Interview with Woody Vasulka
Agua Fría, Santa Fe, July 2008

The Brotherhood PART 1
O.K., what I tell you is my bios, because when I had to dream it up, the first time I was sort of interested in networking, because before we had the systems of closed circuit or control over as a single piece but then I arrived to this possibility to learn about. All I do in life is about learning some new aspect of it and this came just naturally, because I collected all these items over years. I brought some of the things from Buffalo, like elements of it, and here I updated it from auctions and other things. When I came to this critical mass it was very natural that I would challenge this possibility of a integrated network, and since the commission came from Japan to build it actually, or to do it, I already had nucleus of three of these installations.
And then I was hectically trying to develop three more and so this just became for the first time essential that I would connect this whole system thru the net, at that time the net was fully equipped to do that, but then of course the local operation had its own internet, so there is the local net but it was accessible from Los Alamos. And this person called Gritzo developed the software for each individual thing, and he was able to watch it as a data, he made all the provision of watching this records of the performance at night because that was the day in Japan and then in the morning he would look at it and fix it whenever it was necessary. But by miracle we could run this whole thing without interruption, we had only twenty or thirty minutes over three weeks when it was standing, not working.
And Bruce /Hamilton/ was the person who was running it and I was sitting with him in this control room we made and I was just looking at the man and said he was just at the edge of cracking up at times, then I said what happens when he just goes crazy, what I'm gonna do. So we were this kind of dependent. But the exercise inside of the functionality, there's many aspects which I would forget but they are well recorded on the charts that we provided for the promo, the film that someone was making for the show, and the person asked us to list all the functions and make it all drawings, and it does exist, and he's gonna tell me where it is on the net and then you're gonna look at it and read it.

But let me just get to the essence. There were many levels, as many levels as I could think about, so it tells you again my idea of that kind of artistic practice. It was just really for my own laboratory use, even if it was made for the public. The basic rule was, all the instruments would have to be interactive, either on the level of the visitor, or on the level of machinery itself. So this is two basic conditions. Second level was to find all the basic modalities within the system that could be found, because just work with single modality like something that reads and writes wasn't enough, it had to do also something else.
What was missing, which we never really achieved was for it to speak, which I achieved basically last year in ZKM when I exhibited it as separate unit as stand alone but it was again online and I had Bruce watching it here and debugging it. I had two pieces there, both being interactive. They have changed but with O'Kane there in Germany, who was our technician, we added the third modality, so it was machine that was representing literacy machine, but literacy technically means that something can read, write and perhaps something can speak it and memorize it. All that was missing was something that interprets what it means all, and that's the human part, but all the other parts, it's like a brain mechanism, its's mechanistic explanation, because camera has an eye and it can distinguish by OCR, optical character recognition, it can recognize the elements like letters or numbers and it can plot them on the plotter and once it knows what letter it is, it can write it. So it's that kind of the function that in some people is impaired, it just means that this correction to the brain, if you put a chip into brain that does these banal things for the machine, then it can provide some service to the complete literacy assignment. But anyway it's paradox, it's on purpose very crude and it shows every aspect, it has U-matic system that's not really controlled.

We are trying to make another step, so all my life is just continuous laboratory, I had no other interest that would became the art subject, it actually is the outside view of what I do. Of course I was interested in making the things aesthetic, but this Brotherhood, there's actually the only idea that I had that the ideology, is that the Brotherhood itself is the keyword for the war efforts, see. All the machinery from it is the part of war machine, except the Maiden, which is derived from a certain service of the let's say lower rated women like prostitutes that could take care of the disabled soldiers coming from the front. Because all the upper-class princesses that originally were interested in helping soldiers couldn't even touch the rotting bodies. And it looks like the Maiden of the trade could do it, so it was kind of homage to this generation of women that understood what it is to take care of men that were somehow strangely outside of the social understanding and psychological understanding. But the rest is purely taking the piece of very essential part of human progress in building the war machines, like Translocation is part of targeting navy table but these things are probably described in other papers.

So what I employed is everything from feedback to gesture recognition thru program, Dutch program called Big Eye which choreographed certain parts of the Table 1 which is this moving rallies and just table that carries the cameras. So it's in these three steps what I call trans-locational information from one to the other to the other, but it's more or less in a way hierarchical linear system. In Automata it was the head that was providing what I call the poetry of the calibration of the machine, meaning that it's the essay or it's a poem that says or had the question of any navigation, navigational system including rockets that fly to the air and are supposed to find some kind of a destination, which is where am I, where am I going, and how am I getting there.

So these things were put together and the machine was able to track by kind of infrared communication certain musical system called Lightning which is some instrument made by Don Buchla, which can scan the spectrum and send it to this box that interprets it either in tones or words, in our case, because anything that comes as MIDI into the network can translate now that time. This is also the edge of this interface, not only mechanical but also codification that was inflected on the system and could be read and performed. But it is again in my case again the dealing with the great impression of my life which was war experience. And it's kind of a anti-war in my sense because I eventually of course after experience of the war I get very specific idea that it was completely brutal, unjust, inflicted on the society and not the way to advance any social system. And the fascism was actually clear, there was no confusion about it and it was terrible imposition on the whole world and if you see it today, the same lesson wasn't drawn on the society because now people think it can solve the problem, like Americans want to win the war, you know. It becomes such an absurdity because after all it's religious and ethnic war and you can't just terminate it. Maybe in Spanish civil war it came to some sort of resolution by punishing loser and segregating but it was bloody civil war that I think should have given the lesson to the world that this kind of a war wasn't really won, it was just dealt with but it lingered on for decades.

