

October 16, 1967
Lecture 7

I want to make one announcement here, there are a number of people who haven't handed in anything. It may be people who are dropping the course or have handed in some cards and are now just auditing it or something like that but I want to read all those names out.

I just want to clear up one possible misunderstanding before I launch into today's topic. ~~These~~ The example I gave at the end of the last lecture about the Buddhist's courtyard and the fact that possible that entrance I showed be valuable because of the way in which the view was there. Some people came up to me afterwards and asked questions. Now I realize that it might have sounded that I had an esthetic intention and I meant that somehow that pattern was valuable for aesthetic reasons. It isn't at all. I just want to clear that up. There is some evidence in the fact that when a person is going into a building they are in a sense occupied by the world outside. They are kind of carrying that world - their attitudes to it with them ~~xxx~~ when their in the outside and they will carry that whole stuff with them into the building unless it is wiped off in some way. It can be shown that if you do wipe this off by what ever means it takes - then the persons involvement once he gets inside the building is much greater. I would presume - I mean that would be the only reason for being interested in that pattern that I mentioned last time anyway. That ~~six~~ sight of the ocean through that whole there might possible have the effect of suddenly breaking a kind of continuity of attitude with the result that the person's involvement would be greater once he got in the building. I do want to stress the fact anyway that I had a functional thing in mind not an aesthetic one and I will have everytime that I give an example.

Now, see there are two further reasons for my thinking that a universal pattern language is necessary. Last time I dealt with the need for a cultural memory and today I'm going to collapse the other two topics - I think there is much less to be said about them - & into this one lecture and these two topics are called Coordination and Variety. Now the best way to show what I mean about coordination is to give a whole series of examples. Now, let's take as a first example a little entrance to a London row house that I already mentioned, where the cross-section - this is a street - to the row house. This is the basement area and there is a little entrance bridge across there leading to the front door. Now, that pattern was common at one time and of course one of its functions has a very very simple practical purpose - it was to get light into the basement and since there had to be light in the basement - you had this area and you had to build across this area and that's what this little bridge was for. Now, with some row housing that is being built today, there are no basements and so there are no basement areas, and as a result this feature naturally disappears. The trouble is that that feature was carrying more than one load. It was doing & more than one thing. It happened to be a solution to bridging this thing but it simultaneously created a place in front of the front door, which was quite clearly marked as being not part of the street and yet nevertheless substantially outside the front door. And, again in a couple of lectures or a couple of weeks or so I'll be discussing a number of patterns concerned with front doors and we'll see that the provision of a place like that in front of a door to a dwelling plays a rather important part in the way that that entrance works. Now, when you rub this out for the reason that you no longer have a basement that you want to get light into and the street is there - you'll very often have a sidewalk directly in front of the house - the door opening off that sidewalk - the sidewalk is maybe no more than a couple of steps - and the area - this transition area between the public realm and

the dwelling disappears. And that function is no longer dealt with. Now, this is a very very common stage of affairs. In any society which is evolving you obviously are ~~xxxx~~ constantly faced with the situation where ^{old} ~~xxx~~ solutions to problems are being ~~xxxxxx~~ thrown out and new ones being introduced. But the difficulty is to make sure somehow that you don't keep throwing out important solutions to things that you didn't realize were being solved at the same time that you are replacing old solutions to certain problems ~~xx~~ with new ones. Another kind of example is the incidence of a suburban development, of course, its been critized from a lot of points of view but I'm just going to critize it from one very special point of view. Here again, the pattern of suburban housing was created to solve a very important problem. It provided people with more open space, with a house of their own, with opportunity for the children to enjoy nature. At the same time the funtions that were dealt with by the pattern of housing that proceed this got lost on the way. Some of them perhaps deliberately, but some of them without anybody realizing it. For example, I wrote a paper some time ago on the play groups among pre-school children and it seems reasonable to guess that ~~xx~~ from developmental points of view its necessary that children in the pre-school age should be given the opportunity to play ~~x~~ - to have at their disposal - somewhere of the order of five other children of comperable age. But if they have substantially less children at their disposal the play groups don't function properly and the child looses some important aspects of socialization. Now if you do a statistical analysis of the housing developments ~~xx~~ under the assumption that there all families and that children in these houses are ~~xxx~~ scattered from all ages from 0 - 18 and ask how close the houses have to be together to permit that each sure that each pre-school child will be within reach of five others - with a let's say 95% probability - you find that the houses have to be arrange in such a way that each house is within reach - what ever that means for a pre-school child - within reach of 27 other houses. If you assume that a child

