INTERVIEW WITH PETER EISENMAN
By Selim Koder

Peter O. Eisenman: The computer allows architecture to begin to move away from several of its previous limitations. One is the limitation that is caused by the architect manipulating the material. In the past, the architect manipulated something that was known to him or her - a priority. In other words, what he or she had learned. Therefore design always looks more or less the same because if one designs with the hand, all one can do is draw what is already in one's head or else freely associate. This process then involves correcting what is drawn towards some pre-conceived image in the mind. For example, the first drawing may be a scribble and it is not what is in the head. One then looks at a second drawing and a third drawing. Each time in a traditional design process one is moving closer and closer to a preconceived image in the head. There is always this pre-image, whether that image is in the classical vocabulary of architecture or in some particular style or feeling. It is always something to which one is drawn. Clearly, with the computer the architect could, in the same way, draw out preconceived images, but the computer also has in its mind images, organizations, rules, structures and patterns that are not known to the architect. In other words, they pre-exist in a universe, but unless one can find a way to tap into them, one does not know what they are. Clearly, they are not pre-ordained by the systems ruling classical architecture. That is, systems limiting the image possibility of the particular subject manipulating the machine.

Instead, one can set up a series of structured rules for programming the computer into not knowing a priori what the formal results will be. Then the process becomes one of testing algorithms against possible formal results. The writing and correcting of these algorithms becomes one of the tasks of design. One can correct the images to make the rule structures more apparent or to make them more able to be built. These are set images separate from the history of architecture and the history of the individual who is conceptualizing.

This allows the computer to open up what was previously repressed by the individual psychology or history and the history of architecture, which was assumed to be the entire knowledge and nature of architecture. But since architecture is always developing, an individual at any one time does not have access to its entire history nor to its possible future history; the computer accesses these possibilities.

Secondly, the computer opens up possibilities of putting things together, which far exceed the present technologies in the construction industry capacities. If one takes the aerospace or the automobile industry, what the computer has done is to force the assembly lines to automatically build in a shop what it envisions on a screen. This is not the case with architecture. In fact, what has happened is that the more we begin to use computers the more difficult it is to produce standardized components. Steel fabrication has produced a capacity to have a robot reproduce, for example, standard identical parts. When there is a variation in steel parts the robot cannot do it. It is necessary to re-configure the computerized strategies for reproducing mass production elements in architecture, whether they are curtain wall frames, window mullions, or whatever. Standard products, it is being found, limit in fact not only what the individual architect can design, but also what the computer can design. Right now, therefore, the computer is far ahead of the capacity of the industry; one has the capacity to make things on the computer that the construction industry does not have.

Finally, there is the possibility of the future, and what architecture might be. Traditionally, when one draws the outline of a shape, the drawing is always a line. All architects draw line

drawings and that line is an outline of a solid. To make a void one always draws a second line, which in fact produces the relationship between the solid, the container and the contained. This is the way most computers work to produce complex solid mass. The way we model complex solids on computers is to first draw a line around an outside shell and then around an inside shell and then cut the inner away from the outer. Computers work on solid modeling and the only way to get voids is by subtracting. Now all this does is perpetuate the notion of architecture as phallocentric and as having a dominant interest in presence. Architecture remains the last bastion in contemporary art of phallocentrism. First, because it is thought that its enclosures are necessarily solids and articulated profiles. This comes about because the drawing instruments that we use produce lines and solids. These lines are denotative of solids. What I am saying is that in other disciplines there exists the possibility of modeling voids. In other words, to model such structures as slime molds, which are self-generating internalized mechanisms that have their own laws and behavior and which do not start from a fixed profile, they do not start from a recognizable profile. Slime mold does not look like anything. In fact, it mutates and takes its shape from the container that it is in. It will take on various formal structural organizations depending on its own internal movement and growth.

If architecture had the capacity to begin from such modeling, we would begin to have a kind of new architecture, an architecture that was no longer phallocentric. Now that does not mean that we would not be sheltering and containing, rather the containing would be seen as the residue of the process, and not metaphoric of the process. In other words, the process image and its analogous meanings would come from the self-generating activity as opposed to the enclosing activity. In this sense nobody is saying that architecture would not shelter, enclose, contain, etc. but it will not necessarily make metaphors of these organizations.

