BECK-VASULKA, Side 1, from #90

Woody: But I think you have succeeded. In a way it is exactly what yo were describing, that you have made the instrument anenymous and the work obvious. But hte question is now was that better . . . I mean was that more valid or less valid? When you look at it now, would you pay some attention to the system as well?

Beck: I suppose at first the . . . to me all along somehow it's been implicit in the results that this was a use of technology that was alternative. You have to think back to ~~196~~ the mid 1960s and remember the mood and air in this country. Technology was a two-faced demon. It had a horrible side which had been manifesting itself in the Vietnam War in napalm and blowing to smithereens people who lacked the technology but had the will to ultimately resist it. While on the other hand you had the compensating factor of the space probes and going to the moon which, for whatever you might want to say about it I think in some way was reflecting a more positive and growth-oriented point of view than the destruction of the war even though a lot of people felt that that money should be going to benefit them. But a culture is faced at many points with the decision to save itself now or invest some part of itself in an unknown future. Out of that era was born, at least in some degree, the birth of my synthesizer and my inclinations towards electronic art in general. Which was mainly to say, as a counter-statement to the destruction, the destructive facet of technology, that here was a facet of technology being used to express mankind's more subtle and artistic and unknown qualities. In that sense, it was hopefully in my point of view, making a self-contained statement about what you could do with technology in a positive way. Likewise in television specifically, you have

BECK, VASULKA, Side 1, from #200

Woody: What you are saying is that indeed it was not your intention at all to mythify the tool or making it, in a way, a totally separate entity from the process of making, but in fact, it was a search for a perfection which you didn't feel the analog tools as you experienced them would have. It would have a stable beauty on there own, they were too unique . . .

Steve: If you spend the expense, you can make these analog tools sophisticated, but while I've had this basic system for the synthesizer it certainly was not my idea to make it a myth. I mean that's something that happens to you from the external. I mean Stradivarius is known for his making of his violins, not as a violinist. Moog is known for his synthesizers, not as a musician, though he himself began as a musician and was using this synthesizers until he saw other people using them in even different ways, which made him feel like he wasn't using them well enough, so he stopped using them himself. So I suppose, there was an element of vanity in it too, because to make the dedication of producing the instruments would have required elimination of any new composition or making of new video, as far as I'm concerned. In fact, this is what I've been doing the last year, we haven't seen any new Steven Beck tapes coming out. They're in the works, but it's a very slow process when you're building and designing hardware for production.

Woody: Because not accidently . . .

Beck: A few people did approach me about building instrucments, and when it came time to quoting a price, you know, the price was too high, so that was another reason none of them really got built. But now

ten years have passed in my time frame at least since that point and now I am interested in propagating the hardware. I have been involved in some projects: the integrated circuit project most significnatly and now in the design of some products of our own, so I can see from my own standpoint that some Steven Beck instruments would become available in the next year or two. And I had visualized myself approximately a ten years interval where this might happen. And now I've got a single chip computer and it makds sense to build an instrument that has intelligence and presents itself as playable to a would-be instrumentalist. All I can say is a painter doesn't call a lot of attention to their brushes nor does a musician call a lot of attention to their instrument. If I may make those metaphors I guess I felt the same way about my video work in the early phases of it. Although in the tape "Methods," for example, which I made in 1972, while I didn't get into technical details, I did describe more of the visual graphics design of the synthesizer which is something that came early on in its inception, and this was perception of these four categories of image elements, the primary category being color and then the form, texture, motion categories, out of which there are further subcategories. But that is the basic architecture that I've always built my synthesizers on. It was not conceived as a distortion type of instrument or something where you took an image and modified it, although it has those capabilities and I later recognized the value of those. Its main design was to generate images truly electronically, specifically for a television, color television type of display as opposed to computer graphics, computer film . . . and to operate in real time so that when you did something to the instrument you saw the effect of that

this incredible technical infrastructure of the networks and the relay systems and color and yet you had, in some respects, drivel going through it, and it was like having this tremendous capability of potential which was unrealized. So there was another case where using the same technology with a different attitute and a new direction was discovered. So, to some extent, those were issues that called more attention to the technological aspect of my work or electronic art in general would have emphasized even more so.

happening at that moment or shortly thereaffer. And so I think in that way more than any other way it was a different type of instrument ~~that~~ than the other video synthesizers which there really weren't that many of at that point in time, And created the sort of idea of an instrument that ~~was~~ was a pure synthesizer in the sense of putting together electronic currents and resulting in an image as opposed to a modifying type of synthesizer where you ~~start~~ started out with some cameras and then distorted or processed those images in some way.

Woody: Does it have anything to do with your language of "direct" and ~~in~~ "indirect?" Because you coined a name which became in my mind, I mean my curriculum, I capitalized on it and I divided schools of synthesis into direct and indirect. I just wonder what was the origin of this thought.

Beck: Well actually, in all honesty, the term, the idea of calling it the direct video synthesizer ~~grew~~ out of one of these pow-wows things that occured around the National Center at one point and it was a term suggested by Brice Howard. So I don't claim to have coined that term myself. I was simply calling it the Beck Video Synthesizer.

