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Jon: My first question for you is, you said that you were requesting this grant to finish building this machine so there was some hardware that had been put together and a preconception of this machine.

Sid: Oh yes, many many years.

Jon: So what's the genesis of these ideas?

Sid: Oh the whole thing started when I was a kid. It's a long and boring story. But basically it starts with my mother taking me to see Fantasia when it premiered in Pittsburgh in 1938 or 39. I was about four at the time. And it has dominated my life ever since. And that's the absolute god given truth. Already I was a classical music freak. I grew up with the Metropolitan Opera on Saturday afternoons from the time I was old enough to be put next to the radio. And I decided that I wanted to make movies like that when I grew up. And so that got me into photography from the time I was about 8 and electronics by the time I was about nine or ten. And by the time I was about 11, the war was over and all kinds of surplus stuff became instantly available at prices that even eleven year olds could afford. And a friend down the block and I started building radios and developing color film and having lots of fun. Blowing up parts of Toronto. And somewhere around that time I used to hang around a radio and TV repair shop near my school and the service technician there was a friend and he was teaching me stuff about electronics and playing around with an oscilloscope that he had hooked up to the TV set that he was working on in about 48 or 49 or somewhere in there. He could modulate the raster that he developed off the sweep signals of the TV set with the video coming in.

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Jon: What's his name?

Sid: God, I have no idea. He showed me how you could play around with the pictures and change its height and size and shape and brightness. Somewhere around that point I got the idea that ~~there~~ a that ~~there~~ might be ~~the~~ starting point for generating images.

Jon: So this was 48?

Sid: 47 or 48. Somewhere around there. And it sat in the back of my mind until I was in my middle twenties because I didn't have the technical knowledge to implement anything until much later. By the time I got out of college I was in the film business. I was a cameraman and film editor, sound man. Anything and everything. And building and repairing sound equipment. Picking up a basic working knowledge of electronics or of electricity anyway.

Jon: what did you study in school?

Sid: Engineering, electrical engineering. But I dropped out half way through. I'd worked at many different things for quite a few years. I was a photographer. Went into the air force in April of 58. I got my draft notice and decided--because at the time I had been a photographer and there were no wars going on--I figured that it was still safer to carry a camera for four years than a rifle for two. So I enlisted as a photographer. During the two years just before when ~~there~~ I had been working as an animation cameraman and an editor, got to realizing how I could do some of the stuff that I wanted to do but it would take enormously complex optical printing to do it. So I started building an optical printer out of a scrap lathe bed and a Kodak Cine ~~Special~~ Special and a Bell and Howell projector. Somewhere along the line I had started learning how to 097

run machine tools. And in the Service immediately after Basic they said, "Well the needs of the Air Force come first young airman. No photography for you, you're going off to radar school." And so I spent the next six months in radar school in Denver. They wanted electronics people more than they wanted photographers.

Jon: When you started this optical printer, what was your idea? How did you know what you wanted to do?

Sid: I just knew ~~what~~ that I wanted to do animation to make images that would work along with music. I had played around with light organs of various sorts. I had known about the Wilfred Lumia Suite. I had known about I think, practically everything that was done in the teens and twenties and thirties with light shows and special effects with music. The dismal ~~fact~~ failure that practically everybody had most of the time.

Jon: Wilfred wasn't a dismal failure at all.

Sid: No, that's right with the Metropolitan Opera House. He used to give regular performances there.

Jon: Did you see them?

Sid: No, that was around the turn of the century.

Jon: So this sound and music thing was from your having seen Fantasia?

Sid: Yes. In the service I managed to get a fair amount more of electronics crammed into my skull and immediately forgot it all because I ended up getting a photography assignment anyway. Then after I got out of the service I went back into the film business. Back to building sound equipment. And color TV sets were already

around by then. 61. In fact they were ~~xxxx~~ starting to get around used, which was beginning to look attractive. And building motion picture laboratory and sound equipment for the next few years I managed to pick up an old RCA TV set. That ~~was~~ must have been in 63, and ~~hooked a Dyna Stereo 70 amplifier onto its deflection yoke and some filter networks made out of/crossover networks from old Hi-Fi stuff. The three beams ~~the~~ started making lissajous ~~xxxxxxx~~ figures.~~

Jon: had you hard of anyone doing this before or was it just the obvious thing to do?

Sid: Yeah. And started showing it to everybody and having parties at the house and various places. That was 63.

Jon: So you didnt know Bill hearn or a-y others?

Sid: No, at that time I WAS HANGING around the village with a bunch of flamenco dancers and classical guitarists, druggies and junkies.

Jon: And you were working for CECO during this period?

