Zeitschrift: Bauen + Wohnen = Construction + habitation = Building + home : internationale Zeitschrift

Herausgeber: Bauen + Wohnen

Band: 20 (1966)

Heft: 7: Stadtplanung = Urbanisme = Town planning

Rubrik: Summary

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Summary

Harald Ludmann, Cologne

Planning of the Centre of the new town of Cologne-Chorweiler

(Pages 248–257)

Owing to population increase, the establishment of new industries and the drop in population density in the old districts, the plan for the new town of Cologne-Chorweiler, 100,000 inhabitants, was drawn up with a complete urban structure which at the same time remains integrated with the existing structure of Cologne.
A mixed structure serves as a basis for this project just completed for a population of 15,000, which is well integrated with Cologne and the widely dispersed industrial centres of the region.
The next stage comprises the primary centre of the new town with 250,000 inhabitants and all the functions necessary to the equipment of an autonomous city.
Stress must be laid on the very strict line of approach taken for the planning of this new city, which is particularly meritorious during a period of tentative experiments, when old conceptions are being overturned to be replaced only by opposing solutions that are extreme and unutilizable.
Now then, there exist certain town-planning elements which have to be managed in accordance with the growth of the dynamic structure of society as a whole. In place of a concrete volumetric solution, it is necessary to provide a model structure to serve as a framework for later stages, which can in externals remain flexible. This fact offers application possibilities that are quite modern in character and results finally in an urban agglomeration comprising examples of architecture from many periods.
The infrastructure of this assembly plan, for example, makes clear such a development: The initial peripheral accesses, without cross communication, have evolved into a system presenting connections among the different functional domains. The problem, then, is to find a balanced relation among the different elements determining an urban structure and their reciprocal values: that is to say, among intuition, engineering and research. The siting of the zones to be built over depends on topography, the desired density, the directions of the prevailing winds, as well as the economy of the infrastructure (traffic and services network).
We propose the solution taking the form of a linear city made up of a zone along the Rhine, where there is located the heavy industry which must be given a chance to expand, a green zone 1.5 km wide with sports and recreation facilities, and, finally, on the west, a built-up zone accommodating residences, workshops, cultural facilities, schools and the tertiary sector. (1)
The utilization plan of the territory (2) shows in detail the built-up zone, which is polyvalent. Now then, account has to be taken of the difficulties opposing the realization of such a pilot scheme (ex.: regulation of ground occupation, financing, etc.).
The traffic plan, the plans of the city with its different levels as well as its skyline are based on a linear pedestrian zone in the centre, which radiates into the different residential districts, along which there are sited dense mixed types of construction, housing service installations (shops, repair shops, community institutions, offices, secondary schools and colleges, and also housing). The nearby residential zones are designed for a high density; they enjoy installations satisfying all daily needs. Deliveries are effected on the periphery, but they penetrate the centre on a lower level, where the parking sites are located.
The centre is enlivened by a maximum number of points of meeting and functional interpenetration; this applies to the pedestrian zone, but also to private and public vehicular traffic: The access routes to the peripheral districts, the interurban roads, as well as the public transport routes are all tangential to the centre.
Well distributed parking sites on the outskirts feed the central zone adequately (no preferential locations).
The public transport facilities (rapid transit trains, Federal Railways, buses, taxis) are concentrated in a nodal zone, which facilitates changes from one line to another; the location of this transport node requires that suburban residents, when entering the city, cross this nodal zone.
The basic studies, whose results have contributed to the Cologne-Chorweiler plan hat a particular bearing on the following projects:

- technical data for the structuring of the built-over areas
- studies of the commercial zones necessary to the primary centre
- dimensions of the surfaces occupied by traffic.