of that age ~~xx~~ won't be able to walk more than a block or two you find that the densities of the houses in a particular suburb today - in the lower density suburb is about half of what's required to maintain that figure. So here again, one has an example of a functional problem - namely the desire for one's own house, the desire ~~x~~ for open space, all these kinds of things, being solved and in the course of it new patterns get - are created ~~xxxx~~ in order to solve the problem - and immediately old problems are reintroduced and the functionality of the house is thrown out of kilter again in a new direction. Another example. Some of these are so - the effects are quite tenuous. Freeways are introduced to increase flow ~~xxxxxx~~ capacity - to reduce congestion. Let's suppose for a second that they are successful - they are to some extent. They remove traffic from major arteries that are within the cities and areas served and with the decrease of density of traffic - these arteries now become much more attractive to criminals. And are in fact slightly dangerous at night. And here again, one problem has been solved probably nobody even realized that the amount of traffic on the street had this extra benefit - that it was keeping the streets ~~xxxxxx~~ patrolled - but it was. You saw the congestion problem - you unsolved the surveillance problem.

Another example. When the U.N. building ~~x~~ was built, people discovered there was a tremendous amount of water coming in ~~xx~~ through the window, especially in the upper half of the building. The reason was that - we demonstrated that when you have a very very high and narrow slab = it creates aerodynamic conditions such as the wind goes ~~x~~ like this and the winds on the upper part of the building ~~xxxx~~ with a sufficient amount of ~~xxx~~ pressure to actually drive rain up a two inch crack and so all the metal ~~xxx~~ window details which have been designed originally to cope with the situation where there is rain coming down and perhaps horizontally, were failing under these circumstances. Now, ~~xxxxxx~~ in this particular case, because it was such a gigantic building they immediately got an engineer down to deal with the

problem and invented some special gaskets which are in three locations on each of the metal windows and overcome this problem. I don't believe that those gaskets were made standard. And, at any rate, its not important for my example that the that it wasn't ~~solved~~ solved. What's important is the fact that it happened. You have what starts out being a decision by planners - a decision being made at a very large scale indeed - that there should be a high building placed in a location on the east river - which is ~~xxxxxx~~ fairly windy - and this the introduction of that pattern - allowing that pattern to get build into the city made another pattern namely the cross section standard metal window non-functional under the circumstances of the first pattern. Now I'm going to give more examples but I'm going to start drawing attention to a very very important fact about these examples and that is that when this happens it is very often the case, I would say almost always - that the two patterns in question are under different jurisdictions in this case that's perfectly clear - the people that made the decision to put the building here are not the people who make metal windows.

Let me give other examples. ~~Wait~~ wait a minutes I want to make sure that jurisdictional thing is clear. Rapid ~~transit~~ transit. Slightly different example now, but solving - lets assume for the moment that linear rapid transit makes sense and now solving a problem of the trains is an engineering problem in the case of the San Francisco area for instance in the hands of a special authority created to deal with that particular problem. However, it is known that the pattern of train transit alone will not work unless one brings with them futther patterns dealing with ~~xxxxxx~~ innovation on - what are called the feeders - that is buses, cars, limosines that feed these trains. Now, in certain cases, in cities like Chicago and new York the buses are under the same control as the trains - so there is some hope of coordinating their services. In this case it is not so. So that's going to be very difficult in the Bay Area. But further, the other patterns that are