Sid: F and B SECO, yes. And magnasound and Cinemagnetics and doing a lot of freelance work. Reocrding and building equipment. Working steady and keeping the rent paid. And smoking a lot of dope. I built a three dimensional color music display. It must have been around 65 at the time. Read an artical written by a guy by the name of Allen Ralph (sp?) who was at the Mitre Corp. somewhere in Massachusetts, Cambridge I think who ahd invented a psuudo three dimensional display for air traffic control. The vibrating mirror type with an aluminized mylar diaphragm. And you can fake three-D

quite nicely with that. Wrote to him and told him what I was doing and hesent me samples offoil. We corresponded a bit back and forth and then he got a new assignment someplace else and that was the end of that. ~~And I had a thing built around about a, 20" diameter mirror driven by a 15" loudspeaker. Noisy as hell but, by Gods, for or ~~xxxx~~ five people could watch it at the same time.~~

Jon: Does this thing still exist?

Sid: No. Long gone.

Jon: Aside from the ~~ft~~ mirror and loudspeaker, what else was there?

Sid: Well, there were audio oscillators to drive the mirror back and forth at a constant sixty cycles. There was blanking, there was intensity control provided by . . . There was brightness control provided by the overall volume of two channels of stereo. There was individual control over red green and blue intensity of the three electron beams.

Jon: Oh I see!

Sid: Right, you had a color TV display and you view the image of the CRT as reflected in the mirror. Your looking into the mirror and as the image changes infocal length, the image changes in size from one extreme to the other. Now if you play around with blanking and intensity during that sweep you get all sorts of intersting effects. And if you generate patterns of various sorts you can build up geometric forms that are apparently three dimension. they have true parallex. As you move your head around they change.

Jon: Do you have pictures of this?

Sid: No. Nothing, absolutely nothing. Somewhere arond that time, a chap by the name of Homer B. Tilton at Optical Electronics 208

in Phoenix Arizona came up with a three-dimensional oscilloscope which consisted of, a basically, two oscilloscopes, two picture tubes, one this way and one this way and a forty five degree mirror in the middle, polarizing filters~~xxx~~ over each tube. You wear ~~polarized-glasses~~ polaroid glasses. The deflection axes were places slightly divergent and one axis was reversed with respect to the other so that you got the proper phase relationship of the two images as they fused together. It~~xxx~~^{looked} nicely three-dimensional if you rotated ~~them~~ in space. And that was really interesting. He founded the company somewhere around 65. Later on he dropped out of it, and he's somewhere in Texas right now. He works in optics. And a guy named Rick Gurdy (sp?) took over the company, who reminds me in some uncomplimentary ways of some other people, but that's beside the point. Anyway, Tilton had his three-dimensional display and I wrote to him a few times. I lost almost everything in the way of correspondence and what few photographs I had because I had not owned a camera during most of those years. In 63 I sold off all the cameras and had nothing to do with photography any more. Not even snapshots.

Electronics, women, dope and guns.

So Tilton and I corresponded back and forth. He had, I think, only two or three of these units in existence and they were all out on the West Coast in these classified environments and there wasn't anyway to see anything. Too bad, good by. Somewhere about that time I was showing off what I did have to the people from the Museum of Modern Art and there was an artist by the ~~name~~

name if Aaron Berkowitz who was the fater of a friend of mine who was a friend of a friend of a friend. Berkowitz had something to do with MOMA and he brought some people from MOMA over to the house a few times. They werewilling to give me a display as long as it was a simple statick thing that turned off by itself and I said "No, no, no it's a performing instrument." Becuase by t-is time--65 or 66--I had managed to scrounged four or five, half a doxen audio oscillators. Had all sorts of controlcrap rigged k up. The living room was dominated by this absolute mess. Every weekend, 15 or 20 people would bomb in and we'd ~~xxx~~ smole dope and drink coffee and eat coffee and watch pretty pictures.

Jon: Wat is the originx of this fascination with performach?

Sid: At tha- point, somewhere around in 65 becauwe I was getting friendly with some rock people also . . .

Jon: You knew the light shows at the Fillmore?

Sid: I knew of them but I didn;t really know very much what was going on. I;m naive in many ways. Very isolated from the real world. But somehow managed to make the acquaintance of Roger Guin of the Byrds andhe decided tobuy one of my things. Through him I met other people and built about half a dozen of these things that displayed pseudo three dimensional patterns on a color TV set.

Jon: Did you se&1 them?

Sid: Oh yeah.

Jon: Who did you sell them to?

Sid: Well, there was a gambler in Chicago . . . Guin was one. Some friends who used to live here in New York by the name of Phil Gleason and then they moved off to San Francisco and from there to Guatemala and never heard of them since. There was a musician by the name of Serge Katzen who had one in his place. He was agent and friend of Buzzy Linhardt. Buzzy and I used to hang around a lot. Buzzy tried selling a couple of these things to all the wire friends of his. ~~xxxxxx~~ (indistinct, but something like "I kept going like that")

Jon: So the device you sold was not the TV set?