Planning of the Défense region in Paris

Planning: Etablissement Public pour l'Aménagement de la Région de la Défense (E.P.A.D.) in association with P. Herbé, R. Auzelle, R. Camelot, J. de Mailly and B. Zehrfuss

(Pages 263–266)

In a prolongation of the axis extending from the Louvre towards the Etoile, near the new U.N.I.T. exhibition hall, there is being planned a new city-centre in Paris. It comprises 5,000 inhabitants, 800,000 sq. meters of office area, 50,000 sq. meters of sales surface, parking facilities for 23,000 cars and a green zone measuring 25 hectares. In the northwest zone of the complex there will be sited public buildings, sports and cultural facilities, organized about a large open square extending from the exhibition hall to the highest building of the centre (tower 200 meters). The convention hall will also be located in this zone.
The plan calls for a rigorous separation between vehicular traffic and the pedestrian zone, which is located on a raised level placed along the longitudinal axis and slightly inclined towards the Pont de Neuilly.
Deliveries are effected on the lower level, with parking facilities underground.
The offices are distributed, aside from the tower, in 25-storey buildings, apartments in 5- to 10-storey blocks, also comprising shops and stores.
The complex is tied in with the urban and interurban transport systems. Near the exhibition hall are the railway stations (Paris, Versailles, La Folie), the metro station (in line with the principal axis) and the bus terminal, the bus lines being perpendicular to the axis (4) (5). The motor traffic axis forks at the bus terminal: National Highway 13 and National Highway 192 (7).
The regional traffic network describes an oval about the complex, and transverse links feed the various accesses (8). This network is directly tied in with that of the surrounding territory.
The vertical organization of the traffic system without grade crossings ought to permit a better functioning of long distance transport and also facilitate access to the centre.

Shadrach Woods, Berlin

The man in the Street

(Pages 268–276)

