

HAVE AUNOCALCITE PNT / 0894
PART 2 090 A
PART 3 091 A

SANTA FE TALKS: SUNDAY, JULY 12, 1987

STEINA, PETER WEIBEL, WOODY VASULKA, GENE YOUNGBLOOD

PETER: So we've already spoken about polychronic and polytopic phenomena. What I want to discuss now is the idea that what we call special effects -- all the things people don't like -- are a development of cinematic grammar starting already with the two first principles we have in cinematography and photography: superimposition, in which you compress time by overlapping space. And the next thing is montage. You jump from one space to another, from one time to another. These are basic. All other special effects we have today arise from them. I can prove it very clearly and show photographs how the first superimposition was Eakins jump in photography. Later it goes to Len Lye, then "Pas de Deux" by McLaren. Then Ed Emshwiller's "Crossings and Meetings." Then people in music video with these infinite repetition of movement.

WOODY: You began speaking about filmic grammar. Is the grammar acceptable? What is filmic grammar? You referred to superimposition or dissolves, and montage. What is montage?

PETER: People normally make a big difference between decoupage and montage. But it's not right. Normally you have a continuous shot but you have to make a cut anyway after ten minutes even if you have the best camera in the world. So the cut is the element which divides decoupage from montage. If you go in the direction of montage it's a little more formal. In decoupage you try to hide the cuts. You cut on the action and so forth. The camera angle and movement is such that you have the illusion of seamless continuity. Whereas in montage, Eisenstein shows us the rupture, makes it foreground. In montage, difference is created through the cut; in decoupage, sameness or continuity is the goal.

WOODY: Let me give you the Prague film school version. Decoupage refers to special dissection. A room in which something takes place. You first create a mental decoupage. Observe it from this particular angle. Next time you move to this angle. In theatre it's mise-en-scene, in film it's decoupage. You work with spatial dissection. In montage, you take what you've done and then you make something filmic out of the spatial. Decoupage is the director's idea and montage is an editor's idea. Sometimes they're the same people. But nevertheless montage and decoupage are two mental states, two different poles of cutting. Decoupage is the intent. It's the truth before. Once you've shot the scene decoupage is over and montage is the only savior of your bad decoupage. This is the Prague

School interpretation at any rate. Decoupage is a mental process in which you move the camera and you foresee where the camera will go. You chose only a few viewpoints or movements or whatever. It's hiding the most brutal element of film, which is the cut, and you try to make it into a language. Decoupage is the instrument through which you hide this chopping of the space by mentally transforming it into continuity.

PETER: Normally, for example, decoupage goes into narration and montage into formalization. Decoupage is the illusion of continuous movement, not jumping. As Woody said, *mise-en-scene* is the ideal decoupage. Because then you don't cut at all for ten minutes. Like in Orson Welles. So the ideal is *mise-en-scene*: the putting in place of things, actors and cameras. But eventually you have to make a cut. The better contemporary Hollywood movies are a mixture of decoupage and montage. But in the classic period they were distinct. Eisenstein was montage, so much so that people after the war said this was old fashioned; so the nouvelle vague in France returned to decoupage and the notion of the *metteur-en-scene*. So there are two strategies how to make a cut. In a montage-like formalist way. Like the flicker-films of the sixties, they were the extreme case. At that point montage is dead and over. On the other side is decoupage where we try to avoid seeing the cut. What I'm saying is that from these two elements -- superimposition and

montage (because decoupage is hiding the rupture in space and time; the word means 'cut' but you want to hide it; Hollywood is very good at this) --

STEINA: Is three-camera coverage in a TV studio decoupage or montage?

PETER: Decoupage, because they want to give you the feeling of continuity. That you are right on the spot and don't miss a thing. In montage you miss something. You jump in space and time.

GENE: So decoupage reproduces the physical space and montage creates a cinematic space.

PETER: Yes. That's why montage is more an element of cinema than decoupage. Decoupage is more like theatre or a TV show. It creates a psychological space. In montage, where you jump between different spaces without continuity, temporal distance and spatial distance are cut together. Montage was first used to bring together temporal distance, but later it came to be used much more for spatial distance. Today in Hollywood cinema you see this kind of montage. We all used to it now but fifty years ago we were'nt. Superimposition was invented first for spatial distance compression. Consider the photographs of Thomas Eakins, the man jumping and the different faces. You take different moments of time and you show them in one image. In film also, you show a face and then you

superimpose the same face from another time. Muybridge was montage because he had the horses frame after frame, and Mare was superimposing already because he had different moments of time in one frame. So Muybridge introduces the cut in still photography and later Bruce Conner makes movies in which every frame is a different image. But it's the same idea as Muybridge. So naturally I can show how it develops, all these elements in cinematographic language, a kind of grammar. The funny thing is that you see, for example, in "Pas de Deux" by McLaren, it looks like Mare, you see the movement of dancers but always with the early movement behind them. Then they come together in unity of time and space.

WOODY: I would say that this is not the grammar of an image but of a system, in this case the optical printing system. What I'm missing is you're trying to express a human effort to formulate a language but in fact the system offers these suggestions. Even the cut is the result of a system. You can't run film forever, as you say.

PETER: Yes. I would say grammar is a formal machine. This is my point.

WOODY: In any description of cinematic language, I would simply consult from time to time how the system performs. For example, different lenses. As far as computers go it's the same thing. We may bring a desire to the machine, but that desire is frequently overcome by the suggestion

that we get from the system. There's a continuous dialog. It eventually brings forth what we call grammar. We had the same trouble at the beginning when we talked about grammar and syntax and language. I don't know if we're ever going to solve it.

GENE: I'd like a statement of what it is we're trying to do here. How do we articulate our project? Last time, Woody said the electronic image is continuous with cinema. The phenomenology is the same. So our project was not necessarily to identify that which is unique to the medium but that which would tend to be used more because it's easier or whatever. And I think we're trying to say that some kind of new grammar will emerge from these possibilities -- not because they were impossible in film but just because it's easier. So what questions are we asking?

PETER: One part of the project would be to say that grammar is a formal system and a machine is a physical implementation of a formal system. Woody says rightly that I'm describing what the possibilities of the machines are. The possibilities of grammar are the possibilities of the machine. When we develop the machines further, we have more flexible, richer formal systems and in this we have greater, more flexible grammar. But who is building the machines? What are the rationales and directions that determine the evolution of machines. My answer is that they come again out of the preexisting grammar. In the

formal system of the grammar you have the desire how to transform the image, and this desire comes from your experience with the limited system you had before. So there's an evolutionary loop or recursion effect. The grammar asks for new formal possibilities, so we make new machines and the new machines show us again what we can do. The machine shows us something we didn't know before. This is only one level of our project.

WOODY: The last time we ended by quoting Heidegger that man lives in the house of language. In my interpretation, we all live now -- work and practice -- in the house of the system. Do we fully fill the space of the system? I feel that the system contains much more than we take. We limit ourselves for various reasons to particular aspects of its possibilities. We have these magnificent machines that in fact contain suggestions -- contain in fact a language -- yet the vast majority of people (especially professionals) take only a narrow part of the whole possibility. In fact deprive us, themselves and the world of the full possibility of the system. That's the panic amongst the arts to explore the machines so that we can map somehow, rapidly, the space in which the system exists. the house of the system.

STEINA: The house of the horizontal sync.

WOODY: So that's one thing. We can extend it to language. We can extend it to modalities. Because machines give us...so for us practitioners this is the duty. It also extends into a political and social context, which is Gene's interest.

PETER: On another level it's necessary to make a close formal investigation of the "house of the horizontal sync" because on the basis of a clear understanding of what's going on we can describe the transformation of the image and then we can ask, how can we situate the moving image into the nomenclature of the still image -- you have the image of a painter, a still image, why does our culture like the still image so much and not moving images? This is another topic I'm interested in. The moving image doesn't play a role in culture the way the still image does.

GENE: You mean high culture, which doesn't exist in this country.

WOODY: Yes. I would have to dispute that also. You can't separate culture and ideology. Peter is spilling into the social and political context which is our second level.

GENE: I'm still frustrated because you're saying there's part one and part two, but what's the whole? What's our purpose or goal in the book?