But I don't want to talk about things that are generally known. But this idea was also homage to my first experiences in war machinery and I must say I was seduced by that, so I have partial guilt in that appreciation and when I collected all these machines then of course I must have had some flashback to my earlier interest or autopsy of these machines. And then they had these integrated media, because I stopped doing what's called video and computer went thru those periods in the 70s and thru the long narrative works, and sort of sketches of interactivity at the end of the 80s, but Art of Memory was also co-memorial to the war effort and if I would ever now think of any other work it would just be related to the idea depicting some problems of the warfare. So now have to think about, should I be detached from those things in sort of more pure artistic abstract way? But I'm not interested in that and it's not my nature to become a gallery artist that makes art because it's somehow has its own purpose, but what

I am saying it's probably under certain supervision of some strangely inherited ethical principle. But I just have to see what I'm here for but that's a different history.

The Brotherhood PART 2
Are you thinking about coming back to Brotherhood and evolving it in some direction?

I would like to have at least the legacy reconstructed that it exists and of course to try to update it, you bring so many new aspects that it becomes probably virtually impossible to reconstruct it in original way and I am not interested in that because I am moving laboratory thru time, but I'm still tempted to put it back into existence. Because now it's only in existence three renewable or reconstructed pieces. But the idea, the network written by Russ Gritzo that you saw, he was eventually always asking me what kind of information are you interested in networking.

So eventually I suggested this idea that there is a protagonist, messenger, that brings certain message into every state of the operation to all the machines. And then he said, O.K., then we need actors, and I said, yes, I need an actor that gets the information there and disappears. So that's what he built, it was like a virus who travelled to find its own home, got rid of the information - it was usually small, few parameters, probably five, six or maybe eight - and then it was supposed to die. And it just virtually did that. And it was the local program and some of it of course in the long run didn't die by accident and started to fill the network so we had to find the way to kill it, every couple of days we had to kill them, shut it off and restart it in the morning, but this was the principle of integration of all machinery.

But the other day we said with Bruce, hey, let's run it wild, designate the change in the others and see what the other machines would do with the same information. So we run this circus when they suddenly started to behave completely different, they get the different parameters, and they had to obey because as long as they had the same address and the same actors would be active in them, like the virus would be able to live, it deposited the information it had into the registers that had to act on it, so this was interesting experience but we didn't have time there because we couldn't run this alternate programing because the place of course was an exhibit.

So you wanted to create autonomous machines that would behave autonomously and take some information from the net and you would change parameters once in a while?

We had to develop a cycle of each machine and mostly they started in idle state, but if someone made an action, it produced the virus, the actor, which went to the network and found the right place for it. That means this idea of interactivity was usually physical intervention. Like we had a drum pad which was controlling laser disk in locational jump and so it changed the program or function of the machine. So there were parameters that were U-matically controlled, three or four of them, some of them had stepper motors so they had linear functions and anyway when you look at charting, and some of them were audio, so all these codes were mediated thru initiative or the audience.

Of course there is not much benefit of the visitor of participation, because they get involved in playing and trying what's gonna happen, there were children working with Maiden, torturing it death because it was behaving, moving, but it had great benefit to what I call voyeur, someone who stood outside and watched these people playing with it. And that for me had this psychological meaning and that's in fact why I built these machines because I wanted to see. Because I was always witness to things and all my life I would look at life as a theatre, as I'm looking and talking to you now. It had nothing to do with me, this is now a memory of some impulse and I didn't want to show and do it just because it should be done. It was just that I wanted to see what it does when I do it and what's the experience that I would

extract from it, and that experience is the benefit that you have from it.

It's a strange perverse way of looking at art, you know. But that laboratory what Im talking about, permanent laboratory of my life, was about not really doing it but making it enough rich to extract the experience I wanted to know. So this was very good for...there would be some volunteers, this Japanese man who tried to live in the embrace of the Maiden and there was this lady he brought with that played flute to the Maiden. And Japanese are people that can understand something like that the machine has a psycho, psychology, they build robots that suppose to serve you and you are supposed to like them and you can have sex with robot and all these things are very Japanese. But this man was in jeopardy because the device wasn't gentle, it wasn't a maiden, it was crude, there's actually a lot of energy in those pistons of compressed air, it couldn't have broken his leg or hand but he bragged it, and I watched these two people doing this and I said, wait a minute, this is the paradigm, this is the end of my interest, because this is a dangerous thing. But then of course this was all about the war, and one piece even had the episode, it was called Friendly Fire when Americans, this was the first Gulf war, target their own people. They killed two guys that walk away from the burning tank the and they shot them from the helicopter and this is the whole episode in that piece.