Sid: The catch then was that the sweep system wasn't fast enough to display a raster and I had no way of amplifying any kind of video signal. I did not own any video equipment. ~~xxx~~ There was ~~xxx~~ none available, affordable. I was not connected with any stations. I did not have access to any video equipment. Half inch equipment did not yet exist. There was no way of recording this stuff other than on film. When the Byrds were on TV, when they were here in New York in 66 there was a bit on their TV program. We schlepped my stuff down to their studio and set it up in front of a color camera. And CBS ran about three minutes worth of it and supered it as background for some of their stuff. I never ~~xxx~~ _____ after that.

Jon: Did the machine have a name?

Sid: "The Albatross" Because it hung around my neck like one.

(330)

of
~~Hi~~ Jon: The device as you sold it consisted ~~xx~~ what?

Sid: Basically a color TV set which could be used for watching
~~color TV as well as playing games with, a control unit and usually~~
a good ~~quality phonograph~~. It was a nice package, it sold ~~for~~
twenty-five, ~~twenty-eight hundred bucks~~.

Jon: No oscillators?

Sid: Nobody was ever in to that. Nobody wanted to spend the money fo
that stuff. Simple X-Y controls, joysticks so that you could move
the pattern~~x~~ around on the screen and size controls, making it
larger or smaller, and a resolver so that you could rotate it
in space and that was about it.

Jon: You had no tie in with anyone except for these guys who had
written the articles?

Sid: I couldn't afford ~~xxxxxx~~ anything. I couldnt afford to buy
anything. I figured that nobody was about to help me. Engineering
people I was scared of making contact with. Artsy people I had
no idea of. I ~~xxxxxx~~ lived in this little tiny world, all closed
off. There was work add chasing women and smoking dope and shooting
guns. Target shooting, no hunting.

Jon: So it came completely from your fascinations and past involvements?

Sid: Yes. A photographer friend had tried filming some of the stuff
off of the TV set in the early sixties. He still has the film down-
town. And we thought it was great shit at the time.

Jon: Alright, so what happened _____ (indistinct)?

Sid: Somewhere in late sixty (sic) it had ~~evolved~~ through about
5 ~~stages~~ and the driving amplifiers were getting fast enough
to run a sawtooth. By that time I was able to get ahold of a battered

~~Video~~ camera and started playing and realized that it's possible to do all sorts of things with an image. Acutally realized that it's possible to do things with animage much earlier, probably in the early sixties but I didn't have any way of doing it. The equipment wasn;t available, to me anyway. ~~In~~ the late sixtie I could demonstrate to friends that it was possible to do something but I still couldnt afford to build the type of equipment that would be fast enough to handle a driven deflection display. I had the technical knowledge by then, had~~e~~ everything down on paper, blocked out, it was all drawn out. It was a question of money.

Jon: What was happening with ~~wavex~~ sound at this point in this device?

Sid: I'd been playing around with function generators, which were becoming available by the late sixties. Which were much more flexible than simply sine wave generators cause you could make different waveshapes. And audio synthesizers started becomeng available then and naturally the minute I could get my hands on one we started hooking that up to the thing and playing images and recording deflection ~~signals~~ signals on audio tape, on two channel addio tape, and playing it back through the system again. That could handle ~~xxx~~ lissajous figures and all sorts of random scan stuff, but it couldn't handle the actual sawtooth. No way to do that with ordinary analog magnetic recording.

Jon: Wou were using which synthesizer?

Sid: Arp, as I recall, then a Putney. Oh! That;s it. I had borrowed one from this guy out in Jersey who was distributing them. I forgot his name. May I never remember it! If ever there was a slimy

Robert
Myers

character, he is one, absolutely. But he came over and lent me a Putney for a couple of weeks. Woody and Steina knew him. He made the connection to Woody and Steina and introduced them to me. He then proceeded to rip off, as it were, as the expression goes, my entire system and attempt to market it himself. I later found out that he has a long track record of ripping off other people's things.

Jon: Can you mention his name for the record?

Sid: I don't remember his name, but the name of the outfit was Ionic Industries and in fact he ripped off the name Putney from the Putney synthesizer people. He ripped them off fiercely. I'm ~~xxx~~ sure that Woody and Steina will remember his name. I have an absolute block in my mind.

Woody and Steina got me interested in performance. In the ~~middle sixties~~, also,, I decided first, that I was interested in performance just as a light show thing, because I was working with a rock group at the time, Buzzy Linart and his group,

Jon: You were doing the visuals?

Sid: And at the time there was no way of projecting it either. In 65, 66, projectors didn't exist.