Woody: What did he mean by direct? What was indirect?

Beck: Well, I don't know what "indirect" meant, I never asked him that, and interms of what he meant by "direct" I suppose that it was simply that you were directly producing this image. It's not really the best term in some ways, although it has served its use, and as you point out it is used to describe these terms. ~~But it doesn't imply indrieet--- synthesizer which isnot really the case----~~

But it does imply an indirect synthesizer which is not really the case. I think the directness is directly ~~xxxx~~ related to the mind, the person who is operating it.

Woody: Interesting, because if you would not have told me that I could have perpetuated this concept in which, you know, in which I usually juxtapose, like Nam June Paik as indirect synthesizer.

Beck: Well I think it's good because you need these linguistic handles on these things . . .

Woody: Some, not many.

Beck: . . . and it's just like my categories. You can't shoot them full of holes at the next level down and its purpose is limited in terms of conceptualizing the structure. So I think it's valid and the term has hung on. And, yet, as with most linguistic handles if you start inquiring too closely they all break down. So I think it has, it describes in a sense the process which is a very direct one. Direct from the . . . it's very personal--it doesn't necessarily have to be that way--I suppose in some way his idea of the term came as much from a technical aspect as maybe the way he observed me playing my instrument which was a very direct thing, ~~you know one direct thing, you see~~--- a one-to-one direct thing, see.

Woody: Your interpretation of direct is again, fascinating, because people usually make a distinction between machine as being distant and human beings being close. In other people's minds the directness would mean that you should directly, personally the camera is in your way is the direct expression without external without, kind of, human sport.

Beck:Right, right, exactly, it's direct from my conscious image screen into, yeah that's an intersting insight . . .

Woody: But anyway, if you don't mind,I'd like to go to some hard economics how you could evenctually build this and some dates, just a few If you could provide that.

Beck: Waht do you mean?

Woody: I mean who supported you to build a system like that.

Beck: Oh, well, the economic history of my work was kind of interesting because I have collected electronic parts since I was seven years old. I used to go around and find old television sets and tear them up for the components. So I've throughout most of my life carried around with me on this earth several cartons of components and materials that find there way into projects. So that in 1968 I had these cartons of equipment with me in my apartment at Urbana, Illinois, and I was doing oscilloscppe films through the electronic music studio at the University there, and the idea for the video synthesizer, the video generator was born. The first year that I was working I was primarily working with the materials that I purchased myself or had saved over the years, recycled materials. Although I would work on a very limited budget and be able to buy an op amp, one op amp a week or something like that and I managed to put together the first little synthesizer. And then with the help of Ron Namath, who was a film professor at the University then, and Zenith television company where I had ~~worked as a summer~~ a summer job, they donated a color television set to me through the University of Illinois. And when I got that piece I was able to put my box together and have the

first crude video synthesizer running.

Woody: Is there any documentation on it? A description of it?

Beck: Well, I have a few things because . . . actually I have my original notebooks, and I have all that stuff. At that point again I wasn't running out xx yelling "Eureka" or anything and everyone wasn't jumping up and down. The recognition of what it was grew slowly even though I felt strongly this was a tremendously exciting thing. You have the potential of taking television screens that existed in every home in the country and turning into these beautiful, fantastic phenomena. For about a year there I designed most of the original synthesizer circuits and built a few more little additions to this box and with my Zenith color X TV set with the help of friends who helped carry it down from the apartment, gave a few appearances, performances with musicians on the campus.

Woody: What year was that?

Beck: That was 1969, 1970.

Woody: You mean live performances?

Becck: Yeah, did quite a few with Sal Martarano who was an electronic composer there who was one of the first people who really . . . like you were saying earlier, you know, look at what I was doing and gave it a validity and support. And he asked me to bring it to his gigs and I was very flattered because I was just a student. I knew it was exciting and this just verified it. In fact we did a tour xx from Champaign to the School of the Art Institute of Chicago up to Madison, Wisconsin, in late 1969 with all this stuff. He had an electronic music set-up that maybe you've seen (Woody indistinct)

(Beck con't) 30 or 40 speakers and the touch board. This was an early form of that, both of our instruments have evolved considerably. We were hanging out and in those days at the University of Illinois electronic art was a very popular thing. But they weren't supporting me. I mean I was getting moral support and, you know, they might give me, you know someone might give me a box of old transistors or something so it was a kind of scrounge-it existance.

Woody: But there wasn't any kind of buget or grant?

Beck: None whatsoever. It was strictly out-of-pocket and generosity and donations. In fact, I had applied to the computer department to get some support but an undergraduate just doesn't get support like that. Either I didn't make my case very strong . . . So I said I don't need their money, I'll just do it on my own and come up with something that was much simpler.

Woody: Tell me, was it instrumental in getting you started or would you anyway . . . would you ever consider that as institutional support?