relevant and that are likely to need changing - which have to do with the street patterns and the provision of parking and the access on freeways and construction of freeway ramps are not in the control of the people who are making decisions about the transit pattern. Now, I'm not expressing this very well, I'm making two points simultaneously. Let me try and bring them out clearly. On the one hand you do have a constant feature of social development, the inception of new patterns, and a whole series of concomitant ^{problems} ~~xxxxxxxx~~ that arise and that need to be solved - that come in the train of these new patterns. Now, in order to keep the system as a whole functional its quite clear that each of these parifical problems has got to get solve when the original pattern gets introduced. So instead of just introducing one pattern at a time one really needs to introduce patterns together with trains of subsidiary patterns. And this makes perfectly good sense. The second point, and this is why its rather a difficult matter in our society is that so often these different patterns are in different hands. Under different control, and it there fore becomes well nigh ~~a~~ impossible to achieve thés coordination of the patterns as they evolve. I'll just give one or two more examples.

Here's a very extreme example. ~~xxxxx~~ Introduction of supermarkets. In the hands of _____. One of the most important ^{facets} ~~xxxxxxxx~~ of the supermarket pattern is that a woman will now do a very large amount of shopping in bulk and will come staggering into the house carrying huge brown paper bags. In order to make it possible for her to get out of her car, into the house, and into the kitchen successfully with those bags, there really needs to be some redesign at the level of the door that she has to ^{go go} ~~xxxx~~ through. It's quite difficult to hunt for your key and open the door at the same time that you have a large brown paper bag in each hand. But it is inconsiveable - sorry, let me be a bit specific about a possible solution there - it will be quite possible to adopt a standard pattern in which every - the door connecting the ~~a~~ carport to the kitchen has right by the latch or on the door itself a shelve - and possible a shelf which continues right through

so its on the inside and on the outside. So that as somebody comes carryin g these bags, the bags can be rested on the shelf and one can open the door without to much trouble and then keep going through. Now, this is a fairly - I mean its really a minor little pattern. But the point is there's very little hope under present circumstances of ever really achieving this kind of coordination between something - you see I've given an example there of something that is really happening at a distance and the development of the supermarkets on the face of it really has nothing to do with the design of the house. But it does have and at the moment we're not equipped - I would say mentally we're not equipt - ~~xxx~~ its not so much - it would be possible for an individual architect to take supermarkets seriously and deal with the house accordingly. And of course this does happen in certain cases. I'm not making the argument that its impossible to achieve this kind of coordination in special cases. The argument that I'm making is that we're not mentally equipt to be dealing with the totality of this picture. There is no totsl picture we can draw on in which you could see these things happening and therefore its only as a result of special insights or luck, or particular intelligence that one gets these coordinations made.

Just to make it clear that the examples that I state are not purely physical ones. These kinds of things are going on in a broader fabric of society all the time. For instance you create a system of higher education which educates women now, more or less to the same level, and in similar amounts to the education that men get and yet when these women then get away from school, there is almost nothing in society that really caters to the added education that they have except in a few special cases. It becomes pretty clear just on the basis of that observation along, that the present pattern of housing and the organization of the city which does contain bedroom suburbs or nursery suburbs couldn't possible be a solution to this problem which has been an innovation in quite a different sphere - namely the University.

So that the same problem occurs in social planning and again there seems to be little hope of getting the drift of that problem until we are possessed of an overview in which we can see all those things happening simultaneously and we know that when we make a certain change here it is to bring into being needs that were dealt with successfully there that are no longer dealt with and that have now got to be dealt with in quite a different way. So this is the first of my two points today - that's coordination. That's about second in importance - it's slightly less important than the point I made last time, I think. But it's pretty important.