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I started building projectors at the time based around old Norelco projection TV sets from the late forties. Do have some fragments of those ~~xx~~ still here. A projection tube, a spinning filter wheel— red, green blue, a commutator segment in the center, photocells—

three of them in a line and lamps behind. The photocells needed
the amplifiers, on and off, which were fed from three filter
networks, fed from the sound input so that the brightness
the time either the red, green or blue segment was going past
the tube would vary. And it did work, it was quite cute.

Jon: And you completed this device? It was successful?

Sid: Oh yes. And it is capable of projecting an almost three-
foot wide picture which you can see in a totally black room.
There are pieces of that still inside the next room.

Woody and Steina got me really pushing towards performance.
Somewhere around that time also I had quit my job at Huemark (sp?)
Films where I was chief engineer and built motion picture and lab-
oratory equipment of all kinds and sound equipment, and gone off with
several friends. And a company we formed, which was formed to
market various products that I mostly came up with, such as this
three-color visual display, a portable audio mixer for professional
motion picture use, a simple motion picture projector designed for
continuous loop ~~xxx~~ operation, particularly coin-operated operations,
some teaching equipment, speech equipment for speech therapy, visual
display stuff for use in speech therapy and audiology. The company
went kaplunk after six or seven months. And Gerald Weisfeld entered
into the ~~picture~~ picture at that point because he was one of the orig-
inals in the company. So Gerald and I continued working together
on the displays we still had in the workds. We had two demonstration
units being built, one of which could handle image and the other
was just for music display.

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Jon: So you had an external video input?

Sid: Yes. Taking it off a TV set.

Jon: You couldn't hook a camera to it?

Sid: Yeah, but we didn't have a camera then, not till another year later on. The first camera that I had had gotten lost during the moving that I did in 67.

Jon: The year for all this was . . . ?

Sid: ~~It~~ ~~was~~. That's when I moved into this apartment and moved everything into my shop first. ~~It~~ Told my wife "The shop is the most important thing! That gets set up first, then we do the rest of the apartment!" That's the way it worked. AND we had just bought ~~the~~ ^a house in Woodstock then, no I'm sorry, we had just sold a house in Woodstock then, bought it two years before and found we couldn't afford it.

~~And Woody and Steina introduced me to Rutt and over the months . . .~~

Jon: Were you selling these things?

Sid: Oh, no. And in fact the demo units are still inside also. And Rutt and Etra had gotten together at that time and they had just started doing something along the same line, somewhere around 71. I think I met them in 72, and by that time Woody and Steina had gotten Gerald and me pushing to really do something about it, and I guess that's when that was written.

Jon: So this was written at ~~the~~ ^{their} suggestion.

Sid: Yeah. And Gerald and I applied for CAPS grants for a couple of years after that, and no results. Oh! Back around 65 one of the ~~people~~ people who ~~we~~ saw my thing was a weird Korean chap by the name of Nam June Paik who was playing around with robots ~~and~~

at the time, 64 or 63x. He had a robot show at the New School. Yeah, I was working at Magnosound so that must have been 65 and he was turning TV sets on their sides and whatnot. And I thought that was basically kind of dumb. Didn't seem to be very artsy to me. It was just kind of a silly thing to do. The robots I thought were hilariously funny. Enormously clever and definitely works of art, first rate. At least he had a ~~xxx~~ sense of humor. Then he saw the display thing, the music display, and several months later he called me and he ~~wanted to display~~ it ~~himself~~ under his name.

Jon: You had mutual ~~fix~~ friends or something?

Sid: No. I walked up to him and introduced myself at the show at the New School. Told him about my thing.

Jon: And you thought he would be interested because of these things with TV sets.

Sid: Yes. Because I could show him that I had gone twenty light years beyond where he was even thinking about thinking, already long since, and apparently he agreed with me.

Jon: And so he called you up to make this proposal to you which was to display your machine under his name as if he had made it himself?

Sid: No the thing is that he was the artist and I was the technician, or merely an engineer.

Jon: So he wanted to use your machine as a performance device?

Sid: Yes.

Jon: So how did you feel about this?

Sid: Very upset.

Jon: Why?

Sid: FUCK HIM, I'M THE GODDAM ARTIST! That's it.

Jon: And you told him that?

Sid: Yes.

Jon: And what was his response?

Sid: I don't think I waited for a response. I said "no" absolutely not. It's my invention. It's nobody else's. I show it under my name. It's nobody else's. This was also around the time also when the people from MOMA were coming up and it was "yes, no no yes, yes, no." Various science fiction fans were trying to publicise the thing and so on and so forth. Everybody had all sorts of glorious promises about doing special effects ~~in~~ science fiction films, manipulating titles, because it was obvious that just given some more money I could build the designs that I already had on paper. And given some Italian film producer who was producing some cheapo science fiction film, ~~he~~ he was guaranteeing me that when he ~~came~~ ^{was coming} back to New York, he was ~~bringing~~ coming back with all kinds of money and so on and so forth. Special effects _____ ~~in~~ of films, fame, fortune. Good-bye. That was the end of that. I got very dispirited. People were telling me left and right, "you're crazy, you're done with." Hoard Wise kicked me out of his place. He said, "This thing is stupid, this thing is nowhere. It's dumb, ridiculous, go away."