Beck: I wouldn't say that in the Univsersity I got institutional support although I did . . . the break or opportunity I had at the University of Illinois was that I was given a job in the electronic music studio almost the second week I was there. I found out about it and when over . . . I had been building amplifiers for friends who had rock bands and I was interested in electronic music and so for the three years I was there I always had a job there. In fact the last year it actually paid my whole way through school, through college. And since I was there I had access to the studio and the people and, again, the support you got and being able to bring a board in and test it

on their oscilloscope. So I suppose ~~xxxx~~ in a way there was some support there, but there wasn't anything formal, it was just, you know, if I went in and did my eight hours~~x~~ or four hours and could hang around for another two hours using their oscilloscope to test my board, then that was fine. And although towards the end of my stay there they did finally get ineterested in what I was doing and I appeared at a few new music concerts at the Cranard (?) Center I wasn't really . . . ~~x~~ it was only two weeks before I was leaving for San Francisco some people started to ask me if I would stay, and started to talk about offering me support. But it was too late, the wheels were in motion.

Woody: You just came to San Francisco?

Beck: Not exactly. I realized the need for support so I started writing letters, I wrote about forty letters in about a month's time to anyone I could think of who might support what I was doing. Companies, the public television, I tried to interest Zenith in supporting this. I was fooling around then ~~xxxxx~~ with converting music into video and I said this would be an excellent unit to include in one of those big consoles they make with a stereo TV. The whole thing. It would be little cheap addition and here's a new feature. But this was before tv games and their concept of television was limited to something you watch a program on. And besides, I later realized they were a very conservative company

END OF SIDE 1

BECK-VASULKA, side 2

from #108

Woody: Now, do you ever conceive certain transitions, do you ever verbalize them for yourself? Do you fix them in your mind in some score or do you just pragmatically test it and then you don't attach any labels to it? Do you have any method which . . .

Beck: Well, the synthesizer is labelled it just doesn;t have labels in English on it. It's labelled by virtue of the way it's laid out and its modular structure which follows from this color, form, texture, motion idea that I mentioned earlier and the further divisions of that model which are treated in the "Methods" tape, points, lines, planes, surfaces, it's a very formal definition of the unit. And the modules themselves follow that distincton with color modules, and the key module to the whole process of my synthesizing is what I call "Voltage to Position Converter which converts voltages into geometries. An example of which would be a wipe generator. But I had other methods of introducing more modulations into my pattern generators and coming up with . . .

Woody: Let me analyse this interesting term, Voltage to position. That means every considered? image is a result of voltage conversion, especially in digital application. That way you have coined or prioneered this interesting term which you told me when I was . . .

Beck: Yeah, I remember when you came out and we went over things.

Woody: When you describe it you are actually describing a control function as well, so it's not only to identify the principle but you are like a wipe which is a typical variable.

Beck: Right

Vasulka: You would say that volatge to position . . . which you have to specify or change.

Beck: Yeah. Well you're right. First of all, let me say that the synthesizing process is very sculptural in the sense that you are blending these currents, these electronic currents. And I remember very distinctly two different experiences that lead to the design of this synthesizer. One was a perceptual . . . well they were both perceptual but one was somewhat more mundane than the other. The one that lead to this distinction of the categories occurred during a certain phase of experimentation while I was experimenting with visual phenomena and altering visual phenomena through electronic and chemical means and observing, as it were, on my own retina the structure of what I saw in terms of if you saw a brick wall or trees or a sky. And to reduce that to elementals, the obviously smaller switch would be some idealized particle of color which when aggregated according to other hierarchical laws would result in specific shapes or forms as we would call them with certain properties such as angularity or curvature. Or certain other aggregations of these particles of color would form what we might describe as texture where even though if you looked at that texture very closely, you would see that it was composed of forms in itself. And, then, of course, the element of having specified this for one moment, to specify it for other moments. And hence, the element of dynamics or motion. Now, these are purely formal issues but in the design of an instrument, from the engineering standpoint, it was necessary to create the language from a visual perception standpoint

in terms of these modules.

Woody: Would you associate that, in fact, as a statement of the craft itself, because you have described elements. Now what would be the craft of video?

Beck: Well I guess to me the craft would be the putting together of those elements just like in leathercraft you have, say, to take a an example, your raw cowhide and you have rivets and you have a certain set of little hammers and chisels and . . . but the craft comes in assembling those into a finished piece of clothing, or purse, or whathaveyou. In a painting, if you were a real diehard painter you go out and dig up the rock and you grind the pigment and you take your brushes and you have all these elements—material elements are formal elements, which in and of themselves, are nothing until synergistically combined they result in a painting or a tape or what have you.

Woody: Do you have any opinion on what synthesis means to you because sometimes this system is called "synthesizer." What is your interpretation?