Most people don't decode it because of course it's a coded thing and it's context is so absurd to put it into this kind of installation. But at least it's there and people subconsciously feel that this is what it is, and then me it's enough because I understand the other aspects. So anyway, I weight these things differently then I probably should or the gallery would function. And it was just interesting why people let me bring it again somewhere else, what is the key, because these two pieces at least were at least exhibited many times, Automata and Friendly Fire, they'd been exhibited many many times and so forth. So it means that it became in a way part of the art world activity, but on whole different level which I like. That's what I always wanted to be, to have a certain territory for myself that I don't have to share much. It's probably some kind of arrogance that I must admit. But then you cannot dazzle the world because that's not that kind of activity that's really a spectacle. Except for people that understand it like...there was this group, Italians, people that build machines and interactive exhibits. And they came and looked it and they came to me and said, O.K., you are the master. And I looked at them and I liked the guys what they did before and after and so you have this kind of personal relationship to what you do.

But all the codification there I exercised to the degree that I understood and could possibly rationalize and I had people that could write it into the reality or into the functionality of the apparatus, but it was rather like an industrial...it was architectural, what I call it actually that these are media constructions, and many people refer to it as architectural functions with a lot of codifications of media. And I used at that time video either as closed circuit testimony of the inner functioning or in a way as symbolic language that signs, like in that war and I included certain movies from the first war and the desert but that's all incidental to the whole construction and expression of the whole character.

Interview with Woody Vasulka_Archiving
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Woody on archives 1 I wanted to ask about the idea of archiving in your work, because you were from the beginning collecting everything you did and other artists' work and documenting everything you did, this is the idea of observation of what you do and documenting it at the same time which appears from the 1960s and now you are trying to make the archives and this is interesting because it is very special, I don't know many other artists who would have from the very beginning had the idea that they should collect and document everything and maybe now you have certain ideas what to do with that

material, not only video but also that analogue instruments or tools? It's not that hard to understand, because when I understood what the time and energy does, and when we already started, I am talking, this is the generational enterprise, it was like early film and it was generational effort made out of mainstream filmmaking, I understood this contribution of this particular generation in this particular time slot, especially when the analogue world breaks through into this digital domain, I understood that this was the historical, not historical but cultural historical, this is both. It was the historical meeting of the analogue world as we know it into the digital world which we don't really know but it's representing the reality and so I understood this was the pivotal movement or moment in the history and that's how I understood it and we both understood it, with Steina and many other people, that it's worth of our self-sacrifice. So you have to say, O.K., there'll always be a Picasso here and there, because that's what they dialled by the muses that control our cultural life, and there were, like Bill Viola decided that he was the new Picasso, consciously, and of course Garry Hill was a divine, he was this young man that could understand and he, first his early works which I knew were magnificent but now their life and carrier is completely not interesting to me. In that place they contributed but they were not interested in the rest of the world, they were self-elected heros of the generation which they are.

But I come from this background of the Czech, even Moravian thinking about that this meeting with the history that's much more interesting than what you actually do in this kind of personal struggle to develop yourself into indispensably individual as artist. And anyway, what I do as archivist I still do it for the same purpose, I what to know, what's the commonality of that effort, which of these things that are living in the shadow in fact have a great significance. That's kind of the only ambition I have, that is more or less secretive because it's the curatorial treatment of these things that I am interested in and contextualizing these things, why they happened, again it becomes a different type of laboratory. And I was always lucky and of course Steina always helped to this effort very significantly, to curate things, it's not the first time the last year that we would curate anything, we made certain curatorial work all our life, you know, since the Kitchen which was in a way titled Live Audience Testing Laboratory, which has both ends, you test the audience and test the laboratory. And then we made at least three or four shows that had this commonality, like Eigenwelt and this show and something in between, so this was in a way an impulse, it was actually more complicated than producing art; because producing art you can do it here on the table but to produce show is vastly complicated thing. But I like the complications because it's just the nature of my interest where is the boundary of an individual, how far you can go as an individual and how much you need the society or other people to mediate it. And I experience both, one in the art where you can really take a sound source and produce composition of audio of some form, later you may not be educated, in video we had to go the whole generation thru process of education and that's one thing that painters go also thru, from childhood some, other in the middle of the life, but you have to learn some kind of a craft because there is no art without craft unless you are poet and then art and craft go thru your mind and it can be then spoken but the connection between your mind and the medium of the speech is enclosed in your own body, you don't even need to write it down.