Jon: You went up to his gallery just off the street?

Sid: Yeah.

Jon: And you asked him for a show? Is that correct?

Sid: W Yes, something lkke that.

Jon: And so, he essentially kicked you out?

Sid: Yeah, he said this is an absolutely nowhere thing. And about four years later he subsidized a friend of mine to build precisely the same thing. A fellow by the name of Joe Weintraub. So Wise ended up financing Joe and tried to do a deal on him, from what I heard.

Jon: Do a deal?

Sid: Yeah, with the patent. He financed him to a patent. And then I heard that he tried to do a deal on Joe to ~~gax~~ end up getting the patent for himself. I don;t know the facts, I don't know the . . .

Jon: Whatever contractual arrangements were made?

Sid: Exdept that Wise owned a piece of the patent and on the patent thing it says "10% owned by Howard Wise" or something like that. It was precisely the same system as I had been demonstrating for the rprevious ten years, without the mirror. Just a color TV set wit- the filters and intensity control.

Jon: Weintraub had seen the machine many times?

Sid: Weintraub? No Joe came pp with the thing completely independently.

Jon: You mentioned that you were friendsf.

Sid: Later on he and I became friends. I later met him through a cousin of mineand Joe and I became good friends.

(break here, irrelevancies)

Joe was advertising in the Village Voice, a littel tiny _____
thing that he was selling an audio-visual TV set type display.

And my cousin Cliffy saw the ad and said, "Hey Sid, you've got to see this guy. He's got your thing." So we went over to look at it and we thought that he was somebody who had seen my thing when I was schlepping it around the Village and showing everybody in the Village. There must have been several thousand people who saw it over, easily, a six or seven year period.

Jon: Did you know the Vidium?

Sid: The Vidium? That wasn't Hearn's thing?

Jon: Yes, it's Hearn's thing.

Sid: No. I knew ~~absolutely~~ nothing about West Coast, absolutely nothing of the West Coast. There was a guy on ~~third street~~ Saint Marks Place, The Church of something. It was across the street from the Electric Circus, upstairs. This guy had a light show, slide, water dyes, fishtanks, all sorts of stuff. It was referred to as The Church of something or other. I can't for the life of me remember the guy's name. But that must have been like 63 or 64 when the East Village was very swinging. A lot of dope around and everybody was tripping. I'm trying to remember the chronology. No acid was hitting the West Village in the early sixties and the East Village was getting hot by, I guess, 63 or 64. When did the Electric Circus open?

Jon: 65 or 66.

Sid: The guy with the Church was Richard something, I seem to recall.

Jon: OK. So the most intriguing part of this is that Paik may have gotten the idea that he executed in conjunction with Abe from this machine. And so did he ask you specific questions? 234

Sid: I dont think he had to. I used to tell everybody how it worked. It was, you know, just a standard pattern. I told everybody freely.

(short break)

Sid: I remember also that later on when I was working at Magnosound he wanted to borrow a 16mm motion picture projector one night. I said, " Theres only one in the place and the goddam thing is bolted down and it's a huge arc lamp thing." He says, " I'll bring up half a dozen people to carry it out." I said, "absolutely not.No way." It was veryfunny.

Jon: And so I guess that brings us tothis proposal.

Sid: Yeah. The proposal wa s 72.

a way

Jon: And so the proposal was/to gain greater control over this basic ~~the~~ device which you'd had for many years?

Sid: Yeah.

Jon: Inaudible

Sid: WELL WHAT happened to it was that several years later I ended up, I guess around 73 or 74 I ended up working for Rutt, and that made it possible for me to get my own machine.

Jon: You have a Rutt/Etra?

Sid: No. I have a Rutt/Washer. I have several Rutt/Washers. The Etra comes from Bill and Louise doing the graphics for the panels. And Etra got Rutt interested in the idea of doing it for him. Rutt designed most of the hardware. I designed part of it. Rutt and I built most of it. Etra and a couple of other people and Louise did various things at various times. Layed out the graphics, etched boards, stuffed boards and so forth.

Jon: Who specified the functions?

Sid: What functions?

Jon: The paramteres of control.

Sid: Oh it had control over height and width, position of the picture on the ~~screen~~ face of the CRT.

Jon: Depth control, howizontal center, vertical center?

Sid: The whole works, everything.

Jon: Of course, but who came up with the design of the machine to oprate in these parameters? How was that decision arrived at?