Beck: Well I've always taken in terms of a very specific straight line distinction. If you take the word in terms of what it means by virtue of what its source is it derives from, I believe, the Greek word "synaesthesis" which means "to put together," or "to put things together so as to form a whole." In other words, you have the basic kernal of that word is the prefix "syn-" which is also in the word synergism and it implied to me that you took these formal elements which were really manifested as electronic current, vibrations and combined them with electronic means into something

that produced a defined image on a color screen. Now that's the other issue . . . that was the other of those two insights that I mentioned which was to realize that you're conceptualizing these things as a surface phenomenon on a screen or a plane and yet a television image is time, it's electronic vibration occuring in time. And the key was for me to make the transition between an image that you would see on the surface and what that image would be in terms of the electronic pulsations in time on a television screen. The simplest case being: imagine a little dot on a screen somewhere, how do you get it there? On an oscilloscope that's done in a certain way. On a television picture it's done in an entirely different way which is the main difference between video as a genre and computer images as a genre. When I would explain what I was doing to a computer image person, they just wouldn't . . . the thought hadn't occured to them that there were other ways of making an image besides moving a point of light wherever you wanted it to go. In the case of television, the point of light was moving and you had to do other things about deciding where it was and turning it on or off in order to get a certain image to appear. And that was the key to the Voltage to Position Conversion process as I call it generically, which can be used to do anything from a wipe to a mandala if you have the right kind of circuitry.

Woody: Actually, what you have associated with the principle of synthesis with the term Voltage to Position Converter. Is that a good assessment that I'm making?

Beck: I would say it's the other way around. Voltage to Position Conversion is a part of the process of synthesis. The synthesis all told is putting all those currents together: the ones that mean the positions

and the ones that mean the textures and how they're moving and what colors they are and they'rechanging and how they're coming and going and all those factors. And in a sense the synthesizer and the (synthesis or synthesist) are inseparable although you can turn a video synthesizer or a music synthesizer on and get things out of it. But those are pretty much like getting alpha waves or something out of a human organism, they're really unqualified. And I guess you have to say the concept of a music synthesizer had been established and it

#230 was there and the logical extension was a visual synthesizer.

~~Woody: Now, I recall~~

SIDE 3, # 095

Woody: But since you have coined a language of images anyway in your methods I guess you could extend that into groups of languages specified digitally or binary. You don't have time or scale or interest that would . . .?

Beck: Yeah, if someone wants to give me a big grant and have a staff of software writers we could get to work right away putting the high level language together, but . . .

Woody: But that was a one-man operation you used to run, you were just an individual who decided to make a definition of this tool and the methods. Do you think now it is beyond the single-man's possibility of dealing with digital stuff?

Beck: I think it really just depends on the haste that you're in and the style that you . . . what makes your work enjoyable and the kind of funding you have available to work with. If I had a large amount of funding I would want to share some of that and hire people

who were competant to work on some of these problems. One the other hand I don't, so I just confront it in the limited way that I have. I suppose I could go out searching but I'm not inclined to do that. Besides, there are places like NASA andIvan Southerland and big companies where that's all they do. But I tend to think these days in a much smaller scale of cost so that these things can become accessible and

#117 usable by a larger base of people.

SHORT BREAK (IRRELEVANT DIALOG)

#124 Woody: I'm just thinking if it's necessary, because I see someone develops new languages it could be from two sources. One is the element, ~~of~~ synthesis of element. The other is to look at it as ~~xxxx~~ a larger hierarchical structure. That's what industries are hoping for, that they will eventually derive to a manageable software. But I think that people like you and me, we have to sweat out the elements.

Beck: Well, one of the problems right now in this country is due to the tax ~~s~~tructure. Most large industries all except the biggest giants can~~'~~t afford extended research and except for places like IBM and Bell Labs and giants, your manufacturing company can't afford the research in these areas which is why the opportunity for an independent developer or designer is probably more right now than it's been in other times. Because the . . . as you know from working through the creative process, the development of the kernal idea is a very undefined process although the implementation of it into a final resultant product ~~is~~ or something of use at large is a more defined operation.

#143 Woody: It's so banal. (SOMEBODY SPENT YOUR LIFE TO (inaudible)

Beck: Yeah. So, it does take in a sense certain independent inventors working on these problems. Now I've only been working with software for about two or three years now and I've developed one high level language for my games work. And I've had the economic viability to do that and one can see how one would approach it for a visual language like what you're describing. One knows of languages like that, like GRASS, Tom DeFanti's . . . But even his GRASS is confined to the limited structure of images that his system, which is again basically a point plotter . . . there is no element of color involved, for example. And I don't look for the universal langugge evolving for two or three centuries although right k now we hvae dozens if not hundreds of dialects and we have some standardized languages like FORTRAN which have been around for twenty or thirty years now, and which are backed up by the economic necessity of using them more than anything. But now they've become kind of standard languages. But you see, when I was working with the visual processor you'd find to some extent you erroneously enmesh the linguistics of a visual language structure into the current linguistic notations of a programming structure and impose certain limitations. Which is why I was looking for what the so called visual, uh, the VLU--the Visual Logic Unit--that performs your basic visaal operations as microinstructions rather than constructing them out of larger computer instructions which are basically the evolution of machines oriented to processing numbers. And only now we're starting to see single chip microprocessors get away from those applications. In fact, they're just special chips now for crunching numbers and the tasks of information control processing that used numbers only indirectly could perhaps be circumvented with higher speed operations if you had more basic operations.

So, if you think of your basic visual operations, just for example, translations and rotation andscaling functions, these are the kind of functions I designed into the Video Weaving video logic unit, which in itself is controlled by (HEX?)(#181) is sophisticated enough that it requires control by another microprocessor, if not several.