Woody on archives 2 This was actually question about the archives, what's your ideal of the archive... It's also some duty, my mother eventually wrote the history of the clan, of the families, and she went to archives and villages and churches and I understood that I inherited this but I am not so sure if she also got some inspiration from my work, because I mentioned that to her. But of course I take some pride in informing her about literature and poetry, cause she was just this what you would call the simple peasant girl that came with basic education to the world and then grew thru her, a lot had to do with her born-again incident, but she invented it into whole narrative way thru painting and writing. And she wrote that from the same source of duty. I don't know where that source of duty comes from, my sister didn't do it, my sister didn't any of that, so it must be something either some kind of rubbed zone,

because me and my mother had very special relationship since childhood, our value system is total identical, including altruistic work for the public like her seeding some flowers next to the highway, and she would be telling about the truck drivers that go by from Turkey and everywhere to Prague, they should see some flowers on their long run on the the highway when they are sleeping half. And people would come to her saying, 'why do you do it mother, paní, proč to děláte, vždyť to nikdo nevidí tady', she would not relinquish the social service. So there is something strange about it, that I must admit. I like to kind of waste my life in some kind of general purpose of life. And I love to be supported, I don't want to make money, I find it completely inappropriate, to live by sort of working. I think you live by being ornament on the body of society. And once they recognize you being an ornament, they help you to live. And that should be a good prescription for artist's life. But anyway, it's a different world.

AMERICAN BEGINNINGS
It was basically that we ended in small town called Forty Fort, Pennsylvania which Steina had uncle in that small community Forty Fort and of course I didn't speak any English and I was just watching TV and learned everything at the beginning from TV but I didn't understand much and I didn't speak it and I had a teacher and he was using some new method and he didn't speak my language so you couldn't really converse about anything and I disappointed him, he was a young man and since it was lots of our time, but at that time Steina took us in, it was nice house, everything was nice about Pennsylvania, it was quiet neighborhood, next town was bigger, there were some Polish villages and there used to be mines so there were lots of Poles, who played accordions on the porches so it was almost a nightmare that I was begged in East Europe, but after that Steina was practicing violin and she had a teacher in Scranton, so we would commute a little bit between Scranton and Wilgsburry and Forty Fort which was kind of interesting for a while, we got car and I got this test driving license without speaking English which was very funny and then we kind of departed for New York because Steina's teacher, that was probably about after half a year but she will know probably more about the time.

And then we by chance got into this International House and there were really international house, it was upper, near the 125th street, on Manhattan on the west side, and so that's where we met total international environment, Polish people and Yugoslaves and Russians and who is who, Czechs.

So it was a meeting place for people who came from Europe?

It was a place where they studied already, that continuation of education, or just to have a transit so I went to classes of English at Colombia, I am Colombian graduate, and it was brilliant young Jewish lady who was so fantastic and she drilled us, so it was for the first time, except German which I had since the age of six, I was drilled in English which helped me finally a lot because I understood a lot what it means to have a drill in language, like could be should be, ought to be, it was, it went, all that connotation of words, she said, the rest is just a dictionary. And so she got us straights, and there were people from Vietnam and monks and one would say, why do you wear glasses, I said what do you mean, oh, when you don't see, just look inside. That jerk it was, no, but he was good...

So it was that kind of school, and then I started to speak it, and I was interested in film so I went into some screenings, first time I understood there was a kind of avant-garde. I didn't have much respect for American avant-garde because we had that in Europe, remember that?

But did you know about it in Europe, about American avant-garde?

No, I had to rediscover it, I knew much more about literature, because there was this Světová literatura which was a perfect introduction because they liked American avant-garde, they liked Kerouac and

Ferlingetti and all these other guys and so I was prepared for, but really for film and I didn't have much respect because it was something what was really personal, which in Europe you would call amateurish. Only much later I realized that in fact this it was the art for an individual, it shouldn't be never mixed up with Hollywood, this is what we talked about with Gene Youngblood yesterday a little bit, the dimension of the personal film has very little to do with film, it's like poetry and prose and that's different.

At that time of course I started to work in film, first as an assistant to an editor with Alexander Hammid and Francis Thomson. And Francis Thompson and Hammid they were known to be already part of the American avant-garde. Francis Thompson made this film about New York, abstract film, and Hammid had long history of experimental film, for Baťa and other...

So how did you meet them?

Very good question, who connected us, I would have to think about it, but probably... I don't remember, but anyway I visited the studio and they happened to have the summer job, to fix the first or second multi-screen called "To be Alive", it was from the exhibit in Montreal and it was supposed to be synchronous and I was repairing these, after they send it for three weeks or so, they had like free copies that they run, it was in Jonson's Flags pavilion.

At that time I met virtually everybody who was who, who was interested in independent, since we were independents, they had the company and they had three-screen projection, synchronous, I inherited later some piece of synchronous machinery, so I was fixing it and then I started to make my own 16mm experiment, mostly related to 360-degree recordings, which I have some strips that I plan to put into some publication, I also built some simple things on a kitchen table...

ALFONS 1

When Steina went to Paris I didn't want to keep that apartment, it was not feasible for one person, so at that time we teamed up with Alfons and he came across, he was already connected, he knew Rauchenberg and all these people, and through his project, 9 Evenings in Armory he found out that here just left Rauchenberg and Jasper Johns and others, they just left studio they worked in down in Wall Street area what's called Front street and so we started to work there. What I introduced was film camera I don't know what type of camera I had at that time and I started to put it into turntable, because it was by challenge, how to do 360 degree recording. That was my interest and entrance to the film again, into making the film. So I think it was one of the first projects that I did and he was part of it, he was with it and we were both interested, and I wonder when he started to do 3D because I think it's slightly later, because I think that's when we already moved, because when Steina came back, we found somehow thru Alfons first fine place on 14th Street, so we moved very close to him and it was very nice studio there, so we stared to kind of...we separated, he did 3D by buying himself these 3D cheap postcards and he would unpeel the layer on lentical lenses and and he would just study it. And then he would disclose the secret, because there were these vertical lenses that separate two images, if you layer them correctly through those lenses. And that's how he started his practice.