PETER: First of all, as you know, my obsession is the phenomenology of the moving image. The moving image can't be located in a particular time, location or medium. It has to be taken out of the context of each particular hardware or aesthetics and it has to be treated as a permanent part of visual literacy. it's a primitive term but it can describe it. This phenomenology is very much what reading is to us. we know how to read. its part of the culture. so is looking at the moving image. Painting is still an object, but the moving image is not. it may be a mental construct. but it leaves a residue of ideology or idea, a residue of mental transformation. of course it's a legitimate part of the culture, but can it be compared with painting or music? Probably it can't. Even music is an object. It exists in the airwaves and it eventually hits your ear. at that moment it becomes also ideology. So that's these two parts of it. So I think, to begin with, we will map the phenomenological root which will bring us to the computer and beyond. How images are formulated, how they're organized, how they're performed. this will bring us to language: how is it expressed. Will the edit or cut be part of our permanent vocabulary? It probably will. Does the electronic image have a specific extension of the dissolve or superimposition or transformation?

GENE: So you're saying we want to chart the evolution of the phenomenology of the moving image?

PETER: I would say it like this: the aim of our book is to chart the transformation of the image through the moving image. we're charting all the aspects, only one of which is its phenomenology. The moving image can be in different systems: film, computer, video. So we're trying to chart the constituents or effects of the transformation of the image through the moving image.

WOODY: That's a bit outside my domain. I never considered the non-moving image. Of course I admit there is photography. But Peter was the first to suggest that there is a link between modernist painters and cinematographers. Not directly but indirectly.

PETER: The real challenge is only possible in comparison to the still image as in painting. Comparing the moving image to the images we had for thousands of years before. We have the photographic image, the painted image. this is what is really challenging. The video image is very different from the film image. because it doesn't really exist. the film image is still an object. but the video or digital image is nothing. its an event in time. it doesn't exist in the classical logical sense. therefore it represents a big rupture. It's for this reason that I speak about the transformation of the image. because suddenly we lose everything that people think the image is. In chemical photography you don't need a machine because you have the actual image in your hand. but in

video you need the machine to create the image, and you
see it only for a moment. it exists only in time.

GENE: So our project is not to ascribe some unique syntax or grammar to video?

STEINA: Absolutely. But Peter is opening it up into a much broader context.

RE: CHRISTINE TAMBLYN

WOODY: This woman criticizes the maker as an innocent and blind person who in fact should not be concerned with the uniqueness of the medium. Because for her, who looks at it from the outside, it's completely irrelevant. As a practitioner I say the complete opposite. If I would not be convinced that the medium I work with is superior to another world, if I were not convinced that this is the new language I'm working with, I would have no particular reason to work in that area at all. So the idea that an interpreter can dismiss specificity is less than half the story for me. because the reasons why people initiate the drives for the new, experimentation, innovation, come from completely different roots.

GENE: I would say the same thing from a critic's point of view: you can't do serious criticism without addressing this issue. because what are you criticizing? it's language. In anything you analyze, it's language that you're interpreting. content is given through language. and this language is what we might call cinematic language, and yet it becomes different when you use different tools. so a critic can't ignore it.

STEINA: But this is the rupture Peter talks about. The rupture is much deeper than merely technical or material. It's cultural. every time before, the creator was in charge of the tools or was the one to prescribe the tools. and for the first time we're in the hands of the engineer -- people who aren't interested in the image, aren't interested in image culture, history or nothing. they bring down the tools as best they can, according to their honesty, which is to make commercials. And we also don't have access to the tools. this is the first time. because a filmmaker did have access to montage and decoupage and all that language. we only if we have the money, the means and can go into the studios and then we have to use the hand-me-downs from those engineers. it's as if you speak English and you know those words over there but you can't use them because they're not available to you. Woody would like to use a Squeeze-zoom. I see techniques out there I'd like to have. Like freeze-frame. I have to go to a studio for that, or slo-mo. there are others that aren't accessible to me, but I know them. I know how to use them. This is different from filmmaking. If you knew a trick you could use it. if you were a Baroque composer you weren't going to compose French impressionistic music because it wasn't yet available to you. but to the impressionistic composer the baroque was available. that was a vocabulary that was already established. and everything up to that period is available to you. but suddenly

now we have something that's available yet not available. and I think it's a very interesting cultural phenomenon.

GENE: It's not true that these effects were available to the filmmaker. I'm talking about amateurs, experimental filmmakers, artists. The effects were available to them only if they actually built the machines themselves. the history of experimental film is filled with artists who built their own optical benches. Jordan Belson, Will Hindle, John Whitney, etc. It was not available to them. It was user-built tools. At the same time, the professionals of that period didn't build their own tools. Professionals never do. they bought them from engineers. So back in the time of film if you were a professional you bought your instrument and if you were an artist that instrument was not available to you. you had to build it. just as today, the tool of the professionals isn't available to you. you have to build your own, which is exactly what you've done. so there's no difference on that level. they're both user-built tools. but what I think is dangerous in what you're trying to lead to is that technology -- digital technology -- is evolving so rapidly that in a few years, this lament will not be valid. In fact it's going to be possible to do all these effects very cheaply and it'll still be user-built tools. because it's software. software is user-built.

STEINA: I disagree about that. it's being handed to us by the

engineers. they're not artist-designed tools.

GENE: But the computer is not a tool. only the software is the tool, and you can design it.

WOODY: I think it's completely legitimate that industry has its own limits. why would you demand something from industry that it isn't doing.

STEINA: I was only pointing to what Peter said about the rupture. Everything about electronic image is different from everything that evolved before it. He spoke about montage and time compression and everything that the image was from still image to moving image, taking the whole history of picture-making. and now there's a rupture because we don't see the picture. it's an electronically encoded image. and I was saying that the rupture was also cultural, because every time before the artist built the tool. and the artist was the conceptualizer of the image, always.

WOODY: But you would always object against young artists telling you they had no access to equipment. You'd say that's irrelevant because you can construct your concept in a different way. That's what you liked about art, that one could make it from nothing. We aren't directly dependent on the industrial structure. We can conceptually perform virtually everything we want with our own resources. If there's something that doesn't exist you have to invent

it. that goes back to the Renaissance.

STEINA: The fact remains that at this point we know a vocabulary we cannot use. I think artists in the past suffered much less of that. the vocabulary or expressions they chose to use were available to them. but ours is a time in which we know there are expressions out there -- it's like having a vocabulary, words, that you know but which aren't available to you.

PETER: You can make your own tools or you can change your concept. But generally there has been a great difference. The painter had easy access to his tools and these tools were understandable to other people. What was complicated and mysterious was the mastery of the tools. Everyone could hold a brush and paint, or a pen and write. So the tool did not play any roll at all. Mastery of the tool played the decisive roll. In electronic image, even when you have to learn software, the mastery of the tool is so different in the concept of art than it was in painting. of course there was simple scientific color theory, Goethe and so on, and how to make perspective, but it was all primitive and naive compared to today. but the tools did not play a roll. The rupture is that suddenly the tool becomes important in creating the image. even when you build it yourself. that doesn't change the situation. We're bewildered by our tools in a way that we would not be in a painter's studio. The consequence is that the tool itself is the root of the image. In classic times we

were fixed to the image. we liked to look at the image. My ideological explanation is that the image was the place of commodity fetishization from the beginning. this is why people like still images and not moving ones. you can't commodify the moving image. you don't get any money and you have to go to the government to get money. because there's no bourgeois any more who would support us, the way they supported the painters. You can't have an art gallery of moving images. At the moment when the tool becomes part of the artwork, however you make it, then the tool has become a problem. How to access it, how to build it yourself, how to learn it. So the idea of the author is suddenly linked to material roots. the ideal image was always Platonic, idealistic. it's a mental thing: you do it and now the material roots, you see that this effect comes from this machine and so on. The image is showing you the material creator, the technology. the image itself is much more materialistic. it's not any more something of which we say "It's done by angels."

GENE: I think there's a danger in this line of thinking because in fact these new technologies allow much more the imagination, the visualization of concepts. it dematerializes the process.

PETER: You're absolutely right, but you still see the machinery.

WOODY: You speak about it like a Marxist who speaks about one

system replaces another through historical dialectics. I think the responsibility is still with an individual. you can't convince me that I must accept this industrial society on its terms. i cant and won't accept that because then the whole process loses its meaning. if you are comfortable with associating yourself being in the hands of some kind of industrial society which will decide what constitutes a convincing statement, then I must say I don't want to live in that part of the world and I'll make every attempt to change it.

PETER: When I look at one of your images I see that it was done with the Rutt-Etra.

GENE: You're speaking of a certain machine literacy. But didn't this happen also at the beginning of painting? Granted, now it becomes more dominant in electronic media. But what is the point?

PETER: That what we see in the image is a piece of technology. And the painting is a piece of manual work.

