Lecture 12
October 27, 1967

Now, I'm going to continue discussing the street patterns. What I'll do is go fairly quickly through the difficulties that could potentially arise - the subsiduary problems that could come up - go through the sense in which the sub-pattern that I stated last time deal with them and then I would like to have as long as possible a kind of open-ended discussion about this particular bunch of patterns because I realize there are all sorts of questions. You could b ring up some of the doubts that you have then.

After having stated the basic notion of the parallel streets with freeways crossing them at about 3 mile intervals - the following questions and subsiduary problems come up. First of all there's the problem of connecting the streets and freeways, there is the problem of driver stress on freeways, that I mentioned last time. There is the problem of pedestrian imprisonment in the strip of land between the street. There is the problem of access to the land between the streets. There is the problem of child and pedestrian safety. There is the problem of noise. Now each one of those six that I've read out so far actually gets a sub-pattern to solve it. Then there are also four other questions which crop up. There is the psychological problem of the detours. We discussed last time that from a purely statistical standpoint the overall detour is not very great but one might still raise the question that its psychologically unacdeptable to have to do a hairpin in a city in order to get some place. There is the problem of land use transportation interaction - in other words, one or two critics have said - look how can you just define a street patter without reference to the pattern of land use, since it's known that these two are very strongly interdependent. The - there is the question of densities for which the pattern is appropriate because its clear that at high densities that things would begin to go wrong. And there is finally, slightly different kind of a problem - the problem of introducing this pattern successfully into an existing city.

Those ten points are the major points which crop up in connection with condition three. They also really raise the issues does this make sense or is there something which is going to destroy it. Destroy its validity.

On the question of transition between streets and freeways its fairly clear that the normal clover-leaf interchange will not do simply because it takes up to much space. Even though we don't yet have a spacing for the streets given. It's pretty clear from the forgoining arguments that there going to have to be reasonable close together and freeway interchanges - clover-leaf interchanges get pretty dangerous if they are closer than about half a mile apart. Something has got to be done about that.

As I described it last time the idea here is that we deal with a - we place a loop tangent to the freeway and tangent to the streets in that manner. The thing that has to be determined is how large should this loop be. On the one hand, to maintain speed on the loop you'd like to have these really quite large because then the radius wouldn't be a problem at all and it could at least have the same diameter as the spacing of the streets. However, let's just think about the four types of trips which you make. There are essentially four kinds of trips starting with this position. You may have a trip which goes like that - that is which goes up to the freeway and comes back again. On that type of trip you won't go around a loop; on the type of trip which goes across like that you'll go around one loop. On the kind of trip which goes like that you'll go around one loop. And on that kind of trip you'll go around two loops. So on an average you'll make a one loop detour every trip and it's clearly essential that the loop be as small as possible. It's hard to determine the exact diameter that is suitable. I gave 360 feet that's is compatible with the speed of 35 mph and this is a matter of judgement. It's difficult - there's a tricky question here of balancing how much

deceleration would be reasonable in connection with general 60 mph speeds. These don't seem to be too bad. There used on large freeways interconnections quite often.

The second issue has to do with driver stress. Driving along the freeway there is going to be a very very large number of signs to cope with and it will be quite an unusal situation in driving along the freeway, which let's remember will have very very many lanes, because each freeway is carrying all the cross traffic for a large band of the city and have to weave into position to make an exist could become very very difficult with normal conditions on the existing freeways. It's therefore necessary to space the streets fairly far apart; in my original version of this I stated a spacing of about 500 feet but when this consideration is taken into account that seems unreasonable. So, we're talking about the position of two exists following each other. This has now been increased to about a 1000 feet with two weaving lands. (Another thousand feet?). The streets themselves are at intervals at a mean interval of about a 1000 feet - which means that these things have a mean of somewhere around 2000. In the pattern that I read out I said that they could vary between 1500 and 3000. That will reasonable accommodate the stress.