And then I started to do electronic Sound, it was first through Steina when she came back from Paris, we bough ourselves, she also started to play with this, she was still violinist, she played for money, at that time I worked already with Lloyd, so I was doing these kinds of experiments and I still had film camera so I was doing these documentary straight thing like Aimless People, there were some nudity there...

...just sit here, I have some samples here...

EARLY YEARS NYC

So that's basically the recordings, they are very experimental, and they are recorded through slit. You have to make a slit instead of an open frame and then you have to put a rotating mirror at the end of it and you rotate the mirror with the pull down, it has to be somehow synchronized, and then that's what you get record of. I have somewhere a reel of it that i'll have to find...Not only this, I was also did stroboscopic light and did the same recording thru stroboscopic light, when you don't need a slit, you just get this different recording. But I have some enlargements I did through scanning this in electronic format. So that's basically that period and then I built different instruments, hand held projectors and all kind of stuff, which I have some photographs of for publications.

This period is not particularly long...because immediately when I discovered video, I kind of suspended everything, writing – I just did some writing at that time -, and film, and then I went completely into video, with this audio synthesizer we already bought, called Putney, so that means in fact the last few months of the 60s through Harvey Lloyd, there was a project which I was part of, for American Can Company, kind of trade show that the crew that was there, young people, perverted the whole thing into a video presentation instead of bringing physical cans there, which eventually was a total disaster for the company, and it cost the guy that run that apartment of promotion the job but he was a rich man, so when they kicked him out he took the trip around the globe with his yacht...

So anyway, we created something we called Matrix, but then there was large conflict with the group called International structures, which was the coalition of other artists. That's a whole episode explained somewhere, and you can get some information from the other side, there are the whole different interpretations of what happened. There's a man in Berlin, Ira Schneider, he would show you the whole different aspect of that time, so he would put the whole different spin on this situation. But I was told that this was a standard because these people were social activists, all of them, about five people Frank Gillet was the writer, they immediately made a corporation against Harvey Lloyd, so they could fill a corporate endightment against the copyright, they had some writings about Matrix before, so there was that interesting conflict and I was just behind this looking at these people incorporating no longer individual struggling for social justice but simply trying to get million dollars out of it or maybe two.

But anyway it was real force and I understood American radicalism is only skin deep, there was no understanding or sharing, no concept of anything, it was all privatized and accommodized immediately, but I liked the people that did it, these new avant-gardists, because they just had a passion for the media that would excuse anything, I knew about that, so that was that, at that time Alfons also introduced me to a lot of other artists.

And then Steina came from Paris and we started to work on much more systematic thing, and when I started to bring some video equipment which was originally for the exhibition of American can company, at night and I would borrow it and then Steina when I was working started to play with it and then I came home and could see that she was really having production there every day and then she stopped playing and I said finally, no no no, I don't keep working so I just I don't remember how we got money, she must have borrowed it from her uncle, and suddenly we both started to work full time. Occasionally we got jobs here and there, I was editor, I still edited film of course but had new jobs, these multi-screens that I was editing with Francis Thompson, but we could do it, and then we got grants because at that time the whole social significance of video became widely accepted by the

funding organizations and the history of art twenty more years was just through funding, it was nothing with teaching, occasional, there was a period of going to Buffalo to teach, I became professor there, we had plenty of space there and we had money to build equipment with students, but after six years we just went to Santa Fe and that's the whole different world. But we did very important things in Buffalo and New York actually was the most, it was the beginnings that are always important, and Buffalo we had contributions from our students who told us everything about digital, and build some digital equipment, and so this kind of period is going to be well covered by this project of Kathy High.

BROKEN IMAGES

It happened this way, we kind of, we had sound synthesizer, and then we got video and monitors, we got thru, donated for short time, then they came back, from..man that run the Max Kansas City Steak House, it was across from Union Square, it was the place where we got from Micky Ruskin – it's also described somewhere -, kind of bunch of monitors, it was given to some artists first but we could use it for couple of years I guess and then, we got video that we could loop through many monitors, we got perhaps eight monitors, large, black and white, so we understood immediately that there's a relationship between video, there's no film because you can put it anywhere.
And then suddenly we also found out by error that the images can drift because we got the broken cable that suddenly didn't have the horizontal frequency correct, and we could travel the images horizontally. And that was the entrance with the sound oscillators, from the sound synthesizer fed into this, this was another source of image, so it was combination of waveform generators, oscillators, plus the retiming of the frame and later colorizer which was built by somebody but I usually put it together, that was the way that didn't cost much, I got this schematics and I could actually use the schematics and build the boxes on it and I could do the knobs and all the stuff.