GENE: But this is really crucial, Peter, because the whole criticism of the "other side" -- those who are against what we're talking about -- is precisely that it's "dehumanized."

PETER: I would say that these people in some way are right. They

really see the rupture. We can't say they're wrong. Their reasoning is wrong. it's a problem of legitimization. But they do experience a valid rupture. Where they're wrong, of course, is that a painter is not more human than Woody and Steina. So how they describe the rupture is wrong. To call it humanized or dehumanized. But they rightly see a rupture. So our task is to correctly describe this rupture, because we all agree that there is one. More generally, the image now suddenly is linked to technology and to the progress of technology. the painter was not linked so much to technology. for long periods, hundreds of years, there was no change in the technology of painting while painting itself evolved. Impressionism had nothing to do with the technology of painting. But now in a mere ten years the whole video world change. We couldn't even make a cut in the beginning of video. So in twenty years the progress of image vocabulary linked to technology. We must see this and discuss this. This is what makes it problematic for the "other side." Because for them culture has nothing to do with technology. But I think so, and this is what Woody calls my Marxist point of view. I like it when you see the material roots of something. That's a little Marxist I guess. In the progression of technology the image has become, as you said, more dematerialized and it will become more so the more our machinery advances. For example, fractal geometry can imitate nature so good that it looks like painting. but that's only possible because the machine

becomes more a machine than it ever was. So its this problem about simulation through the machine. the more advanced the machine the more its able to simulate nature. So this art is linked to the technology, where earlier art was not. I think this is more human than painting. But why?

GENE: One answer is that the particular technology you're talking about is language. its not the hardware. its the software. language is quintessentially human. so its as if our brush is some kind of speaking system, a language. which makes it infinitely more human than that inert mop that the painter uses.

WOODY: The urge to create a language and cover the system by a language -- that's basically the process that's going on -- in which you would transform the concept of the black box into something transparent. the black box becomes transparent and language becomes visible. that's exactly where my objection arises at this particular moment. the transformation of process into language or experience into language, or experiment into language, or materiality -- the interaction of electrons with the surface of the CRT, if you wish -- these processes for inventing the image are essential. Again, I would say you can't invent language without inventing the image. The invention of image is most supreme. the language that comes out of it is inevitable. the urge to invent language without

inventing an image is disturbing to me. that's what people long for: to get a box that does the work. I would say its virtually impossible that we could transcend from cinematic language into the language of the future without in fact creating the process of inventing new images, new language, new illusions, new realities -- whatever you want to call it. and this process is being always lost in this idea that if we could only have such and such tool we could have such an image.

STEINA: The invention has always been exclusively the artist's domain.

WOODY: It's a certain territory which is indeed personal but its also social. because the tools now -- as you rightly notice -- are belonging more and more to the institutional domain. I would like to keep this dimension between the technology and the invention of the image. the whole process. I would like to keep that within the dimension of the individual. I would participate on the language. I would say, yes, a language would need many man-years of work, but still there's a personal dimension in the language. language maybe should be created by the artist as a fragmentary experience that will eventually by some ability of integrating those specific things like experiences from painting could eventually create or constitute the language. but today languages derive from industry and they don't relate to the culture's needs.

PETER: I agree that the idea of automated art is contradictory -- push a button and you have an image. But I disagree on the grounds that you can't relate to your practice as a theoretician. You want to save the concept of the artist and of the art work, with which I disagree. What you are looking for is still the concept of the artist, the art work, the author as whole. And also as a little bit Holy. You want still to have an autonomous subject with his art piece. My point is that the entire machine aesthetic starting with photography and moving through film and the electronic image is breaking down this concept. This is the problem people have who don't like video or computer art. Why do they like painting and sculpture? For them, when you do a sculpture you do it with your own hands, you are master of the tool and the tool doesn't play a role. It's only an empty space for your creation. You can do everything with clay. But machine aesthetics is breaking down bourgeois ideas of what art is and how it's made. Even photography, for example, isn't really accepted as genuine art for this reason. In machine aesthetics, not only the image is transformed but also our idea of authorship is transformed. Because this image is not done by you. It was done by the Rutt-Etra. You say so in the credits. So you appropriated this image from the Rutt-Etra. But when you look at a picture by Rembrandt you have the feeling (even if it's not true) that everything was done by him.

That he had all of it in his head. So machine aesthetics raises a problem of authorship.

GENE: It's interesting that logic and rational thinking lead us to this conclusion. Yet psychologically we reject it. So could we not say that the notion of the autonomous author must be enlarged. The author is now in symbiotic relationship with the machine. The "creative subject" is still an autonomous unity, but now its the human and the machine. Especially since "the machine" now refers to a linguistic system called software. The machine becomes language. The machine produces the art only because human language is part of that machine.

WOODY: But you still haven't brought this line of thinking to any conclusion. You're still talking about elements. Is your conclusion formal? Like an archetype. A machine that contains all images? Or do you still think that the source is fragmented, that you have the world as your resource? Where is your image coming from? From every aspect of world experience? From every library? From every camera? From landscapes? The world is your image bank and you take what you want out of it? I want to know what is the end of your domain of images. Because I also come to the conclusion that through digital instruments, one of the sources would be the archetype that contains all the world's objects and images personalized, modified to suit your personal

expression. It will reside in computer memory. But still, there is also some symbolic language or iconic language involved here, through which you present what you have taken from the world. You transform it. But I would still insist that the artist can't work without this modality of being unique. Why would you present an image which is not unique? You accuse me rightly of clinging to an old-fashioned sentimental idea of the unique personal image. I agree with you, it's rather silly. On the other hand, give me your interpretation. Why would you show me an image which would not contain your own sentimentality?

PETER: I agree. As an artist I want only to create unique images. But I would know and accept that some elements of this unique image are not from me. In fact this has always been the case, but the classic artist would not accept it. The ideology was different. But contemporary ideology obliges me to accept it. The idea of autonomous authorship has now to be expanded or enlarged to include elements which before were not part of it. This makes it difficult for traditionalists to accept the new art. So I would say that with the help of the machine I create a unique image. So I still see myself as an artist in the classical sense. But when I analyze it I must admit that it was with the help of the machine and the help of other photographers and cinematographers and so on.

WOODY: Yes. The machine gives us so much that I always credit

the machine in my work.

GENE: Current discourse in poststructuralist theory says that you can no longer be a source but you can originate a tradition. History is seen as a stream of possibilities without a source. But there can be an eddy in the flow and a new current in the stream can be originated. The ideas of origination and source are different. Woody can originate a tradition or current, but he can't claim to be the source of the image.

WOODY: That's right. But my only dispute with Peter is I think a personal one. You somehow can't work outside of your personal environment. In my case, as part of the strategy of my work, I would try to maintain as much the personal as possible. Which is probably Romantic. It has nothing to do with results, either. But the question is, if the tools impose on us, and also if ownership of the tools has a social/artist relationship, makes us more public, makes us depend on the public for industrial tools?

PETER: I see several aspects, if you will allow me to be personal. Steina's tape called "Allvision No. 1" I am tempted to say is authored by both of you because Woody built the machine. The fact that you say it's exclusively her work is a matter of personal agreement. It's similar to the problem in cinema, where the director is given credit for authorship when in fact the

scriptwriter created the concept and the dialog.

GENE: What we're really talking about is levels of primitives. The primitives of today would be the complete end product of yesterday. In painting you make a mark with a brush and you build an image. We start with the image now, that's our primitive. So we tend to feel that the maker of the machine whose primitives are so high level should be considered the author. But why now, just because the primitives are so sophisticated, must we shift our attention from the creative connectivity of the user -- creation is about connecting things -- OK, so we start with our primitives very high: why should this matter?

PETER: Two things. First, I'm not saying -- as many poststructuralists do -- that autonomy or the author are dead. I say only that those notions have been mapped onto a territory which is still unknown to us. Woody's whole tendency or rationale is an extreme passion and life devotion to press these new problems into old concepts. He wants to be Vermeer sitting in his studio all his life, painting all his images inside that studio. He produced twenty-four images in his life, all of them essentially the same with different props. Woody tries to do the same: a wonderful life devotion to make his own environment on an electronic level so he can sit here and make his images. He brings in photographs from

books and scans them into his system. He goes out to record landscapes, but they are digitized into the system. He wants to prove again that the artist can be master of the tool. He wants complete sovereignty of tools and environment. But I would say that Woody represents a transition where extreme forwardness in technology and the price of this is there's a certain backlash. The great figures in art always take two steps ahead and one back. It's one step back because he wants to put it again under the sovereignty of the autonomous artist. The other side is that you feel free to appropriate images, you have people build machines. You have the concept but you realize it through a network of different sources. I don't to be the source any more. I want to be the producer or whatever you want to call it. And we do have problems with what to call this new role. An artist like Cindy Sherman imitates images that already exist. I'm not interested in this. But I still would acknowledge that the tendency of the new technology is that you don't be the source any more. You use machines which you don't know how they're built. I would accept this but you would not.