Now, the third point is a little difficult to convey, I think. I feel on slightly shaky ground with it. This question of variety. One of the characteristics of the traditional building and cities which ~~xxxxxxx~~ architects and planners admire. One of the important characteristics is the way in which one sees the same form repeated many times always with subtle variations. Now these subtle variations are ~~not~~ not whimsical. Now I want to introduce a distinction between two kinds of adaptation ~~xxx~~ which I'll call mass adaptation and local or personal adaptation. Now as we've been speaking about the language since one of the pre-assumptions has been that the pattern in the language - the current pattern and that they solve recurrent problems, it is clear that they take care of those adaptations which one could characterise as mass adaptation. That is they take care of adapting to phenomenon which occur constantly that are common to very large numbers of people or common to one group or different groups. There is at the same time a different ~~x~~ kind of adaptation which is the kind that it is adaptation to idiosyncracies of the person or people or local situations concerned. There are many many versions of this. One individual may have special idiosyncratic habits in his house. He may have a collection of Chinese glass which needs a certain kind of display. Or he and his family may be in the ~~ah~~ habit of taking their breakfast

in a particular way. These kind of details require special features of building - or the environment which are not the kind which can be dealt with by means of mass adaptation. The same - just as local adaptation is required to deal with these idiosyncracies of persons it is also required of course to deal with idiosyncracies of sight. A special tree which somebody wants to preserve, architects have often talked about the way a building should be able to respect the site or in which a city development ~~x~~ should be able to respect the accidental presence of a historic building or make the maximum use of a little piece of waterfront ~~x~~ that happens to be in the right kind of place. Now these - modern cities are not very good at these local adaptations. Just before enlarging on that I want to remind you of the genetic analogy which I made and point out that the same kind of division in mass adaptation and local adaptation happen ~~x~~ in organisms - that is the genes constitute mass adaptation - that is the represent they are the ~~xxx~~ blueprint of the structure which is common to many organisms and enables them to deal with problems that many of them face. At the same time, every plant or animal is constituted in such a way that as it grows it has a kind of built in opportunity for give and take with its immediate environment so that it - whether its a matter of the particular angles of the leaves as the plant~~x~~ grows being a function of special quality of the shade ~~xx~~ or whether or not ~~xxxx~~ there is another sibling next door to it - or whether there happens to be an ~~xxxxx~~ extra amount of breeze coming around a rock. But each of these local features is dealt with not in terms - the genes themselves do not ~~providex~~ provide the adaptation for these local qualities - they merely provide the potential for it. And the organism makes these adaptations as it grows.

Now, it fairly - there is a strong similarity between that idea and the idea of what happens in truly successful building. I don't suppose it takes much to evoke a slightly sentimental but profound image of a house which a couple of old people have been living in for forty years and in which every particle of furniture location of every object, and every coat of paint somehow all fit together with the

lives of these two people. This very very fine tuning ~~x~~ is uncommon in buildings in cities. And I think that part of the reason that its uncommon is that somehow we haven't succeed in specifying mass pattern in such a way as to give them that ability that kind of an ability for variation which is necessary to permit this local adaptation and variety that takes place. What we have - we have by in large two kinds - I'm being very rough here - but we are to have ~~xxxx~~ exact standardization which obvious - an object which is stamped out clearly does not possess the qualities I've just described - so we ~~x~~ either have th s kind of mass production which deals very adequately with mass adaptation but fails entirely to deal with local and personal adaptation. Or we have variety which somehow it seems arbitrary. That is of course, there's a good deal of variety in the environment today but in getting at the variety people seem so incapable of judging the variety right that they actually introduce the variety at the level of essential patterns to go - quite unfairly - but to go back to the seminar rooms that I was talking about the other day, I have no idea what was in the minds of the architects that design them, but its conceivable - quite conceivable - that those roomx and that many of the features of this building were designed with a certain kind of capriceness. That is, the architect correctly sensed that there is this need for variety and wanted to produce something that was individual, therefore, and special but misjudged the level at which special ness has to be introduced. And introduced it at the level of the mass adapted patterns that consitute the language not ~~x~~ within the variation permitted by such patterns. Now, again - I don't think this is a matter of blame, because I don't think there is any kind of a view of the environment which really makes this distinct and vary explicit. So that a designer with go will could do this even if he intended to do it. The distinction between essential mass adapted patterns and the variations which are premitted within these just don't exist clearly.

