Sandin-VAsulka, P. 1   Side 1, begins #75

Woody: What I'm doing, basically, is trying to track down the names

and dates of the devices which we call video tools which are non-

commercial which have been created with a particualr need xxxx. And

so I'm first trying to run down the dates. Is there any material that

you have already described?

Dan: No.

W-ody: Let's do that.

Dan: But it will be hard to get the dates right, we'll fumbll. We can

figure it out against the . . . maybe you'll help too. Lock it up

with political events.

Woody: We may say . . .Is there anything earlier than the IP that you

would consider as a video oriented tool? Or maybe audio oriented tool?

Dan: Well, in terms of like the technical background,-the-IP--- direction

of the IP is the analog sound synthesizer developed by Moog which

established, made a tremendous step away from earlier work into this

idea of the patch programmable modular synthesizer with signalx patch

programmable signal processor isntead-of---- designed with the idea

of being low cost sacrificing some quality things, but very much

a compromise machine, but in that compromise giving individualsand

small instituttions real power with the machine. Instead of the

hundred throusand dollar fancy stuff that the U of I was doing and

other people were doing. So to me that's the origin of the conceptsof

xhx that are involved in the IP.

Woody: Why is visual? What was the particular direction, video?

Dan: Interms of my personal thing, I was into . . . what I wanted to

do before I was into video was . . . I worked in false color still

photography. And when I tried to move into motion, film, everything becam

so cumbersome I coildn't go forward, like I'mm too dumb. The way I

say it is I couldn't get the feedback fast enough to know what it was

I wanted to do, even, and not only do it. And I couldn't play enought

to find the special places that I wanted to work in as I could in

still photography, play and find the place and owrk in it. And it occurred

to ma an electronic processor, of TV, could do similar things, that I

 did chemically, primarily, and by funny exposures and sometimes opticaljyx

with still photography.

Woody: So you actually thought about the moving image, that's basically

what you wnated to do.

Dan: That was the motivation for it, was the idea of wanting to play

with moving images and the processes that I was using in still images

were too cumbersome to take into film, because turn around times were

even worse, more expensive. I tried doing some stuff in Super-8 with

my own processing.and I just came to a halt.

Woody: In what situations were you at that time? What year was this

before the decision was made£ or when you were contemplating this

decision? Was this pre-70 or post-70?

Dan: Pre-70 for sure. Let's see ff we can tie it down. When I was 21,

which would put it in 63, so OK 64 was when I graduated from XXX Schimer

and started to work at Wisconsin so it would be 66. 66 was when the idea

first occured to me and I researched some of the circuitsand thogght

about it and the mythical beginning is at a railroad station in Urbana

Ill. with Russell Dobson, who has never seen the I£ by the way, he's

camped out up near northern california, I'll have to show it to him.

And we akked the question of what it would mean to do the visual equivaient

of a Moog synthesizer. And that's the way xs presented the question to

ourselves. I'd missed a train and we had a few hours to kill so we sat

in the station x talking. And so I took each Moog synthesizer module,

let's say a voltage controlled amplifier, well that could do fades

and keys, right. A voltage controlled filter I said could control
                                really
resolutio-, I/didn't know it was going to be more trouble than that.

And I just went through all the Moog modules and said If you center their

bandwidth to handle video and you did the right things with sync and

everything, what would they do? And it wxid would kind of catalog

these visual effects. Well, the step from that to the analog IP

was a very small one in concept. So after I'd done that . . . that

idea rang around in my head, I didn't start it then. I did someresearch

on circuits and had it pretty firmly in my head but I didn't pursue it

largely because I was still . . . you know video cameras and video tape

recorders weren't in my environment, they were not very prevalent

yet at all and it didn't occur to me that one could afford these things.

And the idea of doing it in TV studios didn't make any sense to me. So

I went out with other directions, computer generated stuff and environ-

mental stuff with computersxxRmxxmxxmplmx but not with video. But that
                              then
idea was way back / . . it just sat around for nearly four years I think

before I picked it up.

Woody: What were you doing during that time? Were you teaching?

Dan: Not yet. I got my MA in two years and decided that ultimately

 . . . got my 1-Y, in 66, and decided that . . . a friend of mine decided

to do light shows and he invided me to join his light shpw company

called Lighting Systems Design, and do light shows. And so, that's how

got kind of hooked into visual images more. I'd been working in

photography then, but that's what really got me hooked into . . .

Woody: Did you make a living from photography?

Dan: During the Light Show Company I was paid a subsistance wage by

the company and had enough tools to work with and I came out rather

well as far as the company is concerned. I was fed, I had no money when

I left . . . when the company collapsed I had no money in my pocket.

I had to borrow some money and go . . .

Woody: Was that attached to Rock and Roll performances？ ✗ Did you travel?

Dan: Yeah, well that was the goal. We worked a lot with ~~recording~~ recorded stuff

and just taking over a little room and doing what would be a disco scene

I guess, but very much psychedelic and ~~kxxx~~ lots of slide projectors

and some special optical projectors.