WOODY: I would think that in order to do it under your

conditions, or under your control, I have no rapid way of adjusting myself to various conditions. Even as far as tools. I can build them but I cannot understand them that fast. Some people are very facile in working with machines. So it's probably that aspect of it -- how easily you can work in various environments -- that decides which way you live and work. I would be in panic to go to someone else's studio and find thousands of buttons. I would not be able to ask that person to mediate it for me. It's a problem of human interface.

PETER: I was an art photographer for ten years. I didn't make the camera. I told people I had an idea to make a particular unique photograph but I didn't know how to handle the camera so I hired people to do it, then I sent the film to another company to be developed, then I asked them to change the prints until they were what I wanted. But in the end people thought this was my work even though I didn't photograph it or develop it. Yet I was very influential in Austria. There was a whole generation imitating what I did.

WOODY: This same issue goes back to the beginning of video. People like Nam June Paik and Doug Davis was very facile in going to the industrial environment and doing their art by negotiating with other people. White collar artists. It was a personal stand which we took: our ethics dictate that you're not going to be dependent on industry, not going to be part of that. It was a kind of

protest, an anti-establishment stand. And we always saw people like Nam June Paik as profoundly corrupted by this possibility. But was one of the first to treat the world as the source of image.

PETER: This is an example of why I say machine aesthetics is changing our ideas of authorship and autonomy. I don't know where it's leading but it's what's happening. And it's why I say your protest is romantic. It's against what the technology really wants from us. To answer Gene's question -- just because the primitives are at such a high level, why should we suddenly say that the technology is part of the creative act -- I would say that the question of materiality in painting and in avant-garde film of the sixties -- abstract expressionism (taschism?, the materiality of the painting itself). They wanted to go back and show us the technology of painting and filmmaking. They didn't want to represent anything. Painting and film came into a crisis through the cultural proliferation of technology. Everywhere we went we saw technology. So they wanted only to reveal their own materiality, their technology, to aestheticize the tool itself. Not to produce images anymore with the tool. they wanted the image to refer back to the machine that produced it. this was an ethical and moral reaction to the proliferation of technology in our culture. This produced, in my view, cynical painters like Andy Warhol who only showed us that we had only technology. British

Pop was before American Pop. Hamilton's paintings of household appliances...so for thirty years artists tried to reduce to materiality. This produced a crisis of legitimation. How can I make images like nothing and still simulate the...when I see all around its created by man. Technology, machines, are created by man. "Techne" means created by man. Therefore I say, the more you use the machinery of the image, the more you show yourself, therefore its much more humanized. because technology means created by humans, not by nature or by god. so the only chance we have now after 100 years of technological art, we have to do it. That's what you asked: why should we take the technology into account?

GENE: I didn't say we shouldn't take it into account. I just asked why we should emphasize the technology just because the primitives are so much higher, why should we deemphasize the creative vision of the user of the machine?

WOODY: What you are saying Peter is that painters in fact entered this depiction of technology by showing objects of technology. But of course you can't really show technology by painting. How does painting deal with the technological world? It makes a collage of household appliances. That's how we enter the technological age through painting. This is bizarre, because the materiality of technology cannot be shown through an

image of the object.

GENE: Painting can only represent but it cannot be.

WOODY: Exactly. And now we have machines that in fact are technology.

PETER: And as a result we have this battle of the two cultures. This is where we started. Because painting cannot do what we can do with the moving image.

WOODY: Painting cannot be what technology is, but technology can portray itself by using itself to portray the world, or itself. The moving image is a machine. the phenomenology has to exist only within the confines of the machine. it cannot live outside of that.

PETER: But in painting its exactly the opposite. Therefore, we have the transformation of the image through the moving image. Suddenly we see that the historical role of painting is over. the last crisis was abstract painting, self-referentiality. I would say the highest achievement of 20th century art was abstract painting. It was the end of painting, the end of the still image, but it was the beginning for us. Today we press a button and we have an abstract painting, a Mondrian, say. For them it was the highest point of evolution, for us it's the lowest one.

GENE: The same for photography. We start where photography

stops.

PETER: Then abstract painting was further reduced to "taschism" (?) to show us the materiality of painting, to show the triumph of the material alone.

WOODY: Marx would define material as the ultimate carrier of the truth. suddenly in the 20th century we began to question this because suddenly matter wasn't matter anymore it was energy. suddenly the matter of the genetic code wasn't the material components; it was suddenly organization, information. So the idea of the material itself or the state of the material still doesn't express anything unless you interpret it. So I still have a problem with this emphasis on materiality. In the beginning of our work, for example we use white noise to generate all the frequencies and colors because white noise contains them all. This is exactly what happened in video synthesis. but the struggle to express formally was the same old-fashioned struggle. we wanted always to represent something. we knew we had everything within our system, but how do you organize it to say something? We had as our primitive the basic electronic material, but we had the urge to create a world out of it. Making this amorphous material into symbolic language was our first effort. And I think it was the first fallacy. It's interesting to watch, but of course it doesn't compete with other art.

PETER: Well, after this naturally we had to find a code.

WOODY: We find a code in order to interpret. that still doesn't mean the code is correct. It's an artificial man-made code, unlike a landscape which is made by god. So let's talk about code. How does it enter into this situation?

PETER: When we described things like the cut and montage, these are very early primitives inherited from photography, which are insufficient today. So what we really should describe is not grammar but the code.

WOODY: First we agree ideologically that the code is man-made. It's still something I'm uncomfortable with.

GENE: I agree. All codes are man-made. Even the genetic code is man-made. Even the idea of information. There is no information in the universe. It refers only to the uncertainty of the observer.

WOODY: Yes, we could say that the creation of codes is an effort of man against god. Maybe we could situate certain events, events or grammars in the domain of the code. What does code mean? There are codes of law, semiotic codes, linguistic codes, cultural codes.

PETER: I would say a code is a formal assembly of elements

which are more the whole than the parts. that means, the way we arrange these formal elements to produce meaning.

WOODY: Can a code be ambiguous? Is it still a code?

PETER: Yes. It's when the elements are not well enough defined. Ambiguity is a necessary element of a good evolutionary code. When you overdetermine meaning it's death.

WOODY: In the digital domain there's no ambiguous code. You can't have an ambiguous code because the machines couldn't process it. When there is an ambiguous code the machine yields no results. So for me code is unambiguous. B is always B, it's never A. So I'd say the alphabet is a code. In the case of the genetic code it's the sequence that's always unambiguous, but its expression could be ambiguous.

STEINA: Is the code something you encode and decode?

WOODY: We're talking about the power of a code. It has the power of transformation. Again, it can't be ambiguous. That means the alphabet could be encoded into a numerical system through decoding or encoding.

GENE: Communicative codes can't be ambiguous. Communication means agreement. So if the code has ambiguity there's no more sender and receiver, and therefore no message.

STEINA: So what is language?

GENE: Language is a code which is very ambiguous and that's why there's frequently no communication. That's the beauty of it. Because that's where creativity starts: we must create non-ambiguity. And as soon as that's done we must create some more. Creativity exists only where there is ambiguity.

STEINA: Communication can also be complete disagreement.

GENE: No, it can only be agreement.

STEINA: If we disagree but fully understand each other...

GENE: We're still not communicating. Communication means to share the same space on all levels. And in this case we do on share the space of agreement.

PETER: This engineer's definition of coding has fallacies too. Consider an OR gate: it's ambiguous. If you can have A or B, which is it? It's same as in the logical proposition "this sentence is true if one of the conditions is true" but which one doesn't matter.

WOODY: Can a musical score be ambiguous?

PETER: The traditional answer would be no, but we all know that it frequently is. The whole idea of the conductor is that the score is ambiguous. Otherwise it would be always the same music. We must find the codes to understand the grammar. Because we also have the advantage that the materialization of the code is not important. In grammar it's the same too. We can make a grammar of objects or words. The code is independent of the materiality of its elements. This is what you mean when you say that the phenomenology of the moving image is independent of film, video or computers. Therefore I would say that the elements we have discussed before like montage, decoupage, superimposition, etc. is the primitive beginning of the code of the moving image. Naturally there's much more than what we have now at hand, from superimpositions to wipes, is the elements of the code.