Now, pedestrian imprisonment is a tricky question. Let's just go into that some. In a normal city today you can walk in all directions for as long as you want. The streets have slow enough speeds as that they don't prevent you from doing that and the sidewalks are usually premited also. If there were still required in the form in which we have it today the whole of this pattern would be invalid. To examine it you have to think about the conditions under which this kind of habit of being able to walk in all directions in the existing street pattern came about. They came about at a time when first of all it's a historic pattern, people were in the habit of walking to quite a number of the different things that they went to. In other words it was possible to walk over to see your friends - it was possible for

many people to walk to work, possible for many people to walk to the stores. Now, under the conditions of the modern metropolis those things hardly hold anymore. Very very few occasions -its on very very fe3 occasions that you are able to walk to xx your friends, or able to walk to work or able to walk to a local store. That really puts the need to walk around into a rather residual category. There obviously are needs - maybe you have to be able to just talk a walk - and what's more you have to be able to take a walk of reasonable kind of variety. So, for that reason its essential to be walk at least xx up and down that thing - anyone of these long thin slots as much as you want. So this raises the issue when we're going to come to those driveways this must be a continuous pedestrian area. Now let me make two more points - first of all there is nothing in the pattern that says there could not be an occasional underpasses or overpasses connected with the street.x However, it is known that people don't use underpasses and overpasses very much. In fact, will tend to use such things only if their line of travel stays roughly horizontal. This in conneetion with one of the other sub-patterns which I'll be coming to in a second, namely wherever possible these streets should be sunken - it obviously makes the possible of a visable pedestrian overpass - that is one which would actually be used as opposed to a token one. Anyway there is nothing in the pattern which prohibits that. In my understanding of the situation it is not necessary that they be provided very often. Given the present walking habits that people have in cities. One has to say one further thing - critics could easily raise the question - isn't this destroying local neighborhood community on the grounds that these local communities xxx are always based on the fact that people go from one house to another to visit each other and borrow a hammer, if they have lost their hammer, and do a number of things of that sort. Now that is perfectly true with two reservations. First of all it's known that this local neighborhood community is becoming less essential - that is the majority of people seek their real

at wherever they happen to be because they've met them somewhere else in the metropolis and the local community is passing into a kind of cateorgy of less intimate associations. There are people that you borrow from or that you go to in time of trouble or that you're prepared to help out but their not likely to be very close friends. So it's not that critical. More important than that it has been demonstrated quite convincingly that these - even an ordinary street now just a regualar local street - that these patterns of association which develop very much tend to develop on one side of the street. Extremely rarely do these develop across streets. That means that the fact that these streets are very large, with fast traffic on them and are vertually impossible, really doesn't aggrevate - or doesn't make this problem much worse than it does today. In other words, its not preventing any currently possible kind of community from developing because its only enlargeing those streets which are already - even in their quite moderate form barriers to this kind of community.

I omitted the - I can't remember where it comes in the discussion anyway - the issue of the one way - the fact that these streets must be one way. I don't give the argument to that. It isn't so much that they must be - its rather that there is absolutely not point in making them two way. The situation is this. If you have a piece of land with a street down both sides and the whole purpose of the pattern that has been developed is to prevent intersections and left hand turns accross traffic - it means that suppose that this thing here is a street suppose that those are two way streets so that you have traffic going like that and like that - it would be necessary to put a barrier down the middle of the street so as to prevent left hand turns across traffic. And this means that to all intents and purposes this piece of l nd here is being served by only half of this street and half of this street and that is the half that is going that way and the half that is going that way. Since that is the case, there is absolutely nothing from making these two way streets. That is the reason for making them one way. It simply

more economical use of ~~the~~ the situation. Given the fact that they are one way the access to the land between the streets has to be a type of access which connects all the way through. The reason is pretty obvious. Suppose that somebody is coming from this general area - this way and he's going to access to the building like that and then he is going to have to leave that way so that these driveways must go right through from one street to the other. Now, in a sense they almost become like local streets and I'm only using the word driveway to emphasize the fact that they must not cross the main street. The patter - I forget which sub-pattern it is - but any which I read out - states that these things must be staggered with respect to the main street so that they don't cross it. There, the reason again is, to make it impossible for someone to drive straight across hoping to take short ~~xx~~ cuts.

Question:

Reply: No, I didn't and that's a very good kind of a thing to raise. If you could show that any - this again would be a kind of consideration under condition three - if you could show that for a reasonable use of public transport this pattern makes it very very difficult - that would be important that it be solved. I don't see right now, you might try and write something about it. It's not clear why it becomes anymore difficult ~~xhx~~ with this arrangement. Because, for instance, New York already has a large number of express busses which essentially go in different directions on different streets so that;

Question:

Reply: I see what your saying - that business of going through like that. Yes, that's an interesting question.

Question:

Reply: No these are two way. There's no reason for them to be anything else.