~~Rxnx~~ Woody: Did you do any electronic work at that time?

Dan: No, it was still optics. Now Dick Ainsworth did some electronic

control for the slide projectors and stuff and other stuff like that.

But at that time I didn't do any electronic design. So I had the idea

long before I ~~really-had-a-knowledge-of-~~ knew any technology to implement

it except I researched ~~xx~~ it to know it could be implemented. I got the

Moog synthesizer plans and looked at them, understood how the circuits

worked, kind of . . . I could understand it but I couldn't design it,

I didn't have the tools of design. So that idea just sat around until

the Cambodian ~~kxx~~ crisis, which was 69 wasn't it?

Woody: 68.

Dan: 68, OK The fall of the Cambodian crisis I came to, the Cambodian

crisis was in the spring. I'd just come to Circle to teach, but not

video. I'd thought I'd be teaching photography. Thatx The fall of 69

was when I came to the University of Illinois to teach in the Art

Department.

Woody: You were invited or did you apply?

Dan: I sent 200 letters all over the country, all over the world for

that matter, saying I'm a physicist and I do art, and I showedmostly

color print stuff and I'd gotten show in the Sao Paulo Biennale that

was based on computer stuff. ANd so I had a very spotty but, couple

of glimmers in my exhibition record, most of it local stuff. Then Done

at Wisconsin. And I sentletters out saying I'm a physicist and I dox

this kind of xtuff art and if you would lùke me to teach that, ask me.

Woody: You sent it to ARt Departments?

DAn: Art Departments all over the world, lìterally. 200 letters.
                                        you had something
Woody: At that time you (indicίinctχ but sounds like) decided/to teach?

Dan: Well what had happened was that I'd just . . . At that time, aféer

I'd come back from doing the Light Show Company, after it failed,

I'd worked as a researcher at the Physics Department at Wisconsin.

I was kind of night manager of their particle accelerator. Nice job.

Very challenging when you were there but definitely one that you could

put away when you went away. Xaux It was great sport running this

magnificent technological device and lining it up and aiming it and

making sure it worked right so the experimenters were getting the right

data, and that kind of stuff. Very pleasurable job. Four days on,

Four days off. Real half-time. Worked out very pleasantly. Gave me

four day blocks to do my own photographic work. What happened was that

I was just less and less time thinkìng about physics and more and

more time thinkìng about images.

Woody: Now you applied for these jobs, what kind of curriculum did

you have in your head? You must have been ~~pre~~ prepared for ~~tis~~ this

teaching job.

                          an

Dan: No. I had graduated from/undergraduate institution with a

very thorough curriculum. And I had assumed I would go there and there

would be a curriculum. And I'm a bright person, I plug in. I'd learn

what it was I had to learn and start teaching. That was my feeling,

of course that wasn't the case at all. Itwas very disorganized, they

didn't know what they wanted to do. They let me have kind of afree

hand, and I taught kinetic sculpture, using motors and gears~~xxxmmm~~ and

pulleys and electronic stuff and light sculpture. I went to a school

that is in the tradition of the Bauhaus and it had a couple of quarter

courses that dealt with lgiht objects basically. I thought I'd be

teaching photography, but the photographers there, I'm not quite

sure what it was, but anyway the kind of stuff I did wasn't . . . I worke

d in funny color prints and I wasnt . . . they weren;t interested in

having me teach the courses.

Woody: Once you said they had a suspicion they knew what~~t~~ they were

hiring. As you say know, it was a Bauhaus tradition school.

Dan: Part of what was going on there was that they . . . remember that

one of the things that the Bauhaus trip did was to kind of apply industrial

technology--and the one very superficial part of it was to apply industrial

technology, especially in their foundation program, a kind of break

with traditional art stuff along with the social Communist socialist

kind of ideas of designing stuff for the people and all of that. ~~N~~ I

think the people running ~~the~~ what was now the descendent of the

Chicago Bauhaus, which was at Circle, a kind of second generation

Bauhaus was at Circle. They ahd the ideea that some-of- similar kind

of games could be made by transfering to electronic technology,

computers or cybernetic technology. Anthey expected me to integrate

that kind of stuff into their existing core program. I tried but

was not successful. So I just kind of started out cutting out my ow

n turf. In the fall of 69 when the Cambodiañ crisis, I Badn't met video

yet, but I worked computer stuff and photography, environmental

stuff . . .

Woody: How far did you go in your computer stuff, anyway? Was it imaging

Banjunt or just computer programming?

Dan: Computer contoilled environments.

Woody: Mechanical sculptures?