Woody: You call it Video Logic Unit?

Beck: Right, V.L.U. So the video weaving tapes you've seen were made with the raw early VLU with pretty much a namual sequence controller. And now what I'm coming up with is the implementation of intelligence on the control end of that. You know, like the time it takes you to repatch certain connections with the board analog-type synthesizer can be reduced to a frame in a digital system. On the other hand, as I mentioned to you on the phone, this class of imagery which I call "mosaic" imagery, which covers all images made by mosaic pixel type approach, whether they're plotted, painted, scanned, whatever, filmed, is a look which will be pervading society more and more. Like these Teletext systems, you may have seen photographs of, with digital maps of the world. And, like on your checks from the bank, everyone's been looking for years at digitally encoded magnetic numbers that happen to bear a physical resemblance to the actual digits. I think that the digital look is definitely here to stay. It's just, how many

#206 bits have you got.

and were not interested in what I had. So, after Zenith came down. They weren't interested in it, really, and I didn't get too much other reply other than I got a letter from . . . I did get a reply from Public Television, from David Stewart. He signed the letter and it was just a short letter suggesting that I contact the National Center for Experiments In Television. And, ironically, between the time I had mailed my letter and recieved his answer someone had called a magazine article to my attention that had some information on the National Ceter for Experiments In Television. And they also, I believe this was in very early 1970, ran the "Heimskringla" broadcast, which was . . . we brought that color set that I had over to the art building and about a hundred art students were in watching it. And then afterwards, we hooked up the synthesizer, and it was kind of a neat follow-up to the program. That was one of the times that I did make a live appearance in Urbana. I did a live show. In fact, I didn't do videotape then, I had no videotape. I didn't think of it as videotape. I thought of it as a performing instrument. Perhaps, again, that was why I wasn't interested in documenting the design of the instrument. I wanted to play it. And hanging around with all the musicians, that was a natural mode to be in with it, although I did make use of tape and film early on. I used audio tape to record computer programs that generated tone sequences which fed into my system for the audio generated video. And I actually wrote a paper on that subject for one of my classes.

Woody: Do you still hae it?

Beck: Yeah, I have copies of it. I could perhaps even give you a copy.

(short break)

So, I did take some time to make an early record of a little bit of what I did. And then with a filmmaker named Teddy Timreck, who's now gone on to New York, we did some early film work of my TV screen, which we used in a rock opera production that I was involved in.

(short break, discussing Timreck)

Well, he was hanging around and we were involved in this thing called "Rock Opera," which was a production by a renegade group of artists and technologists on the campus under the direction of a guy named Rob Fisher. He was later fired from the University, one of the best people they had, they fired him because he was too radical.

Woody: Restless.

Beck: Yaa. And we projected during this intermedia extravaganza on a large screen, films of my video images which were superimposed with other images. That was right at the beginning of 1970 that we did this "Rock Opera." We were preparing for it in late '69 figuring we'd bring in the decade with this thing. And it was a sold out show at the Cranard Center for six nights and it was just wild. It was really well done. There were very good people involved. Good musicians and good artists. I also had developed a 16 channel sound sweeper, which I played on the stage. I was playing audio that night and was able to move

sound around and bring it in and out. It was really incredible, I remember it very clearly, making effects of sound appearing to come from miles behind you, then roll over and off to the sides. you can really move it around. It was lots of fun. So we had this film footage then, a big can of it. I dont know where it is now. I asked Ted and he doesn't know where it is. It's all lost. I came out to San Francisco during one of my spring vacations having heard about the Center and wrote them and made ana-pointment to come by and see them. And I brought this film and showed it to them and talked with them. And that's where I met Brice Howard. Then I went back without really thinking anything other than it was a pretty interesting place. Shortly thereafter I received a letter which informed me that they had two National Endowment for the Arts Aritst-in-Reisdence Fellowships to award to two artists of their choice, and they were offering me one of them. xxxxxxxxxxxxxxxx That's what brought me to San Francisco then, after that initial visit, the offering of that Artists Fellowship, which basically provided the initial budget for materials in the synthesizer and for me to live on while I was working on it.

Woody: So that settled you down for this particular project?

Beck: Pretty much so. So I came out here and spent the xxxx better part of a year and a half to two years building that synthesizer, and also finishing my degree at Berkeley in Electrical Engineering. And I spent a lot of, you know, forty-eight hour days, building this thing. In fact, A lot of work went into it./Shortly after I arrived

I was able to take the old equipment I had and and sort of whip it up and start doing stuff there and start recording on videotape, which was to me a thrill because I hadnt really conceived of it as a compositional medium. But now that began to make an appearance. By late 71 this instrument was basically complete as it is now, although a few things have been added in the meantime and the digital video has all come onstream later on. But I didn't want to spend the whole rest of my life building an instrument. And there are many tapes made with this instrument in the process of it being built, test tapes basically. I guess most of those tapes are now in Texas with David Dowe at the archive where they moved all the National Center tapes. I guess you have some in Buffalo too.

Woody: Yeah.