Question:

Reply: Yes. Yes, that rests on - in order to prove that point or in order to get to grips with it you'd have to make estimations of the acceptable distances that people will walk to public transit. Now, I suspect and now let's digress there for just a second. You can get some figures on that from my Marcane and _____. I suspect that the problem is much more complicated than that. You can't serve a modern metropolis with public transit which covers it completely anyway. The number of stops that you can afford is going to --- your going to place the average stops much farther apart than what you said and not because of the particular pattern of streets here but just because of the number of stops that you can afford in a two-dimensional rapid transit system. That means that the people who are going to be trying to use the transit and there's a special class of people, are inevitably going to have to live in particular sections which are especially associated with the transit stops. The moment you start saying that the criticaxxism xx of that particular pattern becomes sort of by the x wx way. I think that this is the line of argument that I would follow. Try and go into it. I am be wrong there. Now pedestrian safety -- so I think that I'd rather not get into xx any further discussion until I go through a x few points.

There has been a lot of assumptions made in architectural and planning literature in the last few years that in order to get pedestrian safety you have to have a rigid seperation xxxxxxxx of pedestrian from vehicles. Dates back to Holmstead. There is absolutely no demonstration of that. xxxxxxxx What is clear is that if you mix pedestrians, and especially children or old people, with cars under circumstances where the cars are (1) able to move fast and (2) likely to come in an unexpected way - around corners - then you have a very very high chance of accidents. On the other hand you can get rid of those two conditions without attempting a rigid separation of pedestrians from vehicles and what I proposed here is a solution that has been tried

in one or two places. For some reason it has not yet been taken up in a wide spread way - I'm not sure why maybe they haven't thought of it enough. That is if you do break the speed of the cars by putting for instance in Beligum the entrance to small villages there is a rut in the street - a tremondous kind of a trench across the street and you just can't cross that thing at more than about 20 mph. Now, in that case there is only one at each entrance to the street - they only do this in a minor way. Now, I know of places in Colorado where the street has a across section like this - a longitudinal section I mean these things are spaced at about 100 feet intervals, and you can't drive along that thing at about more than 5 miles ph. It's verturally impossible to have an accident under those circumstances. Now, there is a third condition which has to do with reversing out of parking positions. It can be a dangerous condition for children if they're tiny ones. Again, there is nothing in this situation which prohibits laying out the parking spaces in such a way that that kind of reversing is not necessary and it is possible to insure this slow down by means of some device like that or something else compráble. Now, under those circumstances the pedestrian area - oh sorry - you don't want to do that for the whole of the 1000 feet because otherwise obviously it would be too tedious. The imposition on the drivers would be so great that they'd get these obsticles removed which would make the whole thing pointless.

So, the way the pattern is stated there is to be a section, I can't remember what I state, somewhere of the order - yes, 200 to 400 feet which has this treatment and that means that the pedestrian area in effect takes on this form. So it contracts and covers this slow section of the driveway everytime it crosses a driveway.

Noise, I'm very uncertain about this question. This was raised as a major criticism of the pattern when it was first presented and so I have now proposed

the use of - first of all the possibility of sinking these - that is - that's known to work, it raises difficulties - it may not always be possible. The second thing is to build some kind of bumps or mounds along the edge of this and the third thing is, as I said, to orient the buildings inward. Now, I'm not really sure that these measures are sufficient to reduce the noise in the inside. And without more study I don't feel confident about that sub-pattern, but it is a crucial one.

Now, that - so far we've covered all the sub-patterns that I've read out. Now, there are one or two further points of difficulty which may be raised and which have got to be answered before one can be reasonably confident about this bunch of patterns as a whole. The first one has to do with the psychological problem of the detours. There are two issues here. First of all, people in cities today have very very little sense any longer of geometric distance between points. The distance between points that they are aware of is time distance. First of all people are beginning to express themselves in this way. If you ask someone how far he is from a certain point in the city , he'll quite often tend to tell you well ten minutes rather than trying to give you an estimate in miles because everybody knows that it depends on the condition of the roads and what's important is how long it takes to get from one place to the other. Further evidence for the fact that this kind of a detouring doesn't matter particularly is that there are cases in the natural - where the natural topography - creates a situation rather like this and we're not even aware of it - let alone being bugged by it. On any hillside were the roads - if it's a steep hillside, the roads tend to run parallel to the contours and there are very few roads running up and down the hill and in those circumstances quite often - let's say 400 feet or 500 feet from another building as the crow flies but you may have to drive quarter of a mile or walk quarter of a mile to get to that place. So that

this just adds to the reasonable believe that a distortion of the Euclidean distances - that is the geometric as the crow flies - distances is not really very important. A further point obviously is the point that we all accept the grid pattern without question and under certain circumstances we're going about $1\frac{1}{2}$ times the crow flies distance in that system.