Dan: Some of them were mechanical but a lot of them had to do with

lght and sound. Its kind of like, out of the lgiht show tradition,

certainly, but computerized and . . . We did Glow-Flow which went to

the Sao Paulo Biennale, which was four transparent tubes which went

around the room that were clustered at the corners, diverged in 7¼ dggrees

to the center of the clusters añ the corners again. And these were
                                into
tubes built with a fluid/which was pumped a phosphor. And then there

were columns around the room that had speakers and li-htbulbs to kax

charge the phosphors. Thuxu It could start these blips of glowing

phosphors which-were-trav- taaveling around the room in a pattern

aleng with sound synchronéssness. We ahd pressure pads in the room

that took statistics on the arrangement of people in the room and

modified the program based on . . . we tried simple algorithms to

control the stuff.

Woody: How many of you were working? (actually indistinct)

Dan: There were about 10 of us, 10 or 12 of us.

Woody: What was it named again?

Dan: Well the name of the piece was Glow Flow and itžs simplification

which was in the Sao Paulo Biennale was called . . .

Woody: What year? That was 69?

Dan: No, it was earlier than that, 68. But actually it didnt go theee.

It was scheduled to go there but then there were these strikes by

American artists because of suppression. No american artists submitted entered,

so they took the Sao Paulo show and set it up at MIT. And so it
                              But
actually was set up at MIT./We were invited to the Sao Paulo Biennale.

Woody: What part was yours?

Dan: I was systems integration. I kind of made the whole thing work. And

I worked with Gerry Earthman (?) who was really the idea behind it, the

visual idea behind it. We lived together and we jammed a lot, so xxkmk

it was a lot of synthesis of our own thinking but he definitely had

a command, he had an image of things he wanted to do,but I just had

an image of things that could be done. It's diferent.

Woody: This was where?

Dan: It was at Wisconsin, Madison and I should check the date on this,

but it would probably be aronnd 66 or 67.

Waad Woody: I midsed what you did, this you did full time?

Dan: Now this was while I was the operatör of the particle accelerator

that gave me four days on, four days off. It gave me quite a bit of

time.

Woody: But this is like the first scale project that yoğ . . .

Dan: Right, that's the first one. And it was a failure on a lot of

levels, but it excited people. Thxx There were waiting lines that would

start six hours before the performance opened. It ran for two weeks.

And so it was a success at that point of view, although half the equip-

ment didnt work half of the time. It was a tremendous Herculean effort

to keep the tech together to make it work.

Woody: From now we could go . . . What was your first position?

Dan: I taught in Sculpture because they were open enough to accept

whatever I did.

Woody: It's a mechanical sculpture?

Dan: I tried. I never was very successful at it. I tried a couple of

magnetic _____ to make fountains of iron/filings or stuff. I

and aluminum

ahd some images but I never got any of them quite to work. But I'd knx

done environmental stuff and light shows so I taught these kinds of

courses in light documents using multimedia devices, slide shows.

A course about light.

It was the Cambodian crisis, the school was shut now. The

art faculty, because they trusted their students and worked with them

kept the art department open against the general trend although we

diffused a lot of . . . concentrated all the activity in the art

building. We were kind of a media center for a lot of movement stuff.

We did posters, graphic art, utilitarian stuff$_x$ for the great movement.

Well one of the problems wkh with that was that there were all these

instantaneous courses and stuff and it was a real problem letting

people know where they were. So someone suggested thatxxhex the idea

of setting up a string of video monitors with a camera and a roller

kind of thing just like a titler only mechanical variety typewriter

roller paper businessx to announce these meetings and have them run

continuously so someone could run in and it would be up in a few

minutes. My collective was meeting at, you know the graphiss collectvie

was meeting at blank . . . But we set this up and in the process, borrowed

some cheap Sony equipment, no tape recorder, just a single camera with

a RF modulator strung to 6 RF monitors up the column where the

elevator was which went to all the lounges, one to each floor. I became

fascinated with the image. Anthmx And then we televised some meetings.

When the meeting was really crowded we put a camera and a mike in

there, just broadcast, cablecast. And I just became fascinated with

the iamge on the screen, and I would sit by the screen and stroke

it, there was just something about the image that just got me. And

then, and my first video piece was actually done there, I couldn't

resist. One morning I got a nude model to sit over in a corner and

I set up a camera so that it would view people walking by the model

by the modelwasn't in the camera's view. So you had all these people

walking by doing doubletakes. Then they would go up and sit down in

the lobby lounge and watch other people do doubletakes. That was

my firstvideo piece.

Woody: Could I ask you if that part, that particular period, which

you mantioned . . .

Dan: 68,the crisis, the Kent State thing

Woody: Did you enter into any political activity?

Dan: Yeah, I'd been pretty political, I'dbeen in jailx and stuff. I'd

Been pretty political at Wisconin.

Woody: That wouldbe mostly war in vietnam.

Dan: The anti-war movement. And Kent State is what had caused the

crisis.

Dann

Woody Dan: That was a hundred miles away. And a lot of schools shut

down all around the country because of that. It's an obvious

rallying point, they'd shot three of us.

Woody: Because that's interesting because I'm finding all over in

xix that video technologists were (inaudible) radicals. If you

take Lee Felsenstein, he was an activist.