Now, those are the three properties which I think are crucial to any successful effort to make a reasonable and living environment. The memory that I mentioned last time, the coordination so that needs don't get lost just because one pattern gets changed and this ~~possiblle~~ possibility of variety in adaptation. I'd like to discuss these three points now and perhaps ~~xxx~~ we could in the course of the discussion go straight into why and whether the various attitudes to dealing with the environment that we have today will not be satisfactory in all these three respects and then we'll go on with that next time.

Question:: ~~Something with economy~~

Reply: Can you expand on that at all. That's an interesting point

Redo on question: Control in creating standards

I'd just like to go back to the other point first for a second. I'm - I honestly don't know if there's any hope that we'll once again ~~xx~~ mess around with buildings on site as their under construction. It seems unlikely to me - but I don't know. I'd like to get some more discussion at this point. The point of a language is that it is capable of producing just the right amount of variety and constraining things to just the right extent. I didn't make that very clear. So that I mean it may be possible to solve this difficulty without hoping to go back and be able to ~~x~~ change things around on the site. Now let's get to more discussion on this.

Question:

Reply: Yah! What I'm getting at is something like this. Let's take an example of other - I'm going to try and create an image of exactly what I'm talking about. Take an example of a row of terrace houses that are being built as they are by many developers in Europe at the moment and some developers in this country. Now these row houses will contain identical dwellings with possibly what I call trivial variations, of orientation or location of the bathroom or something like that. But there essentially identical dwellings just repeated - ~~manyx10xmany~~ maybe 10 maybe 30 in a row. As

opposed to the situation where each one of them is built within the same general scheme but its details are actually different. From the first moment of construction now under present - it is quite true that with present methods of costing and working drawings and site supervision this would be impossible. But its interesting to reflect on the way in wh ch nature does this because nature does it all the time and not only organic~~xxx~~ nature but even much much simpler forms of organization with have underlying patterns - these patterns become - like even lets say the wave lets on the surface of a puddle. Slightly different each time and we recognize that of course, there's not particular importance of course but the reason that it has that feature is that what's going on essentially is that one can view the system as possessing certain functions - functions now in the mathematical sense which operate on the particular conditions that are available and produce variants of the same generic scheme. So that you have the same generic scheme pulsing the need and its interaction with the local details ~~xxx~~ produces a particular object that will be slightly different each time.

Now this is undoubtedly what happened - I'm speaking in a lose way - but this is undoubtedly what happened in the case of a more primitive form of construction. And the question is whether that can be gotten back somehow. I don't think the mere existence of a language would solve it. It would have to be introduced also into the building processes itself. There are for instance people in Washington begin to wonder whether mass production hasn't been wrongly conceived. That is instead of being just to produce a large number of identical objects, they are talking in terms that are slightly similar, that you have a computer program which is capable of assembling objects in an almost infinite ~~fa~~ variety of combinations but it might actually be programmed according to a request from a specific buyer and that he would get a unique object that was nevertheless the produce of mass production process. But it would be an object unique to him because he had ~~xx~~ created the special config-

uration of demands which produced the particular combination ~~xx~~ within the object that was required. Well, I've said enough about that - its just an indication.