(short break while they discuss tapes)

Beck: Although I must mention that right before I left to come out to San Francisco I did my first E TV show with the synthesizer in Champaign, which is a little town of about 100,000 in the middle of Illinois, and it broadcasts to the cornfields, and the universities in the state there. And they brought me on with the synthsizer for one of their late night talk shows. Since it wasnt set up to videotape, we simply pointed the stuido camera at my TV set, which picked up the reds and the greens but missed most of the blue. And they broadcast part of a composition I had been performing called "Prextapia (sp?" So that was the first time I actually appeared on the air with it.

Woody: I recall these two compesitions of yours, ~~xRnnx~~ "Point of inflection" and"Conception." I sort of detected that there was a generation gap of control modes between these two.

Beck: Yes.

Woody: What happened to produce such a difference in control?

Beck: "Point of Inflection" was made in December 1970 with one generator module built and tested on the syntehsizer. And more than anything, it was in ~~annxxxxxxxxxx~~ a spirit of excitement of things to come was this tape made. The title has a two-sided interpretation. A point of imflection, mathematically speaking, is a certain point in a curve, and in the case of the imagery of "Point of Inflection," which is all based on chevron, diamond form~~x~~, you have four points of inflection around the perimeter of this form. It also expresses in some way a feeling that this was a point of inflection or a turning point in the evolution of my own work and life as a whole. This was the first solid approach to videotape that I had made with the tool. Now, "Conception" was made in early 1972 it was recorded. Approximately a year had elapsed between them. Not only was more of the synthesizer completed, but as that occured, my thinking was able to expand out of the technical areas of building the circuits into the conceptualizing and composition areas. I'd had at that point a full year of working with videotape. I had conceptualized editing in videotape. Since "Point of Conception" (sic) was recorded on two-inch standard, it allowed certain freedom of work that in 1970 you couldn't really edit 265

with a helical machine. And in fact "Conception" was created as a series of tableaus in a sense. A scene was created and the next scene was created and they were laid down step after step. "Point of Inflection" was a continuous movement of real-time process which, I later learned, particularly in the fist movement of the work, that you couldn't get every color you could synthesize recorded onto videotape, becuase that whole section was a whole peacock of color that never got seen by anyone who saw the tape. In my inexperience with videotape, I didn't know what it could do and what it couldn't do. And it taught me a lot about what you couldn't demand from video, in terms of color. Knowing that, which was somewhat of a disappointment, because here you could see all these beautiful colors, and as far as videotape composing was concerned, they were not usable. My interests in that area sort of declined and one of the other areas that became of great interest was motion and flow of this color. The difference between working as a performing instrumentalist ~~xxxx~~ with it and evolving into videotape composition I guess is shown between these two tapes you mentioned.

Woody: Now, the second point I found (inaudible word) into digital image. How would you characterize the ~~Xiiii~~ Weaving? Is it still video?

Beck: It's still video, because the criteria for me for video ~~xxxxx~~ is using a scanned raster display. In other words, the point of travel of the electron or light source, whatever it may be, is predetermined into a fixed pattern. And to me, that's what defines video as opposed to Cathode ray tube of another sort (302)

where you can move the beam anywhere. So, yes, digital video is still video providing it works into the scanned raster format. Around the early-mid 1970s, digital technology became less expensive by several orders of magnitude and a number of people had established sophisticated digital video set-ups, large multi-million dollar computer systems. And in fact people had been working with digital imagery, which I think predates digital video by some number of years. Namely people had been working wth films, most significantly the Whitneys and Vanderbeek, although more so the people at Bell Labs than the artists, because I think the interesting work was in the creation of the algorithms and processes and to what extent the artists served to facalize it they were certainly important. But these works all involved film, was not a real-time process, did not involve color--color was always printed on in an optical printer, as you know--because they were working with oscilloscopes basically, moving points of light to expose the film. An excellent process, to be sure. The two complement each other in a very nice way. If you can afford to spend 15 or 20 minutes making a frame, that frame'd better be awfully good. But let's look at the other issue, What can you do, literrally in 30 or 40 microseconds to create a new image on the frame. My own interests in digital video really developed when the idea of the video weaving came together which I started working with in 1973 when I became intersted through historical research on the origins of an art form that I seem to be working in. One branch of that research led me into the design imagery and dream (340)

imagery of the eighteenth and nineteenth centuries. And in America particularly, you find that the only people carrying and sustaining this image were women who were quilting and weaving, usually as a collective process. And I thought this was fascinating because at that point in time the issue of why were there no famous women artists was just surfacing and in researching the antecedants of what I felt were my own image styles I thought this was a fascinating fact. Plus the fact that a - television picture . . . I was looking for some way to combine a television image with an ancient image. I don't know why, I was just looking. And this was it, because the process of scanning somehow seems to be so fundamentally programmed into our genetic structure and our neurological being that we find it occuring all over. We find it in reading, in any language whether you go left to right or up and down or around in circles. And you find it in weaving where a single thread can be structured into a two-dimensional surface through a proces of scanning basically. So, this affirmed to me that scanning and its appearance in television was a quite recent evolution of this whole process. Somehow the idea of a video being linked up with weaving was a connection. Aside from the fact that I mentioned earlier, in thinking of how I would produce an instrument that would be used by people would it have a conceptual basis that was fundamental enough so that one would not have to struggle with, at least, that part of the process. And since weaving was such an ancient process and one that is graspable by people all aver the world regardless of their degree of (381)

technological proficiency in electronics, that it was the perfect connection.

