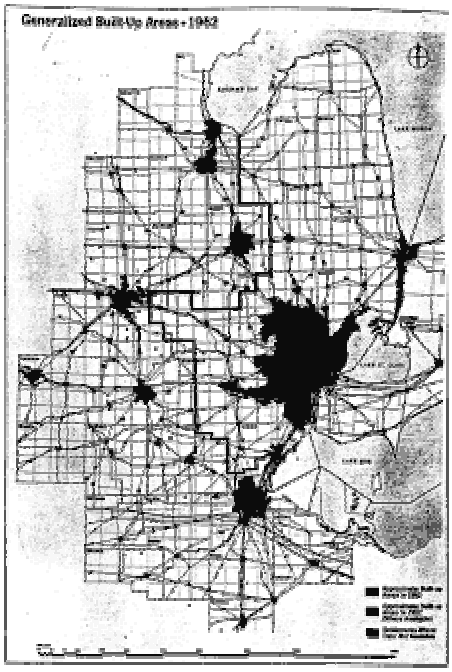


Fig. 7. The Urban Detroit Area, consisting of 37 countries (25 in Michigan, 9 in Ohio and 3 in Canada), shows an urban system spreading in space along the main axes of water and land transportation. Such a system creates many problems, especially in the central areas of cities and towns. The whole system can no longer grow on this pattern.

Fig. 8. The Urban Detroit Area as conceived for the year 2000, on the basis of the study sponsored by the Detroit Edison Company during which many thousands of alternatives for the

Starting the Process

The setting of goals and the determination of specifications is not an impossible task-if we undertake it systematically. In order to achieve this, we must understand two basic points which we seem to forget:

First, that Man, City and Automobile are already elements of one system and cannot be separated; they have to be faced as a system. Any study has to cover all three elements and their interrelationship. We are not doing this and we are failing!

Second, that because of the nature of our subject, our only way out our basic obligation is to face it as one complex problem, and not let the responsibilities be divided, as they have been up to now. If we continue to face this situation as we are doing at present, when the city is represented by the Government and the automobile by industry and nobody represents Man, we must be prepared for disasters.

We must face this problem by bringing all our forces together, by trying to carry out research covering the interests of Man, City and Automobile at the same time, by the completely coordinating action of all those who are responsible. We have to build a new system and we will never do it unless we face the problem properly.

Our responsibilities are very grave. In every country, in every city of the world, we have to save human values, to make the city function properly, to increase Man's mobility by developing the best possible solutions.

There are indications that we are beginning to understand the need for proper solutions and that we no longer limit ourselves to the element of Man only, or to the automobile, or to the system of transportation, or even only to the physical structure of the city. We are beginning to look at the whole system and this is happen in several cases. I think that the most characteristic one in the United States is the effort started by the Detroit Edison Company and Wayne State University who sponsored the developing Urban Detroit Area Research Project (Figs. 7, 8, 9) conceived and guided by Mr. Walker Cisler. I think it is quite symbolic that such an effort towards the understanding of the whole relationship was begun in the city of Detroit, and that it was inspired by a leading electrical engineer.

The example of this project tends to prove that we can predict the future alternatives for our life in the cities by predicting the evolution of their forces, and by drawing conclusions about the most appropriate structure. In this process we can recognize the possibilities for better solutions and the dangers which exist; and by our timely

future have been compared. The research team reached the conclusion that the proper development of this area in the future requires the creation of three major national axes of transportation: one running from north to south, passing between Detroit and Lansing; one from east to west connecting Canada with the U.S.A.; and one from east to west passing to the south of the urban area, conserve and ameliorate the old, and create the new areas.

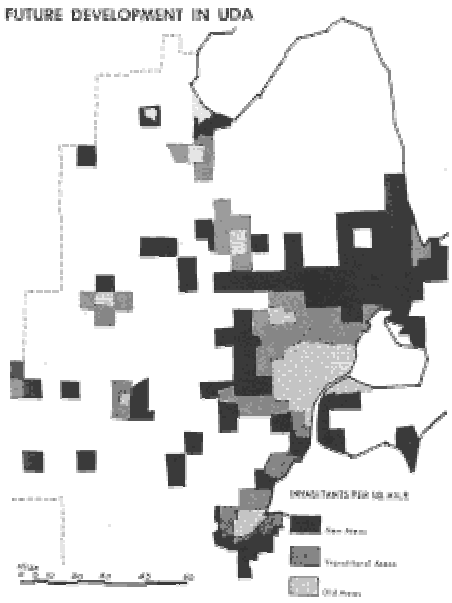


Fig. 9. Future Developments in UDA. The Urban Detroit Area in the year 2000, showing the old areas which can be conserved and developed, the transitional areas which do not suffer today, where the quality of environment can be ameliorated, and the new areas where we can have a completely new creation. The whole system can operate as one for the benefit of all urban areas.

knowledge and action we can lead our cities towards a better future.