Now, one of the critics of the pattern raised the issue that it's true that in any street system we will have to have a bias over the Euclidean distance. That is we can't hope that all trips can have the length of the Euclidean distance so some of them are going to have to be a little longer. But it will have to be a reasonable assumption that the bias will be short for short times and long for long trips. And then on those groudds this pattern falls down.

Let me make it clear how it falls down in this pattern. The trips that have the worse detours in this pattern are the shortest trips. This is different - for instance in a grid pattern it is more or less independent of lengths. The kind of detour which you can expect has nothing much to do with length. In this thing it's inversely correlated with it. Now it seems to me that this criticism is quite unjustifiable on any psychological grounds that one could expect. The reason is quite simple. The normal facts of everyday life that the bias over the Euclidean distance that we expect, must be inversally porportional to distance. Let me make that clear. On a trip between here and New York, we are able to approach the Euclidean distance quite nearly. There may be not more than about a 2 or 3% increment. On a trip between here and someother part of Berkeley, you will have to begin to tolerate something of the order of a 25% bias. It may get as high as 40% is it's diagonal across the block. In side your own house on a trip between a bedroom which is up stairs if the star case is here and this bedroom is upstairs and this living room is down here you may have to tolerate a bias of anything up to 300 or 400%. In other words you may have to go 3 or 4 times as far as the crow flies distance

between these two points. Its pretty clear that the environment could not be organised in such a way as to prevent that. If you wanted to try and overcome it you'd be eating everything out with circulation. So that the criticism that the bias of this pattern is unexceptable psychologically seems to me quite implausible and can't be argued for.

As far as the land use transportation action is concerned, the argument there is simple that its not clear what property of land use transportation interaction this pattern prohibits. In other words here the argument would follow the lines - I would declare that this was simply independent of the land use transportation question. Now, let me just elaborate on that for just a second. It is well known that in locating a specific street - that is if your trying to lay out a new artery or your putting down a section of freeway, or your making a change in an actual street pattern in a city. In order to locate those new streets you do have to take very careful account of the relative location of the land uses because they will crucially effect the particular street - the way in which you locate it and there will also be second order effects that after you've located it the land uses themselves will change in responde to your street change. Now, that has to do with a specific individual case. What we've talking about here is a generic pattern which is transformable and modifiable and its - under those circumstances it doesn't really make sense to ask about the land use interaction unless you can demonstrate there is some feature of that interaction which is prohibited by this pattern. And I simply make the assertion that there is no such feature, and leave it to any potential critic to find one ehich this prohibits.

The density for which the pattern is appropriate - it is clear that there are densities for which it is not appropriate - it's not clear how to make a determin ation of just precisely what range of densities it will be. Now, that is very important. The context as you remember reads: Low and medium density areas in any region ~~with~~

where the number of cars is 250,000. That seems reasonable. Now, just how one should interpret low and medium density is not quite clear. It is certain that at high densityes, the pattern not only doesn't make sense, the argument breaks down. If you remember one of the postulates at the beginning was that you couldn't solve the congestion problem economically with multi-level schemes which is not true at very high densities. So, that postulate only holds in the low medium density areas. In order to make the pattern water tight it would be necessary perhaps to get a more accurate determination of the range of densities where it holds. I'm not sure how to do that.

The last point is as I said a slightly different one. That is the question of introducing the pattern into existing cities. In many cases, when one invents a new pattern. If it is so badly incompatible with patterns which exist today that there is no way of injecting it to the present framework that in it self is a criticism of the kind covered in condition 3. But in a slightly off beat variety.

Now, in this case, all one has to say is this. That it's possible to begin constructing this kind of pateern simply by systematically closing off cross streets and making arteries one way. Now, to some extent it is not only possible, but to some extent this is already happening in a large number of major cities. Like Los Angeles, Manhattan, London and most cities are beginning to do in a piecemeal way what is proposed here but this piecemeal changes have not so far been guided I think, by any over all pattern which makes it clear what there long run direction should be. But it is clearly feasible to do this. Simply because it is already happening.

That kind of argument which I've sketched out very quickly is the way in which it is necessary to deal with condition 3. That is what you really have to do is to anticipate all the problems that somebody could claim are brought up by a new pattern and show one by one either that they - don't really occur in a serious way or else if it is possible invent a pattern which is compatible

with the original one to solve these problem.