Dan: Right, and Bill Etra.

Woody: That's true, I'm finding that more and more.

Dan: Atthe end of that I took off on my long motorcycle tour which

was 20000 miles around the country in four months. I xixxx circumnavigated

the country. While I was taking that motorcycle tour it bexxxxx became

very clear to me about the goals I had tried to achieve in still

photography and failed in film could be achieved in video with a sophis-

ticated video device. I'd alreay thought about the idea of the Image

Processor very close to the way it finally came out. At that point
                                                    alternative
I started taking apart the concept, conisdering all sorts of/oxxxixx
                                    pin
organizational structures, been programming, all sorts of toher possibilities.

Afeer I researched the thing in my head it came pretty much to this thing.

So now it's a year later, the fall after the Kent State thing and I

apply for a grant in Innovations in Undergraduate Education to do the

Image Processor with the idea of using it to teach visual stuff. And I

gotthat grant.

Woody: You also had proposed it into your curriculum?

Dan: Yes, same time.

Woody: (Inaudible) if you would read the course description at that

time, would it already contain the (inaudible).

Dan: I wrote the course description as soon as I got the machine up.
But I proposed to put it somewhere.

Woody: completely inaudible.

Dan: Yeah, there were some early polemics. I have a document called a
Macro-proto proposal in which I proposed several ideas inx to investigate,
one of which is the analog Ix IP. About a forty page document, I'd
be happy to send you a copy.

Woody: that;s exactly what . . .

Dan: Which gives me the ideas I was thinking about at the time I designed
the IP. I thought I was going to knock out the IP in a couple of
months. So then . . . so I got the grant and proceeded . . that fall
I started to teach myself electronic design.

Woody: That means you hadn't really done except audio circuits, maybe
not even in audio, just nothing.

Dan: I'd been a radio amateur when I'd been a kid, so I had an affinity
with it, but I certainly didn't know how to design circuits. I could
certainly copy things out of Popular Electronics. I was comfortable
with it but I didn't have any design, I didn't know enough. So during
that nine months I taught myself electronic design by getting proto
boards and building circuits and experimenting with video circuits and
did some video stuff and did . . . before the IP was started I did an
event in an inflatable structure with Laura (Volkernine??). Where I
just did some simple closed circuit video in a big inflatable structure,
80 feet long stuck out onto the Lake. And then the during the evening
I rented a black and white projector and did feedback with the projector,
and a little electronic circuit to beef it up to work and people would
                              when they
walk . . . it was set up so people/would walk in they would walk in
front of the screen and cause the thing to swirl around and stuff

Woody: It was very integrated, yes?

Dan: It worked pretty well. That was actually at the end of the summer. I'd started the IP, the IP wasn't finished yet.

Woody: Anyway, you'd wored with video already, closed circuit. . . you were also doing things like feedback? But the IP was a specific direction you wanted to take?

Dan: Yes, I was already doing it. The IP wasn't finished yet but I'd built a couple of special purpose circuits partially to educate myself, among-other-things- in the things the IP could do.

Woody: Waht was-the--- were tge circumstances surrounding the IP? Did you have any communication with anybody or did you just (inaudible)?

Dan: The summer, in the spring just before I started the IP. This was one year later than the Camobidan thing I went to New York and I knew there were video synthesizers, I had heard that and I went to go find out what they did. And the only video synthesizer I could see was Eric Siegel's thing. It was in the gallery of what is now Electronic Arts Intermix ﬁ.

Woody: Howard Wise Gallery.

Dan: Andx Somebody was there but not Howard Wise nor Eric Siegel. He showed me the machine and showed me some tapes and I had heard about the Paik/ Abe machine, had an idea how it worked. Called up Global Village . . . I had a lot of trouble seeing people. I was very naive, I was from the MId-West and I had dropped into New York, sitting in a phone booth calling people -p to go see them. To find out . . . what I wanted to fnd find out was whether the idea I had had been done yet and I should pursue another idea. What I discovered was there were popple doing intersting things in the area. This kind of reinforced the direttion. Nobody was

doing a generalized patch-programmable or anything like it. In fact,

. . . I don't know what state the Rutt/Etra was at that point.

Woody: There was no Rutt/Etra. Etra did (inaudible)

Dan: So then I came back and started to build it. It took me about

a fullyear to build it before it was running even in black and white.

I did some early stuff with Jim Weisman who had a copy of the Paik/

Abe synthesizer . . .

    END, SIDE 1

    BEGINNING SIDE 2

Dan continued: Steven Beck and Salvadore Matriano came to a concert

in Chicago and the IP at that point was just getting underway.

Woody: What year was that?

Dan: We're still inthe year of the IP which would be the year after

Kent State. Then I met Steven Beck who had been at the University of

Illinois and had done this thing which was based on oscillators

and relays and stuff and Salvadore had this early version of the

Sal-Mar construction and was performing on it. Then that's when I

met Phil Morton who was at the Art Institute and I saw him showing

some tapes over in the corner. So I went and met him. AFter we finished

all of that I told Phil I was interested in a video synthesizer and

he was the only person that had responded like he was really interested.