In a sense, Vitruvius is the beginning of the problem. Vitruvius said that architecture was concerned with three things: commodity, firmness and delight. When he talks about firmness he means a stable, enclosing, shelter in a structure. It does not mean that a building must stand up, because clearly all buildings must stand up. What Vitruvius was talking about was that architecture must, in addition to standing up, look as if it stands up. Therefore the metaphor of structure was always already in place in architecture as a natural given. What I am suggesting is that this Vitruvian given within the mechanical paradigm is no longer all that interesting. While buildings must still stand up, few people care whether buildings look as if they can stand up. Instead, one faces the need to deal with questions of authority, of simulation, of non-original forms, and lastly, a holdover from the mechanical paradigm, the phallocentrism of architecture. That which withstands the forces of gravity and metaphorizes that withstanding is always phallocentric. I believe that all of these issues are addressed by the computer, which does not deal with the hand of the author or the notion of the original or the possibility of the computer modeling voids. These are the issues that will lead to the inevitable computerization of the design process.

Selim Koder: To what extent can we expect this digital representation to have an effect on architecture? What are the possibilities?

PDE: I can not answer a question of what is going to happen in the future. I do not know and I am not a futurologist. I am certain that the need to reassess architecture within a digitized process, i.e. that there is no beginning, there is no truth, there is no origin, and there is no a priori given. In other words, there is no longer the necessity to begin from a rectangle, a circle, or a square. The notions of the Cartesian absolute as a priori truth already invested with beauty and goodness no longer exist or are no longer taken as truthful or necessarily beautiful, or the only necessarily truthful and beautiful. If this is the case, then one has to find other

matrices of form making. And the human hand/mind relationship is not able to conceptualize this because all it can do it draws from the inventory of what it is possible to do with the human hand. That inventory of the possible is limited through knowledge and experience; the same knowledge and experience do not limit the computer. The computer has no experience or knowledge of some of the images that it makes. In order for these to affect architecture, such images must be capable of being built and the computer must be affordable in terms of the architectural process.

The kind of things we do whether we have faster machines or not are enormously problematic in terms of our own time and energy and the reason why more people are not using computers is because it is a time-consuming process. It is not faster doing a dumb building on a computer than doing a dumb building by hand. The kinds of things we do which push the limits of the computer technology in Computer Aided Design problematize the future because the computer programs, hardware and software that we have, that an ordinary office can afford, do not allow for the economics to work out. If you look at the way we produced Atlanta (Emory Center for the Arts) what it would take to produce Atlanta in a cost effective way ultimately would not be cost effective because of the amount of money that you would have invest up front. So we have to find a way to begin to share, to network offices, and to share computer time with the heavy equipment the way they do at universities.

SK: In a similar way that was done with Emory University Computer Center.

POE: But still that was very costly. I think until the construction industry realizes how it must change in order to allow for the computer, the computer is going to be as limited as the pencil. Until we can free the computer from the designer, from the process, and from construction, there is not going to be any change at all. The computer right now is limited. It does not function effectively.

SK: There were two points you made before - that the computer acquired primitive qualities. When the directed hand of the author stops it at a certain point and selects a set of forms, "is this enough presentness for me, is it subversive enough?" That primitive quality, is it because of authorship?

POE: It is because of the unpredictable nature of what it is producing. When you program some kind of systemic notion, say you take a mathematical algorithm, you do not necessarily know a priori, what the formal constructions or the formal contingencies are going to be. And you do not know when you see the formal contingencies how they can be manipulated even further, through changing one of the elements of the algorithms, to move this thing in one way or another. A knowledgeable individual no longer manipulates it. In other words, the algorithm contains the knowledge and the history but we as individuals do not have access yet to that kind of history and knowledge of the formal contingencies that are going to accrue to a particular algorithm as the computer does. This is what the computer does for us.

SK If we are going to use the computer as a tool, to quickly analyze the changes, the second thing is to use within the nature of the software, for example in Mathematics we used it to analyze radar waves, humidity, white noise, etc.