(short break)

So anyway, this was the thought. I thought this would be a great concept to put the two together. Katy actually gave me a little loom for a present and I spent about a week or two trying to set the damn thing up and I didn't know how to do it. I got the warp set up and managed to weave about six inches of cloth and it looked terrible, it was all bunched up, and I said this is . . . What was intersting to me was the design element and not the practicality, although I have tremendous respect for the woven artifact. It keeps you warm, unlike video weaving. And I actually thought my tool could work the other way to be of use to people who wanted to weave, to design the patterns. And so I proceeded to design thi whole set-up modeled on a loom which I call the Video Weaver. While so far there have been only two videotapes that I've made with the Video Weaver pattern generator which are quite ancient by now my own work with developing the tool has been moving along quite rapidly. And now, as I mentioned earlier, this will be one of the poructs we will be offering for sale in the next year.

Woody: Conceptually speaking, is it also in harmony with internal functions like the horizontal clock and the vertical clock. You must have also thought about it as a relationship to time, to directions.

Beck: Well, that's what the time with weaving is, again. In weaving you have warps, which are threads running vertically, and you have wefts (sp?), which are threads running horizontally. The perfect metaphor for horizontal and vertical clocks respectively. In fact, my video weaver really, since it can also animate in a sense, will show you the process of sequentially building up a woven pattern as you weave it out. And then the permutations on it, if you were to in the weaving vernacular, shift certain cycles of passing certain harnesses over and under the shuttle, I mean passing the shuttle over and under certain harnesses. And in fact, in my whole scheme, those terms are used and they make perfect sense.

Woody: Actually, you could depict them as binary interactions if you wished. (this is a paraphrase, check with woody)

Beck: Exactly. And the only limit is, how many do you have to work with. Well, with the American TV set you have about 520 weft threads, maybe 500 weft threads, and anywhere up to 800 warp threads if you have a really high fidelity system. The other thing that I'd say that I think is most significant about my digital video system is that it took a fresh approach from trying to use a mass memory to image the screen, unlike the video dazzler or video frame stores which requie several bits of memory for each position on the screen. I saw it to develop the pure visual processing architecture and I still am developing it and the parts that have been seen so far in the Video Weaver are really very limited

compared to some of the latest aspects I've been coming up with. But I spent about two years simplifying that architecture to the point where I got it down to using really two types of circuits so that the actual circuit costs me only about $25 in integrated circuits. Th fact that it only required 256 bits of memory to produce these very high resolution images was rather puzzling to most people since time has gone by and the latest have been seen and people like yourself have been working with it. You begin to discover the ways that this type of thing can be done. But on the basis of that I was actually able to license some of the architecture to a semi-conductor corporation and worked to develop it into a so-called video game system. Programmable video imaging chips, which still, from that company at least, haven't hit the market but things like them have come out from several other companies from people who were working on our project. So you can't avoid the ideas being disseminated no matter where you are. Those ideas were implemented in other chips.

Woody: It's just intersting that you happen to enter, again, the chips are such a secret area because of the industrial competition so that you disappear in this mysterious tool. It's an interesting kind of (livlihood or knighthood) But that brings me to a different question because you have been involved in this large, popular, cultural contribuiton. Do you assume any responsibility . . . (tape ends)

Beck: responsibility it would certainly be during the period of time at the Center, literally thousands of people came through during the four eyars I was there and looked at what I was doing and went off and developed it and we published some information and disseminated a lot of tapes. But in the larger sense of the home video field, I suppose to some extent we artists who were working with video synthesizers prefigured that in a way but certainly none of us had the business inclinations that some of the other people did who were working in those areas to take it in the area of video games and make it a multi-million dollar phenomenon with impact on the public at large. But I don't know that we were in any position to make the judgments on that really. I really don't think about it too much. I'm mainly interested in making the next videotape which is why I'm selling equipment, you know. My real interest now is in publishing on the Betamax and the home video formats leading up to videodisc. But the idea of making an instrument or having one made has become more and more real for me in the last couple of years with these integrated circuits and other things like that. I've had some orders placed to buy instruments although they aren't formally on sale, so I consider that it's there and if the mechanics of doing it all work out we should have something.