Everybody else would listen to me but they didnt understand what

I was talking about. And although they were supportive, he was the

only person who had a goal that was close to it and said "Well,

include me as much as you can." Soh he was the person I got to show all

the first modules to.

Woddy: At that stage it was black and white?

Dan: Black and white. Anxxhx And then we got together with Jim

Weisman, Phil and Jim and I got together and did some shows, the first

one of which was the time, was the yearxxwaxxxhax the . . . we have a

date on this too, I could send you the blurb on it. It was called

"In Cons-cration of New Space" and it was the fall that the course

was started with the IP and New Space was the name of the place where

the course was. Before that I taught it out of my office. It was

a video synthesis event consectating a new video space at Circle, which

was then real. And that was with Jim Weisman and the Paik/Abe synthesizer

, black and white IP, a bunch of Super-8 loop projectors as in put

material and a lot of feedback. There werea couple of works in there

that are still quite nice I think.

Woody: Were the range of modulesbasically accomplished or rather

modules thatwere nòt accomplished yet?

Dan: The amplitude classifier ahdn't been accomplished yet and the

color encoder hadn't been done yet. As a matter of fact the sync

generator hadn't been done.

Woody: I see. You would say that those were the only additions, or did

you add . . .

Dan: Well, when it got it's own color encoder it became a much different

instrument. Paik/Abe is a beautifyl colorizer but it's irrational. You

can't say, I'm going to get up this kind of key situation and put red

here, for instace. You can't drive it, you can only ride it, that's

Nam June's story. So when the color encoder came tothe IP you could

really dixsexitx drive it in color and it made it a very different

machine. And then the amplitude classifier and then refinements after

that. Output mixer, audio input and some other stuff. So that's kind of

the story of xxxxx the beginining of that. Then, and then of course

there's the story with Tom.

Woody: First of all, I would like to pursue this. From the original

c-nfiguration, what people or what . . . how did it start to propagate

or to multiply.

Dan: I had always the idea of giving it away and letting people copy it.

But I had assumed it would require someone of considerable technical

background to copy it. And Phil Morton asked me if he could copy the

IP.

Woody: That was the same time? When was that?

Dan: Yes, that was right around "In Consecration of New Space." It was

clear it was going to work and Phil wanted to copy it. And I didn;t think

the could, that he knew enough. So I gave him a-1 sorts of things. Go

builda cople of Heathkits and come back and talk to me. xxxxx And he

said what should I build? Build a signal generator and an oscilloscope,

you're going to need them anyway. So he built those and he came back and

he was just very tenacious. He'd learned mechanics from this mechanic

he worked for and stuff and he knew how to learn from people, that

kind of stuff and I wasn;t any good at teaching at and he seemed a

good learner and I was a lousy techer which made it work. And so he jus

t started to do it and in the process developed the documentation. He's

completely responsible for the documentation. As I did a lot of the

work, of course, I Had to but he's the one who would do anything he

could to get me to do it. He would redo my drawings and write thin s

for me and criticise them and check my diagrams against his copy that

worked and all that kind of stuff that made the documentation come together.

Woody: But I guess we have to come eventually to this decision of

yours to treat this property as a common property.

Dan: That was in there right fr-m the Macro-proto proposal, long

before any building started, that was my own philosophy. To give

it away and thakex take this business about being paid by the state

to develop and disseminate information very seriously.

Woody: You basically established _____ to yourself

and became totally acceptable to you and in fact was your program,

to disseminate these kind of systems to anybody interewted.

Dan: Yes.

Woody: I see.

Dan: I kept having the idea that we could work it out so that if

somebody made a lot of money I could get some of the money, but that

hasn't happened.

Woody: That in a way makes you better than the rest of the guys, but

from your viewpoint it might not have been considered what's better.

Dan: I'm paid by the state to do it. Economics allow me to do it. I

didn't have to support myself with this development of mine so . . .

I mean if my support system were different my religion would be

different.

Woody: I'm sure but you would still be working for light shows, for

money and you would decide probably very differently.

Dan: Right. So I was able to make that choice by virtue of the way I

was employed.

Woody: But that decision in a way made you unique. Even if it was dictated

by your normal state of mind it was unusual. Just in a numerical way,

how many systems do you consider to be duplicated or finished?

Dan: Somewhere around 15, maybe more.

Woody: Anybody keeps track of it?

Dan: Most of the IPs . . . I've been in contact with most of

the people who've built IPs. Most ofthe an people who have started

them . . . there's only been one started that didn't get finished.

Most everybody xx has completed their IP or almost completed it.

Certainly a functioning powerful instrument although it may not have

all the modules.

Woody: Be we can just et this numerical thing straight. Now, maybe before

we go to DeFanti . . .