Sid: I think Rutt did mostly. He;s a very bright guy. And he came up with it himself. By that time other people had also. Long before then I became aware of things that were being done in various flight simulators since I'd been reading technical magazines since the early sixtiesx. Various trade journals had been fallowing flight simulators and that kind of stuff very closely. By the early sixtæes it was obvious how to go about getting the control you needed. Anybody who even gave it a passing thought would know immediately what to do. It became economically practical for someone with my kind of budget in the early seventies when the prices of ICs started becoming real&stic. The late sixties, early seventies. When high power devices became available at a reasonable price, analog multipliers dropped from several thousand dollars to mere hundreds and then down to mere tens of dollars, andso on. That was about it.

Jon: What's the difference between a Rutt/Etra and a Rutt/Washer?

Sid: Well, I'm willing to grant a certain amount of credit in my own personal machines to Rutt. In fact, I;m willing to grant an awful lot of credit to him. Without him I could not have built my machines. He gave me freely of his expertise, of his materials, of his working space. I worked like a dog for him. We exploited each other.

Jon: What did you do for him, precisely?

Sid: Everything. You ~~xxxxxxx~~ name it. I designed some stuff, not much because mostly it became Rutt and Bob Diamond. And that led to a number of disasters. Bob is quite bright, quite a competent engineer in his own right but the combination was kind of a deadly one, because each one would try to prove the other wrong and Rutt being the one with the money would end up right. You can do it this way even if it didnt work. There was the whole ~~xxxx~~ rich kid syndrome around the Rutt place because everybody there practically was rich and it really irked me. And I must confess to a large degree of jealousy. There but for the grace of money went I. And obviously I could do a hell of a lot more than they could given access to the kind of money they could. Because I had all the original ideas. I am a creator. (distinctly sarcastic)

Anyhow, the first demonstration machine that Bill carried around for a couple of years later became my machine as part of my salary. The first R /E machine went to the IV lab. The second went to Venezuela. The third one, ~~Eric used the third one,~~ which is now mine. As I said, it was part of my salary.

Jon: So it was like a floor model.

other people and myself to do animation using the synthesizer.

Jon: A production company?

Sid: Yes. And by the time I left Steve, I was building another high quality machine, which was basically a variation of what ~~ix~~ was basically his best design to date, which was the machine he sold to Australia. And my machine incorporated the best features that he had managed to come up with so far. I have another high resolution display still under construction inside, which is to work with an updated version, an expanded version, of that machine. (short break) that's about it. I have two working synthesizers still and ~~theixix~~ they're both downtown at the video lab on East 54th Street. David Small and Sami Klein still do production with them.

END, SIDE 2

Sid: Yes. Then Etra was busy doing the artiste bit and Steve said, justx/"keep out the production place. Leave everybody alone. It upsets all the production people." Which was Greg Leopold and myself, occasionally other people would troop in and out. Tom Zafian, a girl . . .

Jon: Liz Phillips?

Sid: Peripheral. Various people at various times assisted in various functions. I did everything, generally. I punched sheet metal and wired boards and layed out boards and developed and printed them, troubleshot and built the production machinery and kept everything going. Did this, that and the other, so on and so forth.

Jon: And you were involved only with the synthesizer? None of the other devices?

Sid: Such as the strobos?

Jon: I was thinking more of the later stuff, such as the Repositioner.

Sid: No. By then I had already left. The Repositioner was part of the synthesizer. Just a block taken out of it. The horizontal and vertical centering. Basically that's it.

Jon: Oh, Rutt told me it was a digital device.

Sid: The original positioner was an analog phase shift. It was simply the phase shift section of the sweep circuits from the thing. By about 74 I had been working with him for about two years, by the fall of 74, because in October I went to work in the Public Health Research Institute and have been there ever since. I left Rutt. I just couldn't take it anymore. But by that time I was already a partner in Teledesign, Ltd. which is a company formed with Lee Kaminsky and Sami Klein and David Small and various

around by then. 61. In fact they were ~~xxxx~~ starting to get around used, which was beginning to look attractive. And building motion picture laboratory and sound equipment for the next few years I managed to pick up an old RCA TV set. That ~~was~~ must have been in 63, and hooked a Dyna Stereo 70 amplifier onto its deflection yoke and some filter networks made out of ^{old} crossover networks from old Hi-Fi stuff to modulate the three beams with and started making lissajous ~~xxxxxxxx~~ figures.

Jon: had you heard of anyone doing this before or was it just the obvious thing to do?

Sid: Yeah. And started showing it to everybody and having parties at the house and various places. That was 63.

Jon: So you didn't know Bill Hearn or any others?

Sid: No, at that time I WAS HANGING around the village with a bunch of flamenco dancers and classical guitarists, druggies and junkies.

Jon: And you were working for CECO during this period?