WOODY: Is the code something that's agreed upon? Who agrees on a code in order to call it a code? If you allow me to use a code as a system from which I can build higher cultural codes, then I agree that it's a practical tool. But if you tell me it could be ambiguous, then I don't need the term code, I could call it language. Why do I have to call something a code which is ambiguous?

PETER: What's different about a code is that it's not dependent on the materiality of its elements. Also a code is changeable day by day, whereas language you can't change every day.

WOODY: You're right but not right. A has to be encoded into zero in an unambiguous way for that state. You only change the conditions of the code. The code has to be very specifically located. It's only a tool but it's not ambiguous and time-dependent. It's just a source and a destination.

PETER: So we could call it metalanguage. This is Gene's idea. You don't communicate because you don't agree, but you do have metacommunication where you agree on the code. If communication means sharing the same space, disagreement isn't communication. But on a metalevel you're sharing the code. Therefore you can express your disagreement, your noncommunication. communication means to share both the code and agreement about its use.

STEINA: Could we then say that the only absolute codes are numerical ones?

PETER: The great tradition of western culture tries to say that, yes. It's numerical.

WOODY: In symbolic logic or Boolean algebra those expressions like AND, NAND, OR, NOR, XOR are called logical primitives, which means they can't be made simpler. In the language of waveforms it's a sinusoid, triangle and square. They're waveform primitives. So code primitives must be unambiguous. OR is always OR and NOR is always NOR. AND cannot be NAND.

STEINA: As soon as you go from the primitives of analog, whenever you start modulating you are into great ambiguity. If you modulate a digital code you are again back to another primitive. You deal only with primitives. All your change and modulation is based on another primitive. Therefore the interpretation is absolute. Whereas sine-wave primitive is only perfect in one instance. And as soon as one part of the sinewave is larger or the other smaller, or whatever, you have no way of describing it really.

WOODY: You can build higher codes from lower ones. You cannot build a code lower than its primitives. That's how computer languages are made.

STEINA: That's the phenomenon of computers. They're the first human invention since numbers that has an absolute code that can be interpreted absolutely.

PETER: What's the difference between language and code? I see two problems. First, we have to learn a code, then we can communicate. If you don't have the same code you can't communicate. So is the code superior or inferior to language? That's a nice problem to think about. The next problem is, can a code generate several languages? If language is prior then the code could be German or English or nonverbal. In this case the code could be different -- English, German, nonverbal -- I could say I like you or I hate you. So there is something that is invariant, much more internal. This is why I say the code can be changed every day but language cannot.

WOODY: If you are to use the language as an expression of a code, use for aesthetic purposes, like a musical score, then if you deliver that structure to an audience or another person. What is there? Is there communication? Because for communication to exist don't both ends have to understand the code? Is something like that possible in image system? To communicate through the code. Not only to create an image but also to create an interpretation of mood or relationship like music does. My problem here is this: a code is too specific for me. If I am to call it a code, you would have to set me to the

condition that you initiated by the code. So tell me what you mean.

PETER: The moving image initiated a rupture from the classical image because the classical image was language. It was not coding. So people had no problems understanding the classical image. In today's terminology we could say it was analog coding so they had no problem. The coding was taken by nature: copy. A problem arose precisely when painting ceased to be representation or copy and became abstract or self-referential, when it started to show its own material roots, its own technology. Suddenly what was language became code: it was showing us its alphabet. Now with the digital moving image the emphasis is not on language so much as coding.

GENE: The emphasis from whose point of view, the spectator or maker?

PETER: The spectator.

GENE: And the problem for the spectator is cultural coding? Linguistic coding? A hermeneutic problem?

PETER: The moving image is much more about coding than about language. A painting is about language. That means we have invariant elements. We look at the painting and we look at nature and its the same. Except in Impressionism, for example, you have effects which make it a little different. So the elements, how he built the

language, is the code. And the code was very close to the language. and now today in the moving image the code is much more free than the language. Moving image can have different machines: cinema, video, computer, holography. Abstract art was saying, reduce everything to syntax. Liberty of words. Or Letters in escape. Or even using meaningless words like the Russian poets. So there was a whole tendency to reduce semantic meaning of language to their basic elements. In my language this means showing the elements of the code. In the moving image, which is about coding, not so much about language, the spectator has two problems. What does it mean? In Woody's work, the code comes both from his machine and his imagination or desire. So the question is, is there a language? can we communicate about it? I would say, we can't really.

GENE: I'd even say it's not yet a code. It's the beginning of a possible code.

PETER: Exactly. And this makes it problematic because you don't have this problem in painting. If you look at a painting by Eric Fischl you have no problem. The code is so frozen. Therefore I dislike it. But most people like it precisely because of this.

GENE: So this is another aspect of the rupture, being that

entirely new codes -- not to mention languages -- are already being started but they haven't been completed. They're only being suggested. Therefore the task is to conventionalize them.

PETER: This is what we do in our book, exactly.

WOODY: I have a disagreement with you which I think I understand now. With the openness of the code that you're talking about. Because I'm talking about much more specific codes. Not only technological but in fact something that can create a language of an image forming, for example. Or meanings of the image in a particular way. But you've opened it much broader. You just say it's the way we perceive certain things. There is something we can read and then suddenly it becomes something we can't read. Because it contains different codes. Now I understand because you put it on a macro-level. I see these things on a micro-perspective. And I'm trying to find out -- making scores for myself -- if a score and a code can be applied to many other conditions of the image. (Woody shows his score here)

STEINA: This is a typical code that is from one person to one person. It originates from you for you to interpret and nobody else.

WOODY: In your description, Peter, ambiguity is the essence. Because suddenly people come to an image they can't read.

PETER: What you're doing here is private coding. There are no objective criteria.

WOODY: My idea is to take cinematic syntax and eliminate what I call the dramatic duration of a shot into what I would call a text or nondramatic durational exposition. So the composition of time durations is arbitrary because it goes from very short to very long. It's a continuous set of openings which eliminates the cut. It's a syntactic exercise. All my latest works are exercises for my colleagues. I don't mind failing because there's still something to learn.

PETER: Woody, this is what all contemporary art is about: to try to invent new codes. Even when it's a failure. Music has a long tradition for thousands of years. Therefore it has fixed codes about how to compose things. Naturally you can break the codes, like John Cage tried.

WOODY: But not only that. I see -- going again to my first premise -- that a system contains a modality, and if you want to fill the shoes of a computer possibility or numerical possibility, you also have this contained by a computer. It's not that I've...it's offered to me again.

PETER: Exactly. That's very close to our point. Because you see the numerical system is offered by the coding of the machine already. It's contained in it. It has some objective qualities but those qualities are in the machine. So its the interaction between Woody's desires -- he wants to make transitions that avoid the cut -- and what does he rely on? He relies on what the machine offers him, which is a time code. This time code makes it possible for him to realize his desire.

GENE: You're saying its only through the time code of the machine that you're able to create the beginnings of new cultural codes. So the rupture of the image through the moving image leads us to the era of the code rather than the era of language. and the era of the code, in its social sense, is really the creation of new cultures.

PETER: That means its revolutionary and dangerous and therefore people dislike it and reject it.

WOODY: They never really accepted twelve-tone music for example because it's not intuitive.

PETER: Kubelka took from twelve-tone music the numbers and cut his films into black and white films according to that series. But this was very subjective.

WOODY: I'm bringing a text into a pre-arranged score. This is what I was always trying to arrive at. Because for the score was the frame. I could see creation line by line or a row of memories as a score. But I could never go beyond this what I call micro-composition. The macro-composition of a train of frames was arbitrary, intuitive or cinematic. but here, once you confine the frames into the location in time, you suddenly have vertical and horizontal coincidences. The image stream becomes an unambiguous score. I'll learn whether or not it means something. Because after all the text will prevail.

PETER: I call this advancement or progress. There are problems already laid out in the cinematographic image solved sometimes better sometimes not. But here with Woody's work we see the problem of how he can avoid the cut with a coding suggested by the machine, which is preferable for me to an intuitive -- meaning arbitrary -- decision. This would be a version of the code. If a code can be created by one person to another person, this code has an objective basis. If a person creates it arbitrarily, then its a perversion of the idea of code. nobody could follow it. So here you have several tropes (?) of cinematographic language brought together on a high level.