Dan: Which is another . . .

Woody: Which is another involvement and that in fact should be part of

a different discussion. Even if I wanted to cover the digital tools

I don't think it's possible. The video has a sizable amount of subject.

Dan: Let's at least mention that that's a part that's being ignored.

Woody: What I wanted to know is this: the kind of images that emerged

from this system, came from the IP, you must have cataloged them,

at least in your head. Did you ever develop a curriculum in which

you would teach the techniques of modules. What was your idea about

what it was.

Dan: My idea was just to explain the operating principles of the IP and

demonstrate what the modules could do singly. Demonstrate some simple

combinations to let them know what the playground was and that's it

really. Then I'd just cover the rest of videotech and look at what

people do. I really don't in general show people my standard patch that

I;ve been using on the IP for years. They some times goad me into it

and I do it, but I resist the idea. In my ideas you just teach the

operating principles and pepple go their own way. The most joyous

thing about it is the fact that students and other people too

who aren't formal students who have built the IP really discover ~~their~~ new

turf. They see images that I never could conceive of on the instrument.

Woody: So you didn;t ~~whx~~ want to . . . (inaudible) just a few patches?

Dan: Well I demonstrated the principles, but always very simple. I never

kind of ~~at~~ laid out a goal.

Woody: In a way that introduction to the IP that ~~wxe~~ you recorded is

about the standard procedure you . . .

Dan: Just longer. Just aake a couple of hours doing it instead of

5 minutes.

Woody: So you never engaged in summarizing a language, verbal description

of all the effects. That was never important?

Dan: That was damaging. Because then people would think that that's how

you're supposed to use the instrument. And I tried to design it . . .

what's unique about the analog IP among video synthesizers although other

machines participate into it considerably, still most of the devices

people use are quite specialized. And the Ip was really conceived as ~~beng~~
        very
being a/generalized instrument that could kind of do everything you wanted

to do, that was the goal. And people would do things I couldn'tthink

of. That's the definiton of generality, that that device can do a lot

of things. It can do whole classes of things the designer never intended

it to do, in a sense. Its organizing principles are well below what it
              much
can do, it's/more primitive. And of course the Hearn colorizer and

The Rutt/Etra device are very similar, less extensive in the case of

tat colorizer. But I really expected a whole flood of patch programmable

video synthesizers of a _____domain because Moog's model was so clear

and so correct that I expected them to crop up by the hundreds, and they

haven't. There are works th here that I did during this particular

period. I have bunches of tape from it, some of which I still show.

I hae an original tape, by the way, whihh is the first tape I ever exhibited-

distributed. A five minute romp, some works by me and some works by my

students, excerpts, a bunch of five minute excerpts of all the stuff that

was done in the fisst year of the color IP. I made 20 of thsoe and

sent them to my firends all over the country andx because they've

been humoring my in this idea for several years.

Woody: Do you make any distinction between video and what's used with

the computer? Is it specified or is it to you evolutionary so you dont

have to make distinctions?

Dan: The IP is primarily an image processor although it can do some image

generation. Most of the computer stuff is imgae generation stuff, like

Tom's system. So that's really how they sit in my head, primarily. Also,

it turns out that with a good model that Moog developed you can make

very usable machines by just paying attention to some of the details

of how you design the modules and stuff. And the digital problem I think

is much more severe. You know, really concentrated effort afxxmaltyx

after many years of doing this stuff to begin to develop control

structures that are fluid enough to be really controllable.H Where the

artist, where the producer didn't always have to have a lot of programmer

between him and , or with him x, whatever relationship they had . . .

where the systems became sophisticated enough so that the person interested

in the image could sit down and play with them and discover the places

, develop them . . . That's really a very hard trick in the digital world.

Woody: You see very strong division between the programming of digital

iage generation and image processing?

Dan: Yes.

Woody: But as I recall you mentioned that you were surprised that

people would _____ into your device which you conceived as

iamge processor also an image generator.

Dan: People used it in ways I didn't think of, which of course is

very gratifying. I still see it, every year or so somebody takes that

instrument and creates an entity that that was just notin my head

at all as what it could do. Barbara Sykes has done that withthe

(masks?) or some of her earlier work, I'dnever thought of that. Hugh

Levenson was the first person to use oscillators that way that

I saw at least with the IP. Thre were other people working in

parallel, Ixmann/Bill Etra was doing osciallator stuff by then.

Woody: Now would you cmmxnpk comment briefly on the concept of the

Habitat. What's the full name of it?
                                        now called
Dan: Circle Graphics Habitat which is/the Electronic Visualization

Laboratoryx or EVL.

Woody: What was that all about?