Sid: F and B SECO, yes. And Magnasound and Cinemagnetics and doing a lot of freelance work. Recording and building equipment. Working steady and keeping the rent paid. And smoking a lot of dope. I built a three dimensional color music display. It must have been around 65 at the time. Read an article written by a guy by the name of Allen Ralph (sp?) who was at the Mitre Corp. somewhere in Massachusetts, Cambridge I think who had invented a pseudo three dimensional display for air traffic control. The vibrating mirror type with an aluminized mylar diaphragm. And you can fake three-D

quite nicely with that. Wrote to him and told him what I was doing and hesent me samples offoil. We corresponded a bit back and forth and then he got a new assignment someplace else and that was the end of that. ~~¶~~ And I had a thing built around about a 20" diameter mirror driven by a 15" loudspeaker. Noisy as hell but, by God~~m~~, for or ~~fixxx~~ five people could watch it at the same time.

Jon: Does this thing still exist?

Sid: No. Long gone.

Jon: Aside from the ~~fx~~ mirror and loudspeaker, what else was there?

Sid: Well, there were audio oscillators to drive the mirror back and forth at a constant sixty cycles. There was blanking, there was intensity control provided by . . . There was brightness control provided by the overall volume of two channels of stereo. There was individual control over red green and blue intensity of the three electron beams.

Jon: Oh I see~~!~~!

Sid: Right, you had a color TV display and you view the image of the CRT as reflected in the mirror. Your looking into the mirror and as the image changes in focal length, the image changes in ~~size~~ size from one extreme to the other. Now if you play around with blanking and intensity during that sweep you get all sorts of interesting effects. And if you generate patterns of various sorts you can build up geometric forms that are apparently three dimensional. AND they have true parallax. As you move your head around they change.

Jon: Do you have pictures of this?

Sid: No. Nothing, absolutely nothing. Somewhere around that time,

in Phoenix Arizona came up with a three-dimensional oscilloscope which consisted of, x basically, two oscilloscopes, two picture tubes, one this way and one this way and a forty five degree mirror in the middle, polarizing filters ~~xxxx~~ over each tube. You wear ~~polarized glasses~~ polaroid glasses. The deflection axes were places slightly divergent and one axis was reversed with respect to the other so that you got the proper phase relationship of the two images as they fused together. It ~~looked~~ ^{looked} nicely three-dimensional if you rotated ~~the image~~ in space. And that was really interesting. He founded the company somewhere around 65. Later on he dropped out of it, and he's somewhere in Texas right now. He works in optics. And a guy named Rick Gurdy (sp?) took over the company, who reminds me in some uncomplimentary ways of some other people, but that's beside the point. Anyway, Tilton had his three-dimensional display and I wrote to him a few times. I lost almost everything in the way of correspondence and what few photographs I had because I had not owned a camera during most of those years. In 63 I sold off all the cameras and had nothing to do with photography any more. Not even snapshots. Electronics, women, dope and guns.

So Tilton and I corresponded back and forth. He had, I think, only two or three of these units in existence and they were all out on the West Coast in these classified environments and there wasn't anyway to see anything. Too bad, good by. Somewhere about that time I was showing off what I did have to the people from the Museum of Modern Art and there was an artist by the ~~name~~

name if Aaron Berkowitz who was the fater of a friend of mine who was a friend of a friend of a friend. Berkowitz had something to do with MOMA and he brought some people from MOMA over to the house a few times. They werewilling to give me a display as long as it was a simple staticx thing that turned off by itself and I said "No, no, no it's a performing instrument." Becuase by t-is time--65 or 66--I had managed to scrounged four or five, half a doxen audio oscillators. Had all sorts of controlcrap rigged k up. The living room was dominated by this absolute mess. Every weekend, 15 or 20 people would bomb in and we'd ~~xxx~~ smole dope and drink coffee and eat coffee cake and watch pretty pictures.

Jon: Wat is the originx of this fascination with performack?

Sid: At tha- point, somewhere around in 65 becauwe I was getting friendly with some rock people also . . .

Jon: You knew the light shows at the Fillmore?

Sid: I knew of them but I didn;t really know very much what was going on. I;m naive in many ways. Very isolated from the real world. But somehow managed to make the acquaintance of Roger Guin of the Byrds andhe decided tobuy one of my things. Through him I met other people and built about half a dozen of these things that displayed pseudo three dimensional patterns on a color TV set.

Jon: Did you seál them?

Sid: Oh yeah.

Jon: Who did you sell them to?

~~xi~~ Jon: The device as you sold it consisted ^{of} ~~xx~~ what?

Sid: Basically a color TV set which could be used for watching color TV as well as playing games with, a control unit and usually a good quality phonograph. It was a nice package, it sold for twenty-five, twenty-eight hundred bucks.

Jon: No oscillators?