1. Discovery of Architecture
In choosing to call this part of the lecture "Discovery of Architecture" I had in mind an admirable book, written in London in 1584 by Reginald Scot, called "Discoverie of Witchcraft". I generally use the word discovery in the same way that Scot used it: meaning the uncovering, the exposing of the true meaning of something. In his book Scot exposes and denounces the chicanery, the flim-flam, the sleight of hand and the misdirection of sham witchcraft. I feel that we might, just as profitably, look into the razzle-dazzle of fake architecture.
I have some illustrations from Scot which show, in a fairly sophisticated state already, the same sort of trick and illusion which is still commonly practiced at carnivals and exhibitions of what is claimed to be magic. We could well show a nearly parallel set of architectural tricks and illusions, some of which were also praticed in the 16th century.
The first slide shows you what you need in the way of equipment to drive a bodkin through your tongue or into your heart without apparent hurt. The second slide suggests how your may appear to cut your nose, arm, etc. Both of these are accompanied by instructions which remind you to have a real knife or bodkin about, in case of verification. In the third slide we are shown what is required to re-enact the beheading of John the Baptist as often as you like. You need 2 men with long and supple necks and a table with 2 holes in it.
I am sure that you all can think of architectural correspondences for these tricks. I'd rather not be too specific, being primarily interested in illustrating only one of the meanings of the word discovery. But Scot exposed the fraud only in order to clarify the real issue – he discovered it – and our purpose here is not simply to show that or how it's all done with mirrors, but to try to find out something about architecture, what is real when you clear away all the fakery. What is it today? (Incidentally Scot really believed in spirits, as distinct from prestidigation. And I think we believe in architecture, as distinct from fancies and fashions.)
What is our concern, as architects? In a recent editorial in one of the thick, slick, architectural reviews I read that wie could soon expect the rise of a profession of "environmentalists", which would replace our own profession. This illustrates the growing concern of architects, and it is all to the good. I don't think it is important, whether architects be called, or call themselves, "environmentalists". I am convinced that the architects in our society are fully conscious of their responsibilities. They realize that all of our environment is their concern.
It is clear that the built world is our society's natural habitat. All our environment is designed, at some stage, by some one. Since environmental design is the province of the architects, then the world we live in, the built world, is the architect's responsibility. A corollary would be that all building is architecture (or else there is no architecture), and therefore anyone who ordains and makes a building is acting as an architect. Whether he is good or bad, brilliant or dull, honest or dishonest, conscious or unconscious, is beside the point. Whether his architecture is positive or negative, open or closed to the society's evolution is very much to the point.
Architecture and planning, interior and exterior, from the small to the great, form an entity. The design and, to some degree, the control of our environment, (for it must be controlled), depends upon us. It is the architect's responsibility and no one can relieve him of it, although others may seek to assume it, or to usurp it. When these others succeed in taking on the architect's responsibilities and in fulfilling his obligations, then they become architects. Unfortunately, they are often not quite conscious of these functions and responsibilities and they become, therefore, very bad architects. They are children, apprentice sorcerers, wielding powers which they do not understand.
Now, our function is to understand and to use those powers which are inherent in the design of buildings (creation of form). We know that the design of an environment can and does influence the culture. We can all think of examples of man being formed and deformed by his environment. We know, for instance, that the United Nations has a better chance than the League of Nations, because it has better buildings. The League obviously never had a chance, as you can see if you look at their building.
I believe that we can and do influence the society at all scales of human association, through the form and the organization which we give to the environment. We can encourage or discourage certain forms of association simply by making a place for them to occur, unconsciously or self-consciously. We can make places which attract or repel; we know how to make these. We can partly control the rhythm of activity through design. So we can, to a certain degree, influence the forms of human association and, through these, influence the evolution of our society. In fact, we cannot fail to influence the society.
I think the most important question the architect asks himself (if he were inclined to formulate his philosophy and to ask himself questions) is "Why", or "What for?". To what purpose is this being designed? If we cannot find the "why" and cannot fit a building into a philosophy or into a system of judgment, our approach to it becomes, in our own terms, arbitrary. We have to resort to gimmicks, to prestidigitation.
I believe that architecture, like poetry begins with the discovery of hidden relationships, of meaning. And I think that meaning in architecture, as in poetry, cannot be abstract or absolute. When we talk of meaning, which is the philosophic content of building, we are talking of communication, for meaning would be meaningless if it were not understood. Then, we see that the essence of meaning is communication, plus comprehension. In other words, what I am saying is that architecture, like any other poetry is an art and that art is functional, as Malraux and many others have said. (Including Shakespeare: "It holds the mirror up to nature".) The function of art is illumination. And Shakespeare's mirror is a discriminating tool: it doesn't just pick up everything like a sensitive microphone, which would produce cacophony. It is selective, and picks up, and amplifies, or distorts in some other way that which is meaningful or capable of conveying meaning, and gives it meaning through this distortion. The meaning is an illumination of society, which, when it is fed back into the society, produces a reaction. I would not argue whether this is good or bad because, as is everything in this world, it is both good and bad. But I would argue that this is what happens, and that the function or art is to produce change, and, what is positive is that which encourages change, while that which discourages change is negative. This may appear to equate change with good; such is not my intention. I equate change with life: the principle of life is change.
The principle of life is change and when we build we must build for change. By this I mean that we must as far as possible avoid taking those definite options which stifle the possibilities of change. Since we don't know the future we must build for today.
I don't think that the answer to "why?" can ever be "why not?". Anyone who gives this answer is simply trying to fool someone, usually himself first of all. It is a fool's answer. It has led us into a most distressing visual chaos where each architect strives to express his own self, supposing that somehow his petit four is going to stand out in a sea of equally revolting (or tantalizing) pastries.
An I do believe that you must, as some level of consciousness, ask the question, "Why?". It may not be possible, or seem desirable, to verbalize about the meaning of architecture in specific problems. You may not be able to articulate your answers to the question "why?" in any other way than through the design of the build-

ing, but I think it helps to clarify our thoughts about this question, and the intellectual processes engaged in formulating an answer in words may help us to form the building. After all, architecture is first of all an organizing process. And the more clear the ideas became the easier it is to bring order and clarity to the building.

To get back to the discovery of architecture, what it really means here and now is the discovery of the meaning of our world, which is the city. All of our problems are problems in urban design. What is a city? Our grandfather – economic man – would say that it is an association of men who come together to coordinate their activities for mutual benefit. We seek to give this association of men greater richness by saying it is an association of individuals. When we speak of human activities today we mean the interaction of autonomous individuals. There is a new man, with new problems, who lives in a new world. We are concerned with discovering how the community of individual and collective is affirmed in our time, how to put the urbanized individual and his environment into harmony, how to reconcile the natural and permanent human scale with the ever increasing scale of society in our time. The problems which we face in making our world are new, our society is new, our perception of the universe we live in is different from that of previous cultures. We realize, for instance, as Herman Weyl said (in 1921), that "The scene of action of reality is not merely a three-dimensional Euclidean space, but rather a four-dimensional world in which space and time are linked together indissolubly".