Now, as far as condition 4 is concerned, condition four is the splitting condition and this rasise the question of whether the thing we have been talking about is one pattern or is it seven patterns. As I originally worked this out, I thought of it as one pattern. That is I not only put down the business of the parallel streets but I incorporated all these other subsiduary features right in along with that as being one package. The point is though - if you think about it carefully, every single one of the subsidurary patterns 2 through 7 is in fact applicable in a slightly wider range of contexts than in the context given by pattern 1. For instance, the possibility of connecting arteries to freeways with loops when those arteries are one way obviously does not hinge on the exsistence of an entire parallel street pattern. That remains a useful device even it just happens to be a special case somewhere where there's a freeway and you've got a couple of arteries which are going to be one way arteris. The similarly - the patter which says that these high velocity streets should be sunken or protected by earth mounds clearly makes sense for all high velocity arteries - in fact it also makes sense for freeways and is not restricted to streets in the exact setting described by pattern one.

Similarly the way of slowing down the traffic on these short driveways between the streets - is a very very useful device which is capable of solving the problem of pedestrian safety in a vehicle environment. In a much wider variety of circumstances than those presented by the basic pattern one.

This holds for all six of these things, I think. I think there maybe one exception - just a second - no, it's a little questionable with the one which states the spacing of the streets because the spacing of the streets really was a function of the overall pattern stated and doesn't - you might argue that there is a generzl problem of driver stress and therefore you should never space streets along a freeway closer than 1000 feet together but that one seems a little more woven in there. But because of condition four that makes it clear that the more useful in terms of the long run wide use

of the language to treat these subpatterns as separate entities which may be applied in a wider variety of circumstances. The one thing that will have to be taken care of very very careful of course, is that the moment you separate these things from one another you must make it certain within the organization of the language that when ever patter one comes into play, that immediately these other patterns 2 thru 7 come into play automatically. Because if we have now separated them if are now dealing with seven elements and there is nothing that guarantees that these as other six will be brought forward when the user of the language starts playing with this. Which is pattern one. So that is very important and is a beginning indication of something that the organization of the language is going to have to do for us.

Now, I think I'll stop there and I'd like to get into general discussion. I'd like to have the discussion oriented around your own efforts to construct patterns. So if you'll bring up rather than getting at details of the street pattern, I'd like - because I've been trying to present something that will serve as an example and will help you do that. So it's possible to orient the quextions along those lines it would be good.

Question:

Reply: Is what essential? ---- k I don't think there is any pattern in the world which is essential to your existence. Except maybe the presence of oxygen. ------ Well, no that is an important issue that ou've raised. Because if you think that ------- k I'm a bit lost - are you saying that there may be - like out of the -- suppose that we postulate a situation were we have a language of 20,000 patterns in it and your saying that maybe a dozen of those are particularly crucial?

Question:

Reply: Yes, you can do that definately. Why can't you do that here. You know I think that the moment you start getting specific then it really becomes interesting. And you know, you raise a question like that - and that's a legitimate question - but then

you have to show that it's not possible within the alternative which has been proposed. Because it is quite clear that this does better than the grid pattern on congestion. You must do that every single time.

Question:

Reply: That is the normal way in which science procedes. You make a statement - this is what environmental design is all about - you make a statement and then y9u im try to prove it. You try to improve it in order to improve it you have to show that there is something wrong with the previous one.

Question:

Reply: If it really can not be solved period, and you can show that it - here's an important issue I think - so it's a little delicate as to how to explain it. Let's suppose that some issue to do with delinquence you could show that it was associated with the nature of this pattern - I don't exactly see that at the moment but suppose that you could - and you could also show that this - well, you've got to do two things first of all you have got to show that this pattern really does somethig which essentially prevents the solution of that other thing. Not merely that it doesn't solve it, I mean there are millions of things that it doesn't solve. It doesn't solve the problem of education or family live or of old age or birth or anything. So I mean that it's not enough to show that it doesn't solve something. If you can show that it really prevents the solution of a problem then your beginning to get someplace. But then you've got the further point that obviously by implication we are here comparing this with some patterns which are in use today. One of them is the grid pattern - then there is the varients of the grid pattern which is the kind ofcurly subdividion version. Right? Now, both of those patterns - if those are going to be the only two streets patterns that we have today in common use, I suspect that you could really pin down someway in which this was making it difficult to solve the delinquence problem - those other things would probably have that property to. And then of course at that point it does invalid this and it presses you to try and do better on it but it still says that compared with the ones that are going now - you'd be better off to take this

even though its inadequate. Do you see what I'm saying? So that this kind of invalidity period because also there is the question of relative validity compared with those patterns that are now being used.