So we built the first generation of our laboratory which is very simple and some of it is still around, and this is all equipment, and then I knew what to collect and when we went to Buffalo, which was the thirteenth year when we started to work with video, we were snatched out by Gerry O'Grady, snatched up to teach and start actually developing curriculum there.

And then we met other people there like Jeffrey Schier who could design the digital thing, but we already made impact in New York, within a year we were kind of part of the group, just the group of two but then we made a group with some other guys called Perception group, and then we were funding opened by New York state, we applied and we got money and then we scored a number of festivals and presentations and various shows all over the city, and it travelled and it was our entrance into video scene. So we specified that as an art form very early and since then we are there and nobody took us out. Some people dropped out, you know, or stopped working and I also in a way stopped working but it was much later, it was at the beginning of the 90s, I just decided to do this mechanical works, these installations and I never really returned to it, except as service to the installations, in a way by-product and then Steina is still doing it.

And this is the time when all is happening but I am still behind because with this all mechanical stuff nobody would want that, it's so inconvenient, room-sized thing, it's really industrial factory-like equipment, we will see how this whole history will treat us, but anyway, that's a shortcut to the end.

SUPPORT OF VIDEO

I have my own interpretations, one is of course that the galleries were looking for something different but not all the galleries, like Bruce Nauman, it was probably the same period, late 60s, that

opened the possibility of closed circuit, so people shooting themselves, there was not much what is called video processing, it was virtually unknown but few enlightened people experimented with closed circuit as far as feedback because it was in the universities, each university by that some had some closed circuit for doing in playback, basic playback equipment.

SIGNAL

But as far as working with signal, it was invention of generation that came at the end of 1960s and beginning of 1970s, we both saw convincing processing thru Siegel. Eric Siegel made the piece called Einstein, for the first time feedback in colorizing totally convincing statement, then I realized there's no film for me anymore, this is the way from film because this is not a film, it's a moving image but it's a totally different animal. And of course, from that perspective, then we discovered what was before, like Whitney brothers filmmaking, which was already analogue computer, and then with electronic sound which I was by that time quite familiar with. This made the base for future profession which carried this whole period thru and we got into meeting the people that we could specify our desire and they were able to execute it. They were these free agents of technology that either went thru Vietnam war or refused to go. So we got this technological base, The whole called still hippie era, the end of hippie era, and the whole period of 1970s was just ahead and it had built its own theaters, own scenes, own music, so the culture continued from 60s till 70s. And after that of course it was no longer for us, we said this is it, by the end of 70s, it was in 78 or 79 we went to some conference in upstate New York, we were already in Buffalo of course by that time, we looked at each other, there were few pioneers, and we said, it's over for us now...

So we developed into few other genres and the installations became more and more part of the gallery, and it was driven by the interest of the gallery. And by that time it was rampart, there were people who were working in the documentary, socially-conscious projects and the others that did experiments and it was all integrated and we could all show it and all the genres were already established. Thru the 80s it bumped thru and in the 90s it became sort of already property of the gallery and in that time the interactivity came in the 80s.

INTERACTIVITY: SOUND VS. IMAGE
In our work it was consistently interactive, because we always made the image as by-product of sound or sound as by-product of the image, in a mutual affinity because it was our credo, it was our attention, we don't add music to anything, in order to enhance it, we always made sounds to testify about the activity of this medium. It was concept of our identification or investigation of the material behavior and so forth. We had all the religion about automatic or automated independent processes like feedback and cycles of certain events and that all went into control thru digital code or MIDI code thru translation between motion or camera analysis and all kinds of things, which I didn't finish and I am still thinking about building this interactive theater that I always wanted to do but never got real funding because now we are not talking really about hundreds of dollars as we used to but it's something now that has to be funded because there's no technological base for free anymore or almost free. Now we separated technology and art completely, and now we can either learn the technology degree to build it ourselves but it's getting into programming as well, so the whole thing has become cumbersome as far as art practice.

The original beginning of this interest was Theater of Hybrid Automata which was just the first set up to explore the space, how you identify, index the space by camera or by laser beam or acoustic interaction. All kinds of tools we got, Steina was moving pictures on player because we got access to the protocol in which you can go forward and backward and fast and slow on tape, Umatic system and

thru the translation of MIDI code that she did thru violin and all kinds of experiments that we recorded in various portions of our life. And then of course music became interested in video and this large interactivity in the 80s and the beginning of 90s that goes on now on computer, on real-time computer performance, but still there is no theatre, and it's like Youngblood thinking, that there is something more to say, and i'll try...and I have nice illness now so I should be protected from duty...

...but things used to come to you, you didn't really have to think about it much, you know, natural evolution was built into the...use this as much it was offering itself, now leading the industrial evolution on its own you are suddenly working with parallel interests. It's kind of human interest, like the theatre at the beginning of the century, where it was anti avant-garde theatre like Meyerchold and Tayrov, they were interested in leaving the psychology behind, and also theatre as Stanislavsky methods and all those things. You know suddenly you are confronted with coding system of dramatic language, and I am trying to enter what I call dramatic primitives, the medium itself would suggest, but there is no idea of presenting the next ...dramatic conflict, it's the very successful now, it's the performance, that people can play thru the instrument, or sound, at the same time structural work.