GENE: Metadesign is the creation of codes. Three examples: the

lowest level is if you're designing an interactive system like a videodisc system or interactive computer graphics. You create the code within which interaction becomes possible. the kind of actual interaction could become a language, let's say. but the possibility of doing that is contained within the next higher level, which is the design of the software -- the computer languages and programs that make the lower level possible. So writing computer code is metadesign because it's creating an environment within which certain activities become possible. Mort Subotnik said an interesting thing this morning. Why would you want to make an electronic piano? We already have pianos. His answer was that once we have a computerized piano, then it can talk to other computers. You can have an intelligent system -- called an orchestra -- in which these computerized instruments can now interact and control each other in ways that weren't possible before. So what's interesting is not that a computer can sound like a piano but that it can turn the "piano" into an intelligent interactive instrument as a component of an interconnected dynamic system called the orchestra. the orchestra becomes a single instrument in a way that was never before possible. So Mort's control software for all this is metadesign: he's creating the code within which these different interactions amongst instruments become possible. The third and highest level is the

design of telecommunication networks. You design the actual technological system itself and its parameters and possibilities. This is social design. And any social design involves codes: this is possible and that's not possible. In telecommunication, as in digital video, the codes are inherent in the machinery that actually implements the network. So metadesign is always about the creating of codes.

PETER: Also, what Woody was describing is more about programming than coding. Programming cannot be ambiguous at all. It must be precise. Coding can be ambiguous but not programming. So what Woody does is a mixture of coding and programming.

WOODY: In video there are two levels of code. One is numerical, called the NTSC code. It's one of the primitives. Second is EXCLUSIVE/NOR, which is when there's a high state of energy one image goes through and if there's a low state the other image goes through. It's a gating. And it's completely unambiguous. So these are two levels of primitives. Above that the scheduling of it is at your discretion. You can make it shorter or longer. The score is under your control. The verticality of the code has to be maintained but the horizontality can be changed. So, yes, it's the program, because according to that program all the operations will be performed.

PETER: So we have coding, programming, and language.

GENE: I would say that programming is the equivalent of communication with the machine.

WOODY: It's operational communication between you and the machine. Its very interesting what we're talking about. Of course I'm a captive of operational codes. that's what I do for making the program. But the actual reproduction of the work lives outside of the operational environment in communication with people. And that's where the other codes exist. Here's what I think about metadesign: it's not design, because a system contains the metadesign. You say metadesign is an action of a person to approach

a system and to create a design from that system. yet the system contains much more -- in fact the system contains maximum of its own. I work on these operational codes here which I can then pass on to Subotnik who hooks them up into the audio system, then Mobile Image comes and hooks them into the telecommunication system, they all are in fact, generically, the same system. But what you call design is what Mobile Image or Subotnik or I can do, but we cannot do the maximum that the system contains. We can only do the minimum, that means our own ability. I don't know if you understand what I mean.

GENE: I'm not sure I do. But what I mean by metadesign is the creation of context. There are many kinds of context, but at any instant you're creating a certain one. So, if we agree that metadesign is the creation of context through the creation of code, or through the utility of a code generated during the process of meta-design, then you have to specify which kind of code is it and so forth. For example, in Mobile Image's case, the metadesigner creates social context and the artist creates cultural and aesthetic context and content. In your case, you're a metadesigner and an artist. You do both.

WOODY: I want to create a closed system that eventually when

I'm through it contains what I can contextualize. I take some elements in a certain context of course. And then I put them through a certain metadesign if you will, the logical hardware, a program for the machine. So I take a certain text created on one level -- its an historical, social and sentimental text that comes from newsreels of war and landscapes -- then I integrate them through this other metadesign, eventually bringing some kind of holistic thing which we call an artwork. But how it interacts with culture, that's where we come to a different social context. I don't reproduce social contexts, only my own personal contexts and codes. Still I'm not so sure how the higher coding system is made.

GENE: I have a question about ambiguity. In a social and cultural sense, communication is like computer programming in that it's standardized, programmatic in some sense. So were you saying, then, that at the level of the code ambiguity is possible and necessary, then the next step down, the communication derived from that code must be nonambiguous.

PETER: First there's language, then the code constructed through that language, and then programming. That's the hierarchy.

STEINA: First there's digital code, which is then translated

into numerical code, then you take that up to a command code which says Do and GO and BRANCH, then that command gives a certain number which tells the digit where to go. Up from that comes the program. So we have already four levels and we're still nowhere. It's still machine to man. and that is when to man-to-man communication starts.

GENE: Where are we at right now with Woody's work, then?

STEINA: You talk about Mort Subotnik. It's very interesting at this particular point to compare Woody with Mort in what they are doing. They are both using scores, they are both storing things, even though the storage is completely different -- (we might want to talk about storage as such). Mort can store all his information, but Woody can't store his images. He has to store them in a mechanical medium where Mort doesn't have to. His domain is completely artificial by now. He creates a sound and stores it. He composes it by almost never touching the alphabetical keyboard. He touches his piano keyboard and the mouse. and he goes from the mouse and says give me a crescendo, give me a trumpet, and by the time he has put all his components together he can, if he wishes, print it out as a score. but only if he wishes, because that's not really necessary. he can then play whenever he wants to, out of all this stored information that isn't anything -- it isn't instruments,

it isn't players, it isn't a written score, it's a very high level.

PETER: This is the independence of the code. After the independence of color and form in painting a hundred years ago we now have the independence of the code.

STEINA: Yes. but as videomakers we are still completely nowhere. We can hardly define a color or a duration.

PETER: I think this step should be elaborated more in the book to show this hierarchy of language, code and programming. because this is one of the new territories. But for the moment we can say: we have this hierarchy of codes which become programs which become languages, and again on the level of communication we have codes, programs and languages. It's a little confusing and needs to be worked out. But we have the feeling that there are three levels which are interdependent and operate also in human communication. In communication we need programming, because if I make a good code I say to him "Please go to the phone" he will do it. If I say to the machine "Place move to this..." the machine will do it. So every communication incorporates all the subordinate levels.

GENE: There are computer programs and computer languages. You said that programming is communication between man and machine. But is a computer language also?

WOODY: It's broader. It's for human communication. You can use

it for communication with a machine, but sometimes it's a specific machine. You can't use a computer program to communicate between humans but you can use a computer language to do so.

PETER: ...horizontal composition where you follow the melody of one instrument, but at the same time you have vertical orchestration or instrumentation. Now suddenly with the help of machines we can make a vertical orchestration which already started...in film. Eisenstein already had the theory of so-called vertical montage. He even had one score that expressed both music and image. He tried to compose also like music. Now comes programming, why I say it's more programming than coding. because you have two machines and you program the cut. Here's B and here's A and they're running. I type in some numbers and there's time code in the machine, which is very interesting -- replacing the sprocket holes of film with the computer clock. I like so much this evolutionary aspect. On a primitive level you already had time code in the sprocket holes of film. Now you have it more complex. But for me this is not coding, it's programming. You say to the machine, "Take this roll to this point in time and take this other roll to another point in time and when they come together, make a cut." So that's programming. Naturally I have higher codes also in my head why I want the cut to be there. But on one level I have to program it. Woody does an extension

of this concept of programming. he doesn't say "cut it," he has a special mask and at a certain point in time through the mask comes number one and through the same mask comes number two. so he's extending the programming of cutting into cutting through masks and topologies. And this is what I call the unfolding evolution of the tropic (?). It shows me that the cut was only a limited way to go from one image to another. Now we have different possibilities.

WOODY: Last time we ended in this strange territory which we were describing as transitional. We discussed that in film animation there already was the mode in which one image is transformed into another image. I find that arbitrary because surely with human effort we could use film to demonstrate this. but of course in the domain of the computer this becomes a natural language in which you transform one image into another under certain strategies. The strategy could be a light level, movement of the object, it could be the archaic idea of transforming a circle into a square, it could be random and accidental, and so forth. but the power of transformation as a new syntactical relationship can be found only -- as true to its medium -- in a computer. So let me explain my struggle with the cut. It's one of the most powerful transitions in cinematic language. It's not only the most primitive -- there is no more primitive transition -- but it actually performs for our

minds, which are trained to it, the most elegant, most fluid, most acceptable way of presenting another image. So my struggle with it is truly unjustified. Why should I attack the language which is so perfect, so proven? By working with these masks I realized I didn't fuse the images, in fact I separated them. My original idea was that I could actually transit or make a suggestion toward the actual image transition from one to the other. In fact I succeeded in a train of separations -- which I eventually accepted. I made a virtue out of a failure. But it still eliminate the problem of -- I thought a vertical opening of the image would indicate that there's a space in front and a space behind. That was another error. Because unless you indicate that the separation is done by spatial object, like a barrier, the opening is in our consciousness integrated very much as a cut. it's a form of cut. so all these things -- to go to the next set of syntactic devices, I think this is like stumbling through it. I tried to rationalize it, yet it does not work until one's imagination...it actually has to be performed in order to be verified.