Now, if we conceive of the society of individuals as being completely open and non-hierarchic, (and this is our present ideal), then we cannot seriously consider using allegorical buildings as symbols of authority. We are not even sure that authority can be conferred or how, much less symbolized. No more can we think of planning in the static terms of 3-D space, when we realize that we live in a 4-D world.

All of our problems are problems in urban design. We are not primarily concerned with the making of objects in space, nor with the enclosure of spaces, however significant these may be. Our concern is the organization of places and way for human activities today and, to the extent of our knowledge tomorrow. I believe we usually proceed in this fashion: the creation of an environment begins with a method or way of thinking about organization in a given place at a given time. Next comes the realization which lies in the discovery of a system of relationships, and finally the system, or parts of it, achieve plastic expression. Of course, often this process is not so clearly a step-by-step sequence; there is considerable feedback involved in it from one step to another. And I would like to insist that I do not think the plastic manifestation, or result, is incidental in this process. It is, of course, the most important part, since it is all that remains as evidence of our intention. I would also like to insist that I think it must fit into this sequence and that it would be meaningless taken out of its organizational context. I don't believe that you can ever begin with the discovery, or invention, of form.

If all our problems are problems in urban design, as I believe they are, what is the best approach to their solution? I am saying that I think our approach is first of all organizational. The scale of human relationships today is such, it is so vast and they are spread so thin, that the visual disciplines alone are no longer adequate to express these relationships. A composition becomes invisible when it gets too big. (It then might become a system.) When buildings get too close together, they must either lose their unique quality or destroy each other in a welter of visual chaos. I insist on this visual aspect of architecture, but the fact is that we experience and use buildings in many ways, we don't only look at them. In fact, we look very little at them, unless they call attention to themselves, often through being queer in some way.

New, or at least other systems than merely the visual, are required to illuminate those relationships and forces which are the structure of our cities. Mathematicians and physicists went beyond, broke out of, Euclidean space when it became inadequate to their disciplines and so, I think, must we call upon the entire range of senses and intellect and emotion in order to create the environment of our society. In other words we have to climb down from our ivory towers, where everything could be reduced to a visual appreciation. We need to reintegrate the real world where buildings are used and are required to work sweetly.

2. The man in the street

Candilis, Josic and I have been working together for about 10 years. I should like to draw some conclusions about where our attitudes towards planning and architecture may lead us. Perhaps it will be more interesting if I begin with my own convictions and conclusions and then go on to show some slides of the work which has, in a continuous feed-back process, both derived from and led to these attitudes. I shall be dealing largely in banalities, and if the ideas which I have to present are not spectacular it is because I have a growing suspicion that the spectacular is of very little use in the field of human habitat and urban design. I will try to remain in the realm of the possible, in which I believe the only possible realization of visionary architecture lies. Im indeed there can be any such thing as visionary architecture, then surely the real visionary is he who can see clearly what is possible today. This is a more rewarding domain than that of idle speculation. It is probably unfashionable to speak of the immediate future as not being, in most important respects, radically different from the recent past. The fact that people will continue to be born with feet, rather than wheels or wings, is perhaps disappointing and may indeed constitute an act of disloyalty to the most sacred trends of modern planning and architectural thought, which seem to proscribe any scale of speed under 60 km/h.

We often speak, as I have done just now, of architecture and planning or of planning as distinct from architecture. For the sake of clarity I suggest that we consider these as being parts of the same process. I have often wondered, as I'm sure you have, just what on earth a town planner is. Why should he be set apart, distinguished from other architects? Why are not all architects also called town planners? I believe that we all are, for of course, every addition to the city of man, no matter how slight, is an extension of that city. In this sense all architects must be planners, and so they always have been.

But it is the other half of the tandem which is worrisome. For the planner, behind a façade of sociological, technological and economic mystification is really dealing, often in a most irresponsible way, with the elements and disciplines of architecture, or of the built world, if you prefer. Indeed it would be strange if he dealt in any other terms, and it is strange when he does as, for instance, when the city is considered as an abstraction in terms of different zones or compartments for different activities, as though the activities of man could not coexist; or when the tracing of a road, which is after all only a thin crust of asphalt, is considered as an aesthetic event of more importance than any decisions concerning the quality of our physical environment.