I've always thought if I am really a structuralist, because if you are worried, narrative, telling us story or telling us subject, the answer is you are working thru structuralist enterprise which doesn't require to re-answer these basic questions, it's not interested in human psychology that way, it's something used template for secondary thought and your interpretation is as good as somebody else's, but the structure itself holds its original suggestions, whatever it is, the interpretation is never given, even in minimalist art, but that has its dead end as well. Even in interactivity it's kind of dead-ended. But that's my interest because the others still they go to networking and all that stuff. There is still some room, but it's usually humor and jokes, so it's kind of dead-ended also. And so I have no opinion now if it could succeed, only the conditions of justifying the space now are different, there's no way we could get the space of that size, like a loft in New York for 150 dollars or less, I think that's what we payed, 48 dollars for fantastic space, with heating.

COOPERATION WITH ENGINEERS
Eric Siegel

Eric Siegel was this divine child, that in the age of like 11 or 12 could build a TV camera,...he was a free agent and technologist. He was a fragile person, I don't know if you know anything about him, he was gay and illegitimate member of the society, but he was gifted and talented in electronics since childhood, but he had larger dimension than just to fix equipment or build it, he actually also made art with it, and I must say in the long run he was very gifted, and even if he's from the category of mindhood I call American primitive. They may have intellectual ambitions but internalized, there is no acquired. So he was interested in it and he attached to it certain ...so it also feels like ending and non-physical communication, or sending...without television, so it was some utopian or drug induced in a way also activity behind, so the time it was very fluent to accept ...reality, and codes and processing and sending and receiving, and philosophy, and he was all very much into it, so he belonged to this category of art, that he made everything from processing to documentary work, travelogues and going to Asia...

so he built one of the first synthesizers?

He was in competition in time with Steve Beck and I don't think we have a complete...it was very parallel so it's very hard actually to say ...we have this thing when he is introducing his synthesizer, and Steve beck was probably very close.

And they both were the new Americans as I call them because they dealt with this synthesis as far as

time and energy, it was not like Paik, it was called electromagnetic object, it was higher classified, eventually he went into...Paik was actually very familiar with technology but he had these limits, he probably almost willingly stopped further exploration when he hit his own ability to produce. Because if he would go into the total digital stuff like...he couldn't call it be comfortable with it. But later he started to acquire anyway because he eventually never did produce much, he always had eventually somebody at the camera, he was happening kind of person. He had camera and used it to bring claviatura, so it's a different idea about the world and the art.

But these Americans they knew every line, what does it mean, how we deal with sync and blanking and frame and all and they just found the whole thing for me like when I learned what it is and I understood there's something that separates these two eras, that there's something that happens in total confinement and then you have to deal with that structure in a content, not only structure in an image but you have to incorporate it's own artifacts and generate them for its own source, which are sources of its own organization. So this was natural evolutionary and so we didn't have to invent anything, we had to learn everything to some degree, but then we just looked for the artifacts that you can discover by continuous involvement, in that exploration, by formulating it and expanding it, so that was our world. It was the time of 70s for us.

And then Eric Siegel also built colorizer that you used?

He worked very early in colorizing and it was actually on request of Howard Wise, and he asked him if now if you can do it all in black and white, could you do it in color? And he understood what the color was and so he built colorizer, but at that time few other people built colorizers also, George Brown had his own and many others all over the place because once you ask for the color, it's a technological part of the signal, once you control that part of the signal, you can assign color to the certain level of the gray scale and that's what all they did. So that was the parallel evolution of the tools. It was not one or two, it was a small army of designers.

So was there a communication between different centers, like New York and California?

Yes, exactly, we even exchanged tapes and we could compare things and we had theaters to show...for us it was the golden era, of communication, non-commercialization, idealist groups anti-social or anti-war and anti-conservativism and all kinds of rules were broken and all kinds of a new things came. And the religion came to pre-computer precision of electronic signal processing and understanding, within the same decade, into digital, you know.

The 70s was just absolutely significant time which we owned, now it's basically some kind of summary or application and of course there are some challenges that came with composition, but no longer structuralist work. And Steina actually composes the pictures, you know, multi-screen, and I haven't yet started my challenge which I never may start...

Binghamton
But I made the work I wanted to do like in this curatorship and I thought I am still interested in couple of curatorships to do with Binghamton group, some features with those people because their method of work deserves to conclude the era... they still run a studio for independent artists, did you see that place, did you go there?

But we have enough from them from that important period. But they are now breeding the bread, this new generation, this real-time performing, they started to do this Djing and Vjing and these all things and there are few successes...Matthew Schlenger?, he has house and child and it's probably impossible

to come back to the life in the art full time...and other ones, Bainbridge, ...and there are others, Ralf and Sherry they have some image material...and in this new generation there are about five people that I find worth it also, Pere Bode, there's a couple of things that I really like and it all comes from Binghamton school.