Dan: Let's see if we can get the dates staaight. The IP was just coming

up in colorxxmnx wben Tom showed up on campus. He showed up on campus

because of a far sighted man named Joe Lipson who was the Vice-

Chancellor who was committed tothe idea of getting powerful educational

technology generated on campus. And Tom had a system GRASS which was

uery applicable to the generation of educational materials. He also

xmmx financed New Space, gave me enough money to buy tape recorders

and stuff to surround the IP. You see the IP was constructed about half

from this grant I mentioned and about half out of my own money. BAsically

the school ended up bying the test equipment and bunches of other stuff

and I bought the parts. They paid my salary for a summer, which

gave me more money so I could buy parts. He came and at that time I

had b-en over at the Vector Genral which was already there. I'd

been over there but the machine was largely not used. It's a very

cumbersome FORTRAN based software . . .

Woody: Typical situation.

Dan: Very Typical situation although there had been aperson working there

doing at great effort molecule simulations and other things in

Chemistry. When Tom showed up there the system basically wasn't working

very well. Tom kind of visited there because he was very familiar with

it, and in about a week he made a tremendous improvement in the system

and so they decided they should hire him to get this hundred and fifty

thousand dollar largely unuused device operational and Joe Lipson

whax wanted him to come here to do educational technology stuff and

so they hired him and inside of 2 weeks he had GRASS up and running

on that machine and it was spectacular. And I'd been kind of hanging

out there and Ted Nelso was there too. He'd been there now for a year

and . . . you can learn a lot from him, he's really got incredible

ideas. We'd planned to do some work together and I basically chickened

out on him because the stuff he planned struck me as very difficult

to do and I wasn't sure I could do it and I kind of backed out on

him which has left us . . . although we're cordial . . . a £ rift.

Right at that time, Tom came and got this system working. Ted worked

on it and I worked on it and Tom actually . . . it's one of these

high coincidences where he came to work and I was hanging around the

system, but as an aside needed a place to stay for the summer and I was

going away for most of the summer, motorcycling. So, he stayed at

my place and we both had motorcycles and we both read comic books

and our personal religions in terms of the desing of our machines were

very similar. The technologies which we used were very different, but

our goals were right the same and our design techniques were very

similar.

Woody: How did Tom come to this humanistic concept of a co-puter? He didnt

have to.

Dan: Yes, ther are other options. Well, Chuck Csuri was interested in

computer graphics for a long time, and Tom was Chuck's student. He

also had a teacher's name I don;t remember in Information Engineering

, hew as an Indian, and very . . . I met him once, he was a very wonderful

and gentle person and an extremely good computer person and there

was really alot of influence . . . Tom learned a dot from him.

Woody: Whose terminologiesx (inaudible) Habitat.

Dan: Tom's.

Woody: What led him to this _____. _____?

Dan: Oh yes, Computer Graphics as a Way ofLife which Ted Nelson . . .

That laid out the religious . . . _____ religion.

Woody: What was the frequency of your intereaction with Tom.

Dan: Weđl, he was at my house until he found his own place. And he

immiediately wanted to bring over the IP _____ the Vector

General and colorize it. I actually didn't think it would be very

interseting, but he kind of talked me into it and it was very

successful right from the first time we did it. We had two half-inch

color recorders and we do this little half-inch introduction which

I don't thánk has been seen bery much, the very first stuff we did

together, kids playing in the playground, smiling and jumping

up and down and pushing buttons, sloppy stuff. And that slowly dvolved,

constantly working on technical fronts and going for images. Tom, for

instance, was the person who made EVE-1 happen, he's the person who really

wanted todo that. So I don't know what to say here. That thing with
Tom and me and that whole direction is really another story and a very power-
ful one. But he's had, itŝs really kind of, like when he was at Ohio
they made a xkxkixa distinction between technicians and artists so
he couldn't do his personàl art on the machine even though he was
the only person in the place who had run a camera. Just because he's
technically minded . . . But he'd alwasy ahd the goal of making computers
easy to use, I mean he intrinsically thought they could be easy to
uae xkxkxx and he had the intereactive model. His system had dials
before it had variables, before it had the programming language it
had dials controlling images on the scr-en. It really grew right up
from interaction. It had interaction before it had anything else. So
he was absolutely committed to the idea and he understood intuitively
although I dòn't know how well explicitly the idea that if you give people
enoughx information, a rich enough feedback, they can do very complex
things quite easily. Well if you make them specify it all out, like
turn here, go there, move four blacks, turn up it's becomes very
difficult. Just give them a goal and a rich enough feedback xhxxx they
ca- get there. And it akes the job vastly easier and that's something that
's still not grasped by a tremendous number---- percentage ofthe people
working in copputer images and computer sound. So, We can keep talking
about that, it's certainly important, it's certainly a real extension of the
IP and I larned a tremendous amount from Tom. Part of it is just that
he had similar goals in a different technology and he's a very generous
person and very open with ideas.

Woody: How did you do it as a support system?

Dan: I was just teaching at Cirdle and Tom was teaching at Circle too.

(inaudible, including "This is Blake????)

Dan (con't): Well the Doctor of Arts program which was this program which

Joe Lipson got off the ground to train people to do high quality

educational technology and it's a story all by itself, he's a story

all by himself and I thikk has bec very profound ideas about the future

of education and stuff. There was this Doctor of Arts grant which

had money in it to build a copy of the IP for Tom and supported him

for a couple of years without a . . . So there was money there to

get Tom some released time to develop GRASSmore. It was certainly a

very functioning system when he came to Circle, vastly better than

anything else than I even thikk exists now. At that point, and he's evolved

it beyond, just making it easier and easier and more powerful and

confronting all sorts of real basic problems like how to construct

computer languages that dont require loopsxxxtxxixxxx/to be used explicitly since

they're a pain in the neck and stuff like that. And there's a paper

called "Towards Loopless INteractive Programming" which discusses those

issues. I think you have all the papers.

Woody: What I have to do now is basically just start to go back and look,

because you have written about that peoiod and about the concepts of the

Circle Habitat you have written substantially.

Dan: Tom has. Ted Nelson, who I'm not mentioning enough in this whole thing

was early around doing important stuff although the big problem that

we had was that the projects that Ted wanted to take on always

struck me as larger than what I could reasonably be expected, what one

could reasonably do. And I have a short nose on my head (??), but that's

the way I am. I dream very close to waht's doable right now. That's xx

jsut the way I am. But at the idea level, Ted was very important.

H Woody: Give me some sources. Whoever was closely associated with that

period of the . . . of the first period of the IP, because I guess that's

what we've covered.

Dan: Jim Weisman and Paul Challicoe (??) who came with Nam June Paik

to visit the Art Institute. They were at Cal Arts and Nam June was

there too and the Tude paid them to come visit and do a visiting

artists gig and the IP then was kind of up in black and white and I

played it a little bit so I brouhg t it over at Jim's and Paul's and

Nam June's urging. I brought it over and set it up and it worked. I was

using his device as a colorizer for it, in a sense. And we had a wonderful

time playing. Jim and Phil and me and Paul Gallico and a couple of other

people. It was a very pleasurable . . . And Drew Browning/and Gregory

was a student

Dawe and Ed Rancus were all students then.

Woody: Are they tracable?

Dan: Well Ed Rancus is replacing me. He's the one th who did that disco

prior to disconnection, Not of this Earth it's called, and he's replacing

me this year while I'm on my Guggenheim. And there were some students

who were still working in video there who are doing very good things.

Actually quite a few there, because I have 10 or 15 people that surrounded

it almost immediately. I was teadhing a course in it, it's very easy.

Woody: Have we forgotten anything? Because I know the control device is

a whole separate chapter, like the glove and the others.

Dan: You know this is very late now and there-were--- they were early.

The Macro-proto proposal has a tremendous amount of that stuff in it.

I just didn't realize that it was going to take me a decade to do it. I though

t I'd do it in a couple of years.

Woody: What I have to get from you is this proposal, because that probably

is the genesis of that particular period.

Dan: That actually discusses three or four different kinds of video

synthesizers that I was planning to build, Fourier pattern generator, add

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all sorts of things I still think about building once in a while, but

now the digital image processor is what I'm going to be up to for

a while.

Woody: We would also have to go through your work and pick up the

significant pahses but that's a whole different bag. I think you're

going to be back in Chicago over the winter?

Dan: In September I will be and I'll be there for a year.

Woody: I think Burris will visit you once to copy information and

from Phil.

Dan: I think you should get the story according to Phil.

Woody: I've already found som many coincidences,like Hearn who saw

the first colorizer of George Brown who probably saw the first

colorizer of Eric Siegel and then you saw Eric Siegel's . . . it's

an unbelievable chain.

Dan: Well there aren't too many people working in the area, really.

Woody: It ahs been in a way small community, ga in the beginning,

going through maybe twentym, twenty-five people. And it eventually

grew in the same period into a larger community of toolmakers.

Of course, ther are still very few that have accomplished, put it in

the box, so to speak. Very interewsting. Have Iforgotten anything from

that first period? Is ther anything. . .

Dan:No, I'm not sure. Probably some of the writings . . . I'm sure there's

people I've missed in there. Nam June was very . . . what he saw was

the IP in black and white and he was very supportive. Of course

he's wonderful.

   END, SIDE 2

BEGINNING, SIDE 3

Dan (con't): Which was supposed to be a week and a half long and

we didnt have anything to play his color tapes on, we only

had black and white equipment at the time. So we crossed that once.

What he suggested was that he shorted his stay and free up $1,000

of his fee to buy a color tape recorder so we could play his tapes.

And that gave us our first color tape recorder which was a Shibaden

EIAJ standard. And that gave us our first color recorder with this

stuff which we used in "In Consecration of New Space" to record

it all.

Woody: That was a new generation recorder or what?

Dan: Yeah, EIAJ. We never had a 5000. I didn't know of a single

5000 in Chicago. I'm sure the video dealers had them but I don't know

anybody that had one. They missed it entirely, beinga little bit late.

END