I think it is time for us all to realize, that planners really are architects and that they should assume responsibility for their decisions. We and they should have a clear idea of the quality of physical environment which will be the only tangible result of those masses of statistical analysis, of charts and graphs, and of zones and densities, of roads and streets. In simple terms: what does it look like and what does it feel like and how does it work? (if it works). As every architect knows, these questions are the important ones. They should come before political opportunism and financial expediency.

Now, I am not trying to make a case against planning. I am confident that the need for town planning, on a fairly large scale, no longer has to be demonstrated. It is the direct and inevitable result of massive urbanization. However, I am arguing against the dehumanization of our environment. I am arguing for the kind of planning which would deal with the city as habitat to begin with and then go on to the means of establishing the best conceivable environment. I am also saying that architecture and planning are the same process and from them results the physical environment of an urban society, and that the environment directly influences the culture. As Le Corbusier said: Architecture and planning form an entity. And together they constitute the legitimate means of acting on the environment.

All here are concerned with problems of urban design, a handy term which includes architecture and planning and all allied disciplines. Urban design is the design of cities or parts of cities. Fortunately it is unlikely that any of us here will ever be burdened with the impossible task of designing a city: something which is clearly beyond the capabilities of any man or team of men working at the same time. The dream of a city springing fully-blown from the brow of the god-like architect will never be realized, and I think that is all to the good. A city is a living, and therefore changing, organism. Or else it is a dead museum piece like Pompeji. Even Venice, which often seems like a furnished room in a very old building, changes constantly.

We are all principally concerned with building, with destroying, re-building and extending the city. I believe that this means far more than the mere solving of intricate hypothetical problems of traffic (to which in fact there are no solutions), or even of transportation. It is far more difficult than localizing various activities in different zones by decree. It is probably more simple than these simple-minded speculations and it is certainly much harder to comprehend.

Our tasks are multiple and involve us, for instance, in research into the techniques and delights of standing still as well as into the techniques of hurrying about, in building as well as in diagramming, in indefinable well-being as much as in measurable efficiency, in tranquillity as well as in activity, in hope as well as in reality. Hope is enduring, reality has usually fled before we achieve an understanding of it.

Every design that is made, whether for a table setting or for a piece of furniture, a building or an urban sector, is meaningful in terms of the society for which it is intended. It is often said, usually with regret, that the 20th century has not found its style, which means that it hasn't yet assembled a unified vocabulary of visual communication. I find this is in no way regrettable; on the contrary such a vocabulary could only accompany a stratification of society, a congealing of cultural activities and of philosophical attitudes to a point near zero entropy, where all is in order and everyone in agreement to a large (and impossible) degree. Such a golden age would certainly leave most of us as hungry as Midas.

No, this lack of style, as I see it is not a negative but rather a positive quality of our time. Many possibilities are open to us and we try to leave the moment of choice as late as possible, in order to avoid limiting our potential. The choice of one way of course implies the exclusion of other ways. Naturally when we build we have finally eliminated almost all the other choices. I am sure that one of the characteristics of our culture is that we seek at all times to keep open as wide a range of choices as we can, within the limits of the necessities of building. The designer's dilemma consists in the determination of these moments of choice, we might call them the points of no return. We have, I am sure, all been horrified by the idea underlying the "Fail-Safe" operational technique of the Strategic Air Command*, horrified because such an idea is totally foreign to our nature, committing us in advance as it were, and irrevocably. In much the same way we were dismayed and discouraged by what seemed to be the law of mass-production which committed us to the production of an endless chain of identical objects, until we invented industrial automation, which enables us to re-establish the necessary proportion of diversity into the industrial process. The first machine was too stupid, or too simple. We needed to make it reactive for it to be of real use to us. So we had to develop the control mechanisms which can make the machine respond, and industrial production now no longer means only mass-production.