Question:

Reply: Your saying that it ought to be possible to change it on ~~xx~~ the site or not - I didnt quite --

There are two different senses of it - of course there is the sort of very very local sense of it in whi h I think each person literally wants to be able to influence his immediate surroundings. I mean quite literally influence it. And I will d scuss that at some point - that demands forms of construction which are just radi~~ally~~ different from the ones that we have now because most of the things in modern buildings are quite difficult to do this too. Sheetrock, concrete, alumun - you know thesè are hard things to fiddle around with if you in your office ~~ofx~~ or in your home. But there is a level slightly above that - I do agree that each person needs to be able to do this but even a little above that there is its very hard - lets take office building as an example. Of course office buildings do vary from one building to the next so that - and I'm not talking about the kind of variety let's say that a plant being a corporation might want - in a sense each corporation wants a different office building. Now, I make a claim that I think would be a little hard to substantiate - that the variety of ~~x~~ office buildings that is being built now, one for each new corporate plant - that the variety there is essentially trival - that is that it reflects an attempt on the part of the corporation to create an image that is parcular to it whether it ~~Txxx~~ TWA or Seagrams or what ever it is at that - but it really isn't personal in the sense that it actually reflects what that corporation is all about. It is of course true that each corporation has its own kind of special quirk - I mean quikks of operation, quirks of intention, quirks in the way they deal with clients - you know a lot of different right - so that each corporation is in that sense personal

and different. I think that the office buildings that are being built although they vary in the sense of height or whether they use aluminum or steel or so on exact window size - really does possess this capacity - I mean the means of production of them - for each one of those things to become an individual object for the corporate plant while nevertheless maintaining all the mass adaptations which are necessary to an office building which all these guys share and we don't have anyway of doing that and that is what I'm suggesting could be done successfully. if there were a language in operation because if there were one and it were clearly understood then somehow - and I can only wave my hands here - each client - corporate client - would be capable of doing ~~xxx~~ what I said one might ~~do~~ with the computer of mass production - that is stating exactly what the peculiarities of his condition are and then one has a function which operates on those peculiarities within the constraints of the mass adapted patterns that are general and produces this special object. Nevertheless, similar schematically, in terms of its general mass adaptations to other office buildings. I don't know if I said that well enough ~~to~~ to convey the point - I'm really trying to build up - I can't - I don't know how to do that actually - I'll be frank on that - I do know how to do a number of things I have been talking about so far but I don't know how to do that and we can discuss it later in the quarter.

Question:

Reply: Yes, let me be clear about one thing. I'm ~~xxx~~ asking that - I'm saying that a successful attitude to the environment has got to have all three properties that I talked about and I think for instance - almost all the attempts that are being made have at least one of them if not two. I don't think any of them have all three. The operations research business if indeed one does have a model of a situation like you say - and you've got inputs which will be local values and then you'll get a special object out of it or a special solution - that would ~~obviously~~ obviously deal with this problem then the question is whether that kind of a model is capable of being coordinated with all the other things. I think that

that particular thing - the operations of such models tend to fall down mainly on the second item that I mentioned - the coordination. As for the schools - that's an interesting point. I - in fact - if a lots of you went to see them I'd like discussion on that topic. My feeling is that they do not deal with the first point adequately. That is - there is some kind of variety - I'm not sure its great enough - I'd like to hear it from people who went to visit these things whether thats true or not. Does anyone have any views on that subject.

Question:

Well, one thing has got to be clear and I think it is - that is we're not talking about variety for its own sake. I'm talking about variety as a response to local problems. All I can say is that I haven't analyzed whats going on in office buildings well enough to be able to answer this. Answer the question very clearly. I suspect very strongly that in spite of apparent flexibility, of flexible partition systems that there still isn't any real adaptation to the local characteristics of the case. I'd very much like - if you feel that I'm wrong about that - I wonder if you could bring it out - maybe you could give examples, peculiarities varying from one corporation or one business to another which are adequately reflected in what their able to do with those kinds of flexible systems. I mean that would be the way to show that I'm wrong and I may very well be. I think its 1:00.