Woody: Did you ever regret that you couldn't score your analog performaces and do you foresee any development of compositional codes or are you in fact already doing it? (026)

Beck: Almost every major tape composition I've done has ahd a score and while I haven't evolved any unifor notation for xxx scoring, I've experimented and explored with many different forms. For example, the illuminated music piece that I've performed a lot had a fairly developed score because it needed a quick way to patch up and just a point of reference xxxxxxxxxx since we were doing it so often. Even "Conception" had its own score. Frequently the score would remember more of a storyboard than anything. And I've personally found that the storyboard type of approach, where xx the score consists of sketches of the imagery that I'm seeking to achieve more than any kind of technical list of commands is the kind of form that I've worked with most effectively. Although of course in doing some of the video weaving things in digital video, your score assumes the proportions of a program and in that case you've got a very detailed task in front of you. As detailed as chartwriting an orchestral score. So I don't see it as an insurmountable problem. I know that music . . . the notational forms of music that we currently use xxx can be traced back in an identifiable form to something like the fourteenth or fifteenth centuries so that'shad five to six hundred years xxxxxformal development as a paper notation and who knows what before that we don;t know about. So that the visual composition for something like electronic instruments is so much newer that I think we're just in a phase of expetimenting and exploring. And also perhaps the problem that you're not only dealing with time

but you're dealing with a two dimensional durface, in fact three dimensional whereas the music for an instrument is pretty much a one dimension in time and so the form is a little less complex, although it conveys an enormous amount of information. But, you know, if you're going to read music effectively you have to learn Italian for example, because all standard notation in music is written in Italizn.

Woody: Sounds like "a commanded language" ????

Beck: Yeah. I suppose the ultimate would be some kind of light pen or menu system whre you could draw out of it and compose but . . . I don't know, I find each new composition demands new precedents that are so new that I dont even have the time to understand how to compose with them. In a case like "Cycles" for example, whre we published a little bit of that socre, that was an example of a kind of schematic score.

Cycles

Woody: Whre was it published?

Beck: We published it in the Video Art book.

Woody: Have you realeased any other notes?

Beck: No, not really. (irrelevant statement here) But this passage here is more like a schematic of one cycle in the total work. And while each ideagram or symbolic diagram here may or may not resemble what you'e actually seeing on the screen. Like you don't really see a cone on the screen, but you see an opening circle which this conveys. And you see at a certain point a kind of electronic wave dip down and then it breaks into little balls. So it goes in and out of adhering.

Woody: So it's symbolic then, because the time scale is not identified.

Beck: No, right, no tempo is shown although it is drawn on staff paper. That was my only concession to formalities. In another level, this is a score. A circuit pattern can pass for the score. Like I recently read a description of a piece being performed at Mills College. And the description of the intent of the artists or the musicians was this piece generating tones developed by interrupting a 6800 microprocessor with some other input. In that case the score was the circuit diagram, which I guess to musicians is a very exciting idea, although after working on schematics for some 25 years I guess I don't find it a particularly exciting idea myself. Nonetheless, it is an example of that score.

Woody: In a way you are an inventor at this moment since you have involved your mind in inventing these particular possibilities?

Beck: Yeah, I've been inventing a lot of things. Some have to do with video and a lot of the others don't. And I've been inventing a lot of electronic games.

Woody: You mean conceptuall?

Beck: No. Both conceptually and bringing them into manufacturing.

Woody: I see. Actually producing.

Beck: Well, having them produced by toy companies which has been the main source of income. . . how I've been able to develop the Video Weaver, for example.

Woody: You mean you are facing the danger of becoming very rich?

Beck: Not yet, but eventually I could face that danger. It's a real threat. (laughter)

Woody: I was talking to Lee Felsenstein . . .

Beck: Yeah, at Processor. He's rich.

Woody: But, I figured out he runs a basement operation, you may know about it.

Beck: Processor?

Woody: No. His little house there, People's Communication Network, and he's still at it. And I was amazed that the thought of the sixties was so strong and people like he, who's facing/the definitely possibility of becomeing a millionaire soon, he keeps his moral position by inventing, in a way, a communications system. And he's at it. I saw it. It goes slowly because . . . whatever

. . . but it's going anyway. So I think there's an interesting generation of technologists . . .

Beck: Well, an inventor who becomes rich doesn't stop inventing. The fact that you become rich because you've invented something of value is a corollary of your inventinveness. And the only reason you need money is not for the sake of having it. You need computers and parts and you'd like to hire people to put boards together.

Woody: It's a resource.

Beck: Yeah, it's a resource. If anything, I guess the late sixties with a kind of anti-money attitude may have set things back a while, because if the money had been available, perhaps these processes would have been further accelerated.

Woody: But as you know, the so called avant-garde art has been deadlocked in this moralistic stand against the official culture. There's virtually no penetration of popular culture and avant-garde.

Beck: Yeah, the avant-garde art museums have become the home of the underdog rejecteed person who can't find any other way to plug into the culture and so the museums sort of take them in more out of sympathy than anything. I don't really have any interest in that any more at all. I think the excitement of doing something like a Processor Technology a computer company, bringing computers into the home or computers into people's lives through electronic games or whatever . . . When you can design

something and see that 100,000 or 200,000 or whatever people have it, that's making a connection.

Woody: You think that for you it's the same process? It's affecting or influencing people which has full creative satisfaction for you?

Beck: Yeah.

Woody: It's not suspending your creativity?

Beck: Not at all. The fact that I haven't finished a videotape in two years doesn't bother me, because I've been creating other things. I think the intersting part to me was to evolve to the point where I saw the desirability of having one's creativeness propagate that far. If it wasn't moving that fast in video that there were other channels where it could be implemented. (371)