In the same order of ideas, with the same reluctance to commit ourselves and our successors to premature decisions that require taking unnecessary options, we hesitate to invest vast wealth in non-adaptable organisms or structures which, like dinosaurs, may not prove to be viable. This is an argument against the over-specialization of structures, as for instance, is the case in the current attempts to solve the problems of traffic in cities through the construction of incredibly complex, vastly expensive and heart-breakingly permanent buildings for automobiles, which plague all our efforts to make cities habitable. It is also an argument against the resurgence of the kind of gratuitons expressionism which seizes upon any and all excuses to make caricatures of buildings by making them appear to be specific to some momentary function, until finally each decision is based on avoiding any other known solution to similar problems. In the hands of a virtuoso of architecture, and in the case of monumental buildings, such efforts may prove to be rewarding. But these cases are so few and far between – Le Corbusier in the High Court and the Assembly buildings in Chandigarh is one of the few – that they are outside the realm of discussion. The usual result of such attempts to overload fairly universal programs with exagerated signification is a more or less spectacular failure of the type which makes the North American scene so uncomfortable for us to contemplate. These failures are, moreover, not merely uncomfortable. The constitute an intolerable waste of resources, both human and natural. The fact that our rapacious ancestors left us in an unreasonably affluent position in the world doesn't give as any right to squander the world's resources.

I would like to show you the development of a line of thought which we have pursued over the last years. It begins with the Team X – CIAM meeting in Otterloo in 1959 and continues through our present projects for the Freie Universität in Berlin and other projects we are now engaged upon.

In 1959 we had practically finished the building of a new quarter of Bagnols sur Cèze to house the population attracted by the industrialization of this area of the lower Rhone valley, in particular the installation at Marcoule of one of the first atomic energy plants in France. Our office had designed and built about 2200 dwellings in Bagnols sur Cèze over a period of 3 years, following a master plan made by us in the summer of 1956. At the time we were still dealing with and thinking of the city as an artifact, i.e. as an architectural composition of volumes and spaces, preconceived to correspond to a visual esthetic. The method had much in common with flower arrangement as practiced by the Japanese.

After this experience, which was surely not the worst of its kind, we became convinced that there was more to urbanism than meets the eye, more than the merely plastic arrangement of existing building types into visual groups, however agreeable these may seem. We began to look for some of the reasons and the rhymes of human habitat.

The first part of this search was embodied in an essay called "Stem" which was written immediately after the 1959 meeting at Otterloo. In this essay we tried to investigate some of the ways to group large numbers of dwellings; that is to say how to renew and extend our cities.

We had adopted or beduced some basic principles; for instance:

- We thought time – space to be more real today than Euclidean space.
- We assumed that anarchy is the goal (I mean the ideal anarchy where all the forces of human society are in dynamic equilibrium) and that the men who were our clients, the society which gave us

* This consists of sending planes loaded with live atom bombs to carry out bombing raids against Russian targets, unless they are recalled.

our mandate, was evolving toward a non-hierarchic association of autonomous individuals.

- We assumed that the world is new as well as old and that the new man in the new world would continue to invent his environment and to modify it. In other words that our only real constant would be constant change.
- We assumend that the structure of our cities really lies in our activities, in human activities, not in geometries.
- We assumed that the man in the street is the city builder and that the urbanist or town planner who is an architect is here to help him, not to supplant him. An urbanist can substitute for 1 citizen (he is equivalent) but he cannot find within his limited self the wealth of possibilities which are in all citizens. And this is not his job.

Armed with these assumptions we set out to discover and to develop an attitude and a process for planning large scale schemes. We began with a competition organised in 1961 by the French government for the extension of the city of Caën, Normandy. Caën had at that time a population of about 110 000 and was expected to increase at the rate of 5000 or 6000 per year for the next 10 to 15 years. The development for which the competition was organized was to provide for a population of about 40 000 on a area of 300 ha (750 acres). Of this about 1/6 were required for artisanat and light industry. In this proposal as in the others which I will show you, our major concern was to find a minimum structuring system, thereby leaving the maximum possibilities for adaptation.

Our approach to the problem was first to ask "why".

In other words: What was the meaning of this group of 8000 or 9000 dwellings, to 40 000 people? Dit it have any meaning? We did not consider that it had any specific content. Its only meaning that we could discover, was in terms of a fragmentary collectivity of individuals. It could be considered as a fragment of a continuous social reality, in much the same way that a Mondrian painting is a fragment of a continuous spatial reality. It was not a selfcontained unit and could not, therefore, be selfconscious.