(?) So my conclusion here is -- of course my goal still is to create spatial images, objects, and see if within that invention shows a syntax in which one object mutates or permutes into another one. and the strategy of the permutation is in fact what I call the new syntax. but it takes another class of tools. I'm not

longing for them because I can't operate them yet.

GENE: Earlier you pointed to that image and said this is the beginning of a new code. but just now we said language comes first, then code. So what language already exists here? Can't a code come before language?

PETER: This is a question I'm not sure about. In linguistics they say code comes before language. In other words, language is a higher level than coding. That's the classical view of Chomsky and Roman Jacobson and people like that.

WOODY: Code is something static but language is more transitory.

PETER: Maybe we can answer this for our purposes, because it's very important, by analyzing closely what Woody said. Then we see the fallacies of the language we're using. It's old language. First of all, a mask in the classical sense is a kind of locally limited, determined superimposition. In superimposition you always had the whole frame coming through. Now you can make a mask and a key and say, like a hole, only this part comes through. I can determine and limit it locally as a superimposition. But here, this is not a key or mask any more because I have the whole image. The whole image is what we tried to call an object. But it's not an object. It's going beyond the key and the mask...so we don't even have the words...but what would be the language of these images?

I would say we don't know. Even the creator doesn't know.

WOODY: I could try to construct a drama by this same method but that just didn't give an overall justification of it. That's why so many new works don't deal with the basic psychology so well explored through cinema, highly successfully. In fact, in our early video we were looking to video as the source of image and conflict and drama and interest and power and shape. And we thought we were completely independent. We thought video had enough inside its own medium to keep us busy forever. But look what we both are doing: landscapes, human affairs, even psychological projects. its all annoying to me, because I know the failure was that there's still the adventure of the machine. If you go towards the computer, there's so much in it that you don't have to deal with the traditional...

GENE: Peter, last time you said that the classical language of film such as metonymy was subverted in these new possibilities. I don't think I agree with that. Maybe it's like this: if one is going to employ these object-images, the only language possible would be metaphoric. we have to interpret these shapes as if they were like something, or that it suggests something. As you say, the minute you try to make it into a mountain it becomes too literal. So in fact you're using this metaphor --

parts for the whole. Maybe some kind of metonymy is possible. You could have a part-for-whole image mapped onto the object and the object itself could be some kind of metaphor. So you'd still be using classical syntax but in a radically different way.

PETER: What I would say as a semiotician is it's very clear that this image is modeled like a mountain, and this one like a canyon, and this one here is like a kind of artificial mountain too or a human leg seen as landscape. the body as landscape. so we build landscape into landscape. so we have the coding already. but this is problematic. because what I like about the electronic image is that it destroys the classical cinematographic syntax. So I would say that Woody's work is a little bit retrograde in that he uses this wonderful technology in a cinematographic way. even if it looks so fantastic, and I know that people like this piece so much -- for example in Austria a critic said there was no piece as good as this one. because it reminds people unconsciously of codings with which they're familiar. Its about landscapes being transformed into anatomy. but what is the radical difference is that in classical cinematography you would have, for example, the fox and the man superimposing, but now the material features of the landscape have become part of the image itself...the features of the object become features of this transition of the image itself...you can turn

around the image like the landscape itself...not only a flat picture depicting...the classical image was only depicting, representing, now what is represented is also a material part of the image itself (???) this is what is modern of today, but then he tries to turn it back...this is what I mean that woody takes two steps ahead and one back.

GENE: If you're doing representational images, you cannot abandon those things. therefore, in some sense you're not going back because you can never not do that.

WOODY: I can tell you that the ultimate idea was of course to use only pure material. to use image is already to rely on some preexisting code. as a purist i would say you are not allowed to use any existing code. You must generate your own primary codes. and from that primary code then you can generate secondary codes yourself. but you can't integrate existing codes. what you uncover very rapidly is there is a basic fallacy. on the other hand, the idea was also to create a sentimental piece. I was in my operatic mode. this was my nostalgic piece. I was a prisoner of sentimentality. its show business, I admit it. On the other hand, I couldn't present myself all three components at one time -- the landscape, the objects and the images -- and compose them together. But once I made these objects and landscapes in different domains, then I could accept them together. they were not that much designed and I could live with it. but

you're right, if I wanted an ultimate achievement I wouldn't do this. this is highly epigonic. On the other hand, I must tell you that I had your work "Pluriverse" very much in mind when I was making this.

PETER: The most fundamental feature is how to master time. For example, in Marxist terms, the time of production and the time of consumption. People who produce things should have enough money to buy the things they produce. Otherwise the economy would not be in balance. Ford said we should give so much money to our workers that they can buy the cars which they produce....so the tempo of work has slowed down and they have social security for those things (?)...so we had to give it to the third world...we could put on them acceleration of machines...therefore they could produce very cheap, many elements in the same amount of time, 100 more shirts in one hour than in America or Europe. that means that space has become too cheap (?)...transportation of elements...we make one part in south africa and one part in south america, another part in china...transporting all these parts together has become so cheap because time is so precious. the next step is like in Detroit people have a lot of time and that means commodity time so they can buy something, consumer goods. but then they have no production time, they can't earn money to buy something on their commodity time. this is what's known as "free" time. I also introduce the idea of simulated time. what happens, for example in Italy at Fiat people don't earn enough to have luxury consumer or commodity time they want. so they say "we are sick." this is a socialist country so they can't be fired. so they go out

and work elsewhere at the same time they are simulating sickness. now comes an interesting thing. fiat realized this and said, ok, here we have machines which should save time in production, but if we don't have workers we lose a lot of time and money. therefore the best thing would be we hire our own workers back, who are sick. if they're out doing separate work to have money for commodity time, we take them back. so they are simulated absent. So we see here that economics is a kind of polychronic time. he's here and he's not here: he's here in a double way. there's a kind of micro-economics by the simulation of time. this is the real motive of our society. if you have no money and no time what do you do? You get money from your future time. You go to a company and say I give you my next ten years. Everything I earn, you get fifty percent. This is called mortgage. You have to pay it back. even countries do it. all these countries have deficit budgets. this means that present time was not enough. the money produced by the present is not enough. so they loan time from the future and get the money now.

PETER: Language already has a time aspect. There's a nice book by Roman Jacobson called "Verbal and Vocal Time." he shows how important time is for language. When we shift the moving image from language to code, one of the primary aspects of the code is the technology of timing. In language we have rhythm and all kinds of things that

we could show the time element in language, but the time element in code is much greater. We go from the film clock -- the sprocket holes -- to video sync to the computer and MIDI code. So one difference of the code from language is that the code is a very advanced technology of timing.

STEINA: The code is pre-time. The sync happens every 60th of a second regardless of whether you're making images or not. If you look at music, which is a very old time code, you have the music staff and its very relative. the musician looks at it and says "How shall we count?" Its very approximate. On the other hand, MIDI code or video timecode is very predetermined. Before you put the first picture down the time-drive is already there.

WOODY: In film for timing code we would go to the engine, the motor, that determines the speed, which was continuously permutating the time. Now what do we mean by sprocket holes and time. that means sprocket holes locate by their position towards the frame an exact location which is the projection gate. that maintains the eye-gate-screen reference. it's essential because if the locational identity isn't preserved, the next frame becomes dislocated and produces what Jonas Mekas calls a "false kine" and destroys your cinematic or kinetic perception. So I would call sprocket holes a time element. but there is something called "foot numbers" in

film. after each 15 frames there is a number. so film has its own timecode developed right in its inception. And its burned in by the labs that manufacture the film. But cinema is a free-running system. it's not referenced to time because one cinema can run slower and another can run faster. but there's a perceptual tolerance in which the audience would not perceive this. but the locational function of the sprocket holes is definitely supreme. in video its different. in video the transmitter of the original material transmits the pulses in the air, for example, and they reach the whole community, every television set which normally is a free-running system, its not time-bound. as soon as the signal reaches the antenna and enters the electronics, every single set synchronizes on this master signal which is sent from the transmitter. that means in video also by closed-circuiting and in television as broadcast, there's a relationship of master and slave. its the same relationship between a camera and a recorder. in studios there's usually a master clock generator which is related to the master synch generator which is usually originated on a satellite in order to synchronize all the stations around the nation or globe so that vertical interval switching would be done at a particular moment so the image would not roll. This kind of hierarchy of timing is master-slave, whereas film is free running. and of course music is completely free running, by a conductor or by the reproduction system

and its not time based.