Sid: Nobody was ever in to that. Nobody wanted to spend the money fo that stuff. Simple X-Y controls, joysticks so thatyou could move the patternx around on the screen and size controls, making it larger or smaller, and a resolver so that you could rotate it in space and that was about it.

Jon: You had no tie in with anyone except for these guys who had written the articles?

Sid: I couldn't afford ~~xxxxxx~~ anything. I couldnt afford to buy anything. I figured that nobody was about to help me. Engineering people I was scared of making contact with. Artsy people I had no idea of. I ~~xxxxxx~~ lived in this little tiny world, all closed off. There was work add chasing women and smoking dope and shooting guns. Target shooting, no hunting.

Jon: So it came completely from your fascinations and past involvements?

Sid: Yes. A photographer friend had tried filming some of the stuff off of the TV set in the early sixties. He still has the film down-town. And we thought it was great shit at the time.

Jon: Alright, so what happened _____ (indistinct)?

Sid: Somewhere in late sixty (sic) it had evolved throggh about 52 stages and the driving amplifiers were getting fast enoughx to run a sawtooth. By that time I was able to get ahold of a battereed

vidicon camera and started playing and realized that it's possible to do all sorts of things with an image. Acutally realized that it's possible to do things with animage much earlier, probably in the early sixties but I didn't have any way of doing it. The equipment wasn;t available, to me anyway. In the late sixties I could demonstrate to friends that it was possible to do something but I still couldnt afford to build the type of equipment that would be fast enough to handle a driven deflection display. I had the technical knowledge by then, had~~x~~ everything down on paper, blocked out, it was all drawn out. It was a question of money.

Jon: What was happening with ~~wavix~~ sound at this point in this device?

Sid: I'd been playing around with function generators, which were becoming available by the late sixties. Which were much more flexible than simply sine wave generators cause you could make different waveshapes. And audio synthesizers started becomeng available then and naturally the minute I could get my hands on one we started hooking that up to the thing and playing images and recording deflection ~~signix~~ signals on audio tape, on two channel addio tape, and playing it back through the system again. That could handle ~~lxx~~ lissajous figures and all sorts of random scan stuff, but it couldn't handle the actual sawtooth. No way to do that with ordinary analog magnetic recording.

Jon: You were using which synthesizer?

Sid: Arp, as I recall, then a Putney. Oh! That;s it. I had borrowed one from this guy out in Jersey who was distributing them. I forgot

character, he is one, absolutely. But he came over and lent me a Putney for a couple of weeks. Woody and Steina knew him. He made the connection to Woody and Steina and introduced them to me. He then proceeded to rip off, as it were, as the expression goes, my entire system and attempt to market it himself. I later found out that he has a long track record of ripping off other people's things.

Jon: Can you mention his name for the record?

Sid: I don't remember his name, but the name of the outfit was Ionic Industries and in fact he ripped off the name Putney from the Putney synthesizer people. He ripped them off fiercely. I'm ~~xxx~~ sure that Woody and Steina will remember his name. I have an absolute block in my mind.

Woody and Steina got me interested in performance. In the middle sixties, also,, I decided first, that I was interested in performance just as a light show thing, because I was working with a rock group at the time, Buzzy Linart and his group.

Jon: You were doing the visuals?

Sid: And at the time there was no way of projecting it either. In 65, 66, projectors didn't exist.

(END, SIDE 1)

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I started building projectors at the time based around old Norelco projection TV sets from the late forties. Do have some fragments of those ~~xx~~ still here. A projection tube, a spinning filter wheel—red, green blue, a commutator segment in the center, photocells—

three of them in a line and lamps behind. The photosells needed three amplifiers, on and off, which were fed from three filter networks, fed from the sound input so that the brightness at the time either the red, green or blue segment was going past the tube would vary. And it did work, it was quite cute.

Jon: And you completed this device? It was successful?

Sid: Oh yes. And it is capable of projecting an almost three-foot wide picture which you can see in a totally black room.

There are pieces of that still inside the next room.

Woody and Steina got me really pushing towards performance. Somewhere around that time also I had quit my job at Huemark (sp?) Films where I was chief engineer and built motion picture and laboratory equipment of all kinds and sound equipment, and gone off with several friends. And a company we formed, which was formed to market various products that I mostly came up with, such as this three-color visual display, a portable audio mixer for professional motion picture use, a simple motion picture projector designed for continuous loop ~~xxx~~ operation, particularly coin-operated operations, some teaching equipment, speech equipment for speech therapy, visual display stuff for use in speech therapy and audiology. The company went kaplunk after six or seven months. And Gerald Weisfeld entered into the ~~picture~~ picture at that point because he was one of the originals in the company. So Gerald and I continued working together on the displays we still had in the works. We had two demonstration units being built, one of which could handle image and the other was just for music display.