Its real meaning was in terms of the quality of the environment, the convenience, comfort, service and advantages to the individuals who use it. Our proposal for this site was first to establish an organization which could generate and support the eight to ten thousend dwellings needed to house this new population. Since the increase was expected to cover a ten to fifteen year period, we had to find an organization which could be executed in stages, and which would be valid at all stages of growth. As a consequence of being staged, the plan had to allow for modification as the programme would naturally change over the relatively long span of development. So we had two basic conditions, growth and change, as imperatives of the plan. We took this to mean that we needed to discover a minimum structuring device which could be effective for fifteen hundred dwellings but could grow to ten thousand, which could adapt itself to changing conditions, whether these be economic, social or technological, which could be comprehensible to our clients (that they could use it and find their way about in it), and which would allow for adaptation to its physical environment. Our first approach was an analysis of the complex. We started working with two families of components, the dwellings and their ancillaries. Or, as Louis Kahn puts it, the served and the servant. Dwellings are served and supported by ancillaries which include educational, cultural, social and commercial activities, as well as roads, paths and services, etc.

We thought that if we took these ancillaries, the servants which vary from one place to another and from year to year, as determinants of a plan, they could, through the discovery of the relationships between them, bring to the plan clarity, organization and identity of a higher order than that which could be obtained through plastic or spatial arangements alone. The first obvious approach was, of course, a linear organization. A line is open-ended; it has no dimension, it can change direction at will. When we organize human activities and habitat into a linear system, the "stem" to which dwellings attach themselves becomes the generator of the cells. This "stem", then, was considered not only as a simple linking mechanism between additive cells but as a generator of habitat. It was also to provide the environment in which the cells could function.

It was clear to us that in taking this approach to urban design, in concentrating on a basic structure, we could incorporate into that structure the characteristics and the possibilities of mobility and growth and change, which would then necessarily affect the whole complex, both cells and structure.

We tried to reconcile the scales of speed of the automobile and the pedestrian and found that these speeds are, in geometric language, not supplementary but complementary, not parallel but perpendicular. They can only meet at points, never in lines. If the pedestrian is to take the shortest way from one place to another, to got straight as it is his nature to do, then the automobiles must take a longer way; they must go around. Since the normal speed of the auto is fifteen to twenty times that of the pedestrian, the automobile can go around, taking a longer way, while the man on foot goes straight. The inference here is that we can and should apply to private motorized transport (where it exists) the same principle which has always held for any public transport: it goes from one predetermined point to another, along a fixed path.

When we apply this principle of private transport to our linear association of activities, which has become a stem, we determine points along the stem where private transport can have access. The determination of these points where the automobile stops gives us logical places of entry into the dwelling complex. These are the points at which the different scales of speed meet, the places where the motorist becomes a pedesrian and where the pedestrian, can if he wishes, become a motorist. But the stem remains a pedestrian way – developing at the scale of speed of the man on foot. It is a street – not a road.

When we tried to design on these principles, we found ourselves, of course, obliged to make certain compromises. If one is to make the possibility for the change and growth a basic condition of planning, how can one draw the plan, since we expect it to change in itself even while it is being built? Now it seemed abvious to us that it would be immoral (even if it were possible) to predetermine and fix for all time the details and the form such a large scale complex would have.

It would in fact be impossible, because as soon as one starts to build it, one changes the environment, and as it takes a considerable time to build such huge projects, these environmental changes are reflected in the actual construction. This is inevitable and since it is, we thought to accept it and exploit it. Which is what would happen normally. However, for the competition we had to present some sort of image, so we showed simply how our linear organization would be disposed on the site, in function of today's conditions of natural, economic, technical climate, and how this would be if it did happen all at one. We pointed out, however, that this could never happen and that was the whole point about these schemes.

3. The designer's dilemma

This brings us to the designer's dilemma. In these projects, as in any projects of this scale which are intended to be realised over a period of time, possibly by different architects working simultaneously or consecutively, the essential problem is: how far is it desirable to go into the definition of the organization, of the space, of the elements of construction?