GENE: when you speak of timecode this way you're in the domain of the practitioner. whereas before we were talking about the spectator. are they related? everything you can say about timecode from the production side, is that in fact relevant to the other side?

WOODY: Let me put it this way: timecode is related to one of the functions of timing in the frame. there's a component of time which we call field time and there's line time. each line and each field has to be precisely timed. and timecode is a result of editing between the frames. it has to be positioned in a particular way between the frames and counted...but in video the underlying principle is a timing structure. it creates or holds together or transmits the image. so its a utility. it's not exposed to the viewer, except its result, but its the essential carrier of the information. and in fact it's also aesthetic. because it creates all the aesthetic results like shifts or drifts or whatever. so the timing is inherently true. Where does the time come from? its a division of time. its a crystal clock and all other time components are derived by dividing the high frequency into lower and lower until they become utilities. the time is a utility in this absolute sense of creating and delivering the image. it services the image. its a component that's not

visible but at a certain moment could become aesthetic. You can move the image by timing, for example, by mere time drift.

STEINA: Time as a technological phenomenon is not interesting to us but time as an aesthetic expression is important.

PETER: I would insist on saying the technology of time. The painting is created with substance, with material that defines a permanent physical space. But video is created only through a technology of time, and the space it defines is destroyed immediately, in a fraction of a second, to see the next image. So the illusion of motion is bound up with the idea of disappearance. Each image has to be destroyed, which is exactly the opposite of what painters want. The greatest thing they can say about their work is that it's timeless. But with video it vanishes in a fraction of a second. This is another aspect of the rupture. Therefore, in the book we should describe the technology of the timing.

WOODY: For us practitioners, timing on the screen is essential. It's completely conscious. Not only in keeping this industrial product but also aesthetically, when you go into video synthesis. Do you think there's any language besides a technological one that describes the timing aspect of video. There's a technological language of time but is there an aesthetic one?

GENE: Music is the only one I know of. I used it to discuss

Bill Viola's "Ancient of Days," which is structured on the principle of the musical canon. Each movement of the tape is like a canon in which the derived voice is derived in a different way. He does it visually.

WOODY: The computer itself has a different function of time. The computer organizes cycles. These cycles are the function of performing operations like fetching information from memory, delivering it to the processor. Each cycle is a timeclock and they sequentially signify major operations. It's an organizing device. It organizes the functions of the computer. It's purely internal to the computer and has nothing to do with images or sounds. Anything that interfaces that internal function with the world -- either through image or sound -- has to be brought into a different time domain. That's where the interfaces and output devices have to be moderated, translated, modified, related, "hand-shaked" or interrupted. So this is what would be essential in the computer, to describe the autonomous timing systems. They have their own set time. That's why early graphic devices could not perform in real display time.

GENE: I agree that technological time should be included in the book and only Woody can say it.

PETER: Natural time we call real time or perceptual time or

working time, things like that. So what does it mean that there is the autonomous time of the computer? I propose that since natural time is real time, then the other time can only be simulation time, compared with real time. So to get closer to what it is, I have the tendency to call it simulated time. Because autonomous time doesn't mean anything. But a computer can simulate time.

WOODY: What about it represents time. I give you a clue. If there is a real time even to be presented by computer, it will differ from what we call real time by absence of time. Only certain marks on the real time line would carry information. We may present only one percent of the machine time, but it represents to our perception a complete reconstruction of time, a model. But we won't be able to make a distinction between what is real time and what is simulated or reconstructed time.

PETER: Like a map, it doesn't show all the features of real time, it only takes parts of it. It's model time or reconstructed time. The difference is that it has only parts of what it is describing. what is also interesting is that the idea of real time is always continuous. but digital time is discrete, not continuous. this is a very important difference. And it started already with cinema, with sprocket holes and frames. You had continuous movement, then you had to analyze it in

digital numerical elements, you discovered that for our eyes it would be 24 frames per second. So the problem was to run the projector faster than the inertia of the retina. So the frame represents two timing problems: to cut pieces into continuous movement, to produce in a synthetic way the illusion of movement. So cinematographic time is already a modeling of time, simulated time. You can speed up the movement and slow it down. So you have this parallel simulated time which is different from autonomous time. It's free running time. It's also interesting that computer time is called run time. Because it means that time is defined now not economically, by the labor you invest in something -- what is the value of this thing is the labor or money invested in it -- now we define all that in terms of run time. how much time it takes the computer to simulate this event, this image.

GENE: That's why in computer graphics they say an image is too expensive, i.e., it takes too many machine cycles. It costs too many cycles.

PETER: Therefore we should go as much as we can into the technology of time.

STEINA: Is autonomous time a word we can use?

GENE: I have a problem with the idea of simulated time. I

prefer simulated motion. I agree with Bergson that we observers exist in duration, subjective time.

PETER: But this is exactly what is not computer time. The Bergsonian concept of duration is just the opposite of what I think is time in the electronic image. In my book there's a whole discussion about how it destroys this type of duration. This is one of the last romantic notions, subjective time or duration.

GENE: We observers live in duration. There is no time without the observer. Time is not a property of the universe.

PETER: No, I disagree. the faster you move, the slower the clock. We have to accept this. The faster something moves the shorter it gets. The observer is always defining the parameters of length and time. So spatial and temporal parameters are not autonomous, not even in the universe. Therefore, Bergson's concept of duration can't be accepted any more after relativity of time. Duration is a very subjective view. Even the simplest thing, the length of a stick, depends on whether its moving or at rest, or is it observed by someone who is also moving and so on. The length is different in every case. So electronic system is the first tool that can be linked to relative time which is not duration time.

STEINA: Gene, I would reverse your statement and say that

instead of time not being a property of the universe,
it's the only property of the universe. There is no
universe but time.

PETER: Right. This all comes from relativity theory.

GENE: Yes, but relativity theory doesn't separate observer
from observed. So when you say universe, and I say we
are the universe, we are time, and you cannot separate
us from the universe, there's no contradiction. I would
agree: time is the only property of the universe and I
am the universe. I'm the observer who brings this
universe into existence.

STEINA: Your universe, mind you.

PETER: What I like is to see the paradox of time manifest
aesthetically. Aesthetic approaches to simulated time,
model time and so on.

WOODY: Let's put it on a measurable utilitarian level. We have
a pendulum that swings -- its called a tick -- we also
have a tick in the computer that is measurable and can
be translated into money. To be exchanged into a
commodity it must be exact. So in some sense we can
describe machines and systems as exact. They would not
vary within their own context. So there would be a
techno-time which we would assign to them; we would not
apply techno-time to ourselves. So let's then divide the
world into our Bergsonian or Einsteinian time, and

techno-time as an entity which we have to relate to on our terms but which we know is in some way absolute. What does that mean? My romantic idea of independence meant also independence of time. In the sense that we do not pay for the time of our machine. This is a practicality of my romantic superstructure. So it's a crude very straightforward way of saving money. Secondarily, what's the demand on time? It could be a social agreement: no other place in town sells time cheaper than that. Or it could be that this image takes that much time to make. So there are social aspects of the time interface and there is a purely technological idea of time. On which level would it be useful to discuss? What kind of time would be aesthetic? Time and money bring us to a sociological area: who owns and rents means of production? Also, do we need real time in order to observe phenomenology? Yes, we insist on that.

PETER: In the labor force of industrial society, the machine was accelerating the pace of work. So people spoke of inhuman machine time.

WOODY: So let's discuss accelerated time. What's the end of this process of the accelerated image? Is there an end, a destination, to it?

PETER: There is no destination. First, it comes from the

machine. It's a condition of the machine. Therefore it can be part of the code. So the image is machine-made, accelerated through codes. It emphasizes the machine aesthetics of the moving image, shares those aesthetics. This is systemic. Then comes a social moment...the image of a painter is defining time for the leisure class because it's permanent. Aristocracy has the tendency to be permanent from generation to generation. So to deny this permanency is revolutionary. That's why I like acceleration of images, because the aristocracy doesn't like it. For two hundred years the aristocracy has been fighting against acceleration on all levels.