Question:

Reply: No, I think that you have to -- you see in order to - in stead of swinging around with values and everything, you really have to get hard nosed about that because in the exact example you gave I don't believe that buildings overlooking freeways increase the number of helpful good samaratian acts on the freeway at all and the reason is simple - that is that the buildings are just to remote from what is going on on the freeway. If anything - the only thing that would influence that would be the present or absence of other cars. It has to do with the density of the use of the freeway. The kind of things that you are talking about only begins to oprate where somebody could walk out of a building onto that street and that's a local street. You see what I'm saying?

Question:

Reply: Will I'm saying that it's an empirical issue. I'm not trying to say I'm right in what I just said. I'm trying to point out that it has nothing particularly to do with values. You were sort of suggesting vaguely that it did. It's an empirical question as to whether or not people who over look fast 60 mph vehicular arteries are capable of increasing the amount of good samaratian acts on those things.

Question:

Reply: Well, I mean that is - yes, it's a very - I'm not saying that its a very easy experiment to do but it is an empirical question. You see what I mean. It doesn't have anything to do with what you think or what you want. It has to do with what actually happens.

Question:

Reply: Let's observe that what you just said is completely taken account of by the way in which condition three is stated. Because it says that you have to be able

to demonstrate for a violation - you have to be able to demonstrate that there is some other problem that requires a solution that is incompatible with the pattern stated. Now obviously, if there is something like delinquency suppose you just don't see that it has any physical implications at all - it has that set policy implication or it has implications for the social structure at some distance and obviously that is not imcapable with this and at that point it doesn't violate it.

Question:

Reply: Well, is it really. First of all remember that this distance is 1000 feet that's three blocks. Well, no let's talk in terms of how often do you walk. Let's say of the order of 2000 feet. Ok fine. Right. It may very well be that in a - you see that raises an interesting question because there are particular places where there are a lot more pedestrian and University is that one kind of circumstance where that is true. Now, the issue then is, as I said under the discussion of the pedestrian imprisonment thing - it is perfectly possible to put in - particularly if the street is sunken - to put in overpasses which will be used. Because they will be at ground level. If you have a situation like the University which has a patch basin substantially larger than the distance part of these streets - it would be quite possible to organize a part of the city covered by thiw pattern in such a way as to make these walks perfectly ppssible.

Question:

Reply: Some of it is high - that's true. May be that's because the exact density hasn't been defined. That's a bit tricky. I think the density of this area around here - would still come under what I'm talking about as medium.

The crucial question is you see the fact that it's organized for motor cars is not in itself bad - it's bad if it begins to really prevent ----- Now wait - let's try and get two issues straight here. One of them has to do with - does it actually

prevent anything from happening that is good for pedestrians. You see, that is quite different. The fact that it protrays an image that an automobile city isn't in itself bad at all - if it goes against things that the pedestrians are trying to do then it is bad. That's a very much more practical issue.

Now, there's one thing that I have to try and get across. I got the impression about this also after discussing the house entrances sign. The fact that I have picked two examples does not mean that these two examples are any more important than the 20 or 30 or 1000 100,000 other patterns that one could mention. I just happen to mention these two patterns - well no it isn't - its just a fact that there are a lot of patterns - and the fact that the ones that I mentioned first - don't automatically become the most important ones. No, this is something that one has to get used to with the whole idea of abstraction. If you are going to start abstracting patterns instead of dealing with totalities your inevitably - every abstraction is going to be geared to certain problems and the only thing you have got to demonstrate is the independence of that abstraction from the other problems. You have not got to show that it copes with them. This is really very very important because otherwise the whole sense that you have of this indever is going to be wrong.

Q: You have got to have basic ideas about what people need your assuming that cars are inevitable and that they are the answer to circulation

Reply: No, there are somethings that are very bad about it. One of them is congestion another one is the fact that community, another one has do to do with child raising another one has to do with the condition of old people. You know that there are millions and millions of things that are not good about the environment - one of them is congestion.

Question:

Reply: Now, wait a minute - what has this got to do with smog. What do you mean its encouraging it? What encourages smog is the gasoline engines. This has nothing to do with the gasoline engines. What does it have to do with it? No, there is

no statement made about a gasoline engine - there are going to be electric cars on the ~~max~~ market within ten years - and the smog problem will be solved by means which have nothing whatever

End of tape - 70 minutes long -- I guess your boy had to leave - he has a 1:00 you know.