Architects and planners are always faced with the dilemma of choosing between present precision and future adaptability. In all we do, whether it is the organization of a house or of a region, this problem remains: how to keep within the limits of our mandate, leaving to the user the possibility to exercise his right to contribute to the creation of his environment? No mistaken enthusiasm for the plastic qualities of what we are doing should be allowed to obscure the fact that what we do has to remain permeable to change through the impact of man. If not it will be lifeless and sterile, although (or perhaps because) it is perfect. It will be beautiful but dead. I believe that the task of those who design our environment which is the built world, should not be complicated by attempts to do that which is neither possible nor desirable. The task is already so incredibly difficult in its simplest terms that we are very hard put to find contemporary examples of clearly adequate proposals for the organization of our physical environment. The task, as I understand it, is to make possible the evolution of man's activities and relationships toward a community where Le Corbusier's binôme: individual et collectif is realized to the satisfaction of the greatest possible number of individuals. This of course is a distant goal; perhaps an unattainable one. However, it is the demonstrable sense of society's evolution up to date.

William Weismantel, a planner and lawyer from St. Louis has written a most interesting account of how the legal tools of planning have been developed from word law – simple records as the Domesday book – through more detailed descriptions (metes and bounds) to map law. Weismantel's thesis of the development of Land Law – from word law through survey to map law – assumes (or seems to) that each succeeding manifestation of the distribution, description, and use of land replaces the preceding one. This may be disputed. In fact, map law does not entirely replace word law. These two complete each other. It would only lead to a sort of visual idiocy if we were to suppose that the word would be entirely supplanted by the picture. Every picture does not tell a story, it can only tell part of a story. While a graphic representation of land use may be valid at any given moment, its very precision precludes its being valid for any preceding or succeeding moment. To retain its validity the picture must change constantly as the human society's uses of land change. It would then have to be a motion picture. We can indeed imagine such a representation of past moments, with a different picture for every period under consideration, and this is essentially a recording of history. But it is repugnant to us to imagine the extension of an exclusively graphic representation of the space allotted to our various activities into the future. Indeed this would involve our making a picture, a plan or an image of a state not yet existing; it limits future development to present imagination.

Architects and planners are required by our society to organize our space and perhaps our time-space in such ways that our future extensions (wether these be ourselves or our successors) may establish within these organizations the system of relationships which best suit themselves. No one has given and we hope that no one will give a mandate to determine or to regulate in any way these relationships. To do this, it would be necessary to crystallize the social structure to an intolerable degree.

I think that the aims of man in the twentieth century are precisely the opposite. We want to dissolve all our inherited hierarchies, we are aware that no institution can really command our devout and unquestioning loyalty. We wish to determine for ourselves what are our relationships with our collectivities. In other word's we seek autonomy.

Map law and word law

Map law can give us the image of a basic organization of services and rights-of-way, the minimum structuring systems; some dimensions if necessary, that is all.

Zones of activity and tranquility, of individual and group cannot be defined within the precision of map law. The idea of individual and group can be conveyed by word but not by map. The interplay of individual and group is constantly changing. It is not a question of law – either graphic or written.

Map law will provide us with a very bare set of bones. What more is required?

The description (is this the master plan? or is it the servant plan?) of the entire city or university cannot be made, since it is conditioned by circumstances which are not yet known. What then is required? We say a basic framework, within which, or around which the university can develop (or not). The framework is:

- a minimum spatial organization to avoid chaos
- an adaptable minimum services system
- a dispensable construction technology
- an adaptable financing scheme.

These can provide a self reproducing, continuously renewed environment.

One of the functions of the university will be to renew and reproduce itself. The word is technology. Map is the syntax. Find the minimum map.

The plans or other documents which we may produce to organize the future growth of the university are really only messages which we send through time to convey our opinion about this or that aspect of the problem. They are only at best educated guesses.

In any communication system the aim is to reduce undesirable uncertainty to a minimum. The uncertainty of word law is probably greater than the uncertainty of map law. Therefore we should only choose map law to communicate those things which can support the degree of certainty which this system assures.

However, at any given time we have very little information of this nature to communicate. We are usually uncertain of our information about the future needs of men. We then choose a communications system which matches our uncertainty. Word law, if not unnaturally labored, has the desirable uncertainty necessary to complete the certainty of map law; producing, we hope, just precisely or even nearly, the required balance of definition and adaptability. We send our message to the next station in time, hoping that it may be understood – understood also that part of its meaning is a question about what the message really is (the clear completely understandable, completely understood message sent through a noisefree channel, with no possibility of error in transmission can not exist – and if it did would not be worth sending). This is not an argument for equivocation; it is simply true that a certain uncertainty extends the meaning of the message.