Chicago
And then there are people from Chicago...Phil Morton, he's integrated in everything but he's actually an essayist, he's really a media person that deals with signal as transmission, also certain interactivity but it's the concept of the net and broadcast and social criticism and individualism so he has a category of his own for himself and it's really very interesting work. It's very interesting work and it's not appreciated, nobody has found him yet.

West Coast – Video Free America
Actually West Coast, there was this Video Free America, it was good, at the beginning they both did processing, theatre and some dramatic work and documentary work and then just it went away, in a way. ...all the aspects are basically contained in the computer...and you have to make a special effort to do something that computer doesn't offer but no one can do it because no one has the traditional tools of video and I am just about throwing it out myself, but it's kind of interesting...

George Brown
Actually we found him for service shop, ...it was this oriental person....he was strange man who offered to do experimental work he was very bright, because he understood also, ...he was a strange guy, he came just from Vietnam where he did probably some electronic work. He was probably of Hungarian descendants, but as soon as we explained what we wanted, his first tool was significant, because we asked him to separate fields for us because normally video comes in succession of two fields, which combine themselves into a frame as you know. But we wanted to separate them in two different entities so we could see each field. So he built the switcher that would separate the fields and...you probably know the piece called Noisefields, that's the typical thing that you switch, the same camera that goes thru two channels of colorizing which he built but we just that and then it comes back in the mixer and it puts these fields together and then it becomes composite signal again but each field has a different character.
But that's something that video does anyway that it shows you 60 phases of motion, but usually thru camera we have no access to it individually. You have to deconstruct it, so basically what he built was the box that was able to make A and B output and from a stream of single video you got two separate fields so that you could treat them separately and combine them again. Which no one else had interest in, except once we found a technician in a studio and he said, wait a minute, this tool, because we brought it in, this tool is very interesting for the technicians actually to see every field, but nobody has ever asked for it, it was very unique and we still have it and it is very modern because it was already digital. Not as an image but as programming. We could program it by switches and it does cycles of A and B and I did originally built it or design it for inserting frames, and I see the visual stream as a composition of various fields, mostly coloured, and so it was first like a provocative device, simple.
It was on ours backs. But I only asked him that it should contain these functions, I forgot to tell him about one more function which was that Schilling inspiration, if you cross them, instead of just separate them but it never got to that face but remember, this is all parallel knowledge or know-how of Alfons who would understand. He was also very attracted by this idea that you can flicker fields. But he was strictly into stereoscopy, this was his obsession. He was fully obsessed at that time.
But this I thought would, that was our kindship that we both built some kind of instruments and I built also something for him, what he called Spider. I always give him credit because we were mutually inspired.

But then I went completely into electronics which separated me completely from the real world. And then, what was the real challenge, he also built a simple oscillator that would drift the images with but it was to o simple to claim an invention.

But then he built this six-layer keyer which is extraordinary instrument, it was digital as far as again timing and layering of images, which was analogue, but the prioritizing and the control systems were completely digital and it could be operated by computer. I had an interface that we never came to a complete control of the computer and then it had interface of course with any pulse system and we used a lot of audio equipment to control it.

Rutt-Etra
And at the same time we already had of course Rutt-Etra, which was an analogue device which I partly built, I could not afford the complete unit to buy, but we started to build it at the same time, in the same decade when we started to build this Jeffrey Schier, what we called later Articulator. And it was the major project and it still has its myth because it was for that time to build it with a student, it was just something unheart of, only Chicago people had the know-how at that time, but there were not that far, they wouldn't go that far, because they had the computers, big computers and were not drawn into this. But then the DIC, digital image computer by Sandin was suggested and he did some experiments but he didn't fully implement it in the system. So I don't know how far they went into digital design until they just into the software...but I am sure some of the testimony is somewhere and we could combine it once we have this information.

Sandin and search engine idea
...all the loose ends about everybody...like Sandin should have complete information system, so we could compare with other people, finally compare this state of history, how history treats this kind of...what are the influences...we really need this search engine that does these search names, time, space when they met, concepts, images, projects, fundings, see, this kind of engine has to exist. I thought this is going to happen to this OASIS but handled as unorganized...i made a little model, that would probably be useful, I took the article by Marita Sturken who wrote this nice study about funding, from Afterimage, and I extracted exactly the concept and in fact each of the search individual, ...some kind of page of information, and then I wanted to find just someone who would experiment either with the sphere or cube or structure that would let you see the vectors in which people became...and then you could create islands around it ...in the same vector system...and create whole new history. There's one person in Albuquerque that used to help ...but it can be done....this is only list of about sixty people. . . that's the terminal part of history...if it's modular enough to survive the update, then it should be probably used, anyway...i was hoping that history has its own gods that can care of it, but now all the gods of history are dead, like when Nietzsche completed his life, the theater of gods was also dead...o.k., more questions, let's take a break....

ANALOGUE TO DIGITAL 1_NEW LANGUAGE

I would like to ask about the transfer from analogue to digital, how did it proceed, the first digital tool