POE: I am saying that the software is limited. We do not have yet the software to do the kinds of things that we need to do in architecture. We do not have the software that models voids. Our software is really primitive. FORM-Z software, while useful, is really primitive. What we

need is the kind of software that the people who model complex biological and physical data in complex research institutions employ that can be used as models for architecture.

SK: Granted that these machines exist, and I think some of them do in a much higher market range, it is therefore not cost-effective anymore because the architectural industry does not have access to that as much as, let's say, the motion picture industry, etc. How do you think that can be addressed?

POE: I imagine that this could happen through a cooperative of some architects' offices. A group of architects through the A.I.A. could buy a supercomputer. I would assume that every architect's office couldn't have a supercomputer. Something like this is going to have to happen because the mechanics of the profession are never going to change because it is not a profession that has a margin for experimentation. We experiment to our detriment. Nobody pays us to do it. And as long as nobody is paying anybody we lose money. Silicon Graphics does not see fit to take five leading architects and let them begin to experiment so they could demonstrate how they could increase their market, because the market they are looking at right now does look to be a viable market in terms of what architecture is going to be in the next twenty years. I think the architectural market is going to be quite large. Once you begin to use computers you begin to realize what potential there is to produce quite extraordinary things. I think that the computer industry is moving into the schools but has not yet brought a similar research capacity to certain on-line offices that could use it.

SK: There were two projects that I talked about in Wiesbaden, the Emory project and Haus Immendorff. I think they represent interesting poles in the way in which they were designed on the computer. One interest in Emory was the harmonic lines and the more advanced concept of self-aggregating systems used in Haus Immendorff.

PDE: The two are different. Emory was concerned with taking regular geometric forms and turning them, through the use of harmonics, into what can be called topological surfaces. The movement in the Immendorff project concerned a new attitude to profile. Using the solitan wave as an analogous form we were able to get a profile that was more dynamic at any one view. Furthermore, it was constantly twisting, from a section transforming itself as it moved upward through itself so that what was solid turned into voids and conversely voids turned into solids.

A third project, an art center for Tours in France, dealt with the question of poche. What we were doing is to take traditional conditions of architecture, profile, poche, section and look at them in a different way. Modern architecture forgot about these ideas. Without returning to personal expression or any kind of expressionism, it is possible to study these ideas. The work is different from expressionism because they have in them systems, which internally generate their forms rather than being imposed from the outside. Expressionism is always a composition from the outside. The ideas here concern an internal expression of the material or the possible process of the material but they are not an external expressionism that we traditionally think of in architecture.

SK: Does the transformation of drawing through the use of computers occur in the secondary relationship in architecture?

PDE: Tell me what you mean by secondary relationship.

SK: Where the primary relationship is between the formal and the conceptual, the secondary relationship is between the conceptual and the textual.

PDE: The primary relationship in architecture is always going to be the relationship of the formal to the conceptual; you have an idea and then you have a form. Then that form is able to be written or expressed in a text, a text which is possible in the form, which is a secondary relationship, a writing not a drawing.

SK: And so if it is a transformation of writing, what kind of transformation is it?

PDE: Digital expression could be either a manifestation of drawing or writing depending on how you use it. The way we use it is a manifestation of writing as opposed to drawing, but it could equally be both. When one is merely copying something from one medium to the next, one is not writing. Writing is already going back to the conceptual idea; in other words, it is a link back to the conceptual. All drawing isn't conceptual. All writing may not be conceptual but the writing that I am talking about, what differentiates it from drawing, is.

SK: So can we say that this manifestation happens when the relationship to the instrumental in architecture is weakened?

PDE: This is the beginning of the way it happens. Since traditionally the formal and the instrumental have had such a close bond, it is very difficult to suggest that what we are reading is textual; we could be reading instrumental. In order to read writing, one must weaken the bond between the formal or the iconic and the instrumental. Then one can begin to read the iconic not as instrumental but as writing in and of itself.

SK: As indexical?

PDE: Yes, perhaps, but the indexical in architecture is always secondary because the wall will never be anything else than primary.

SK: You mean it has to exist as an excess.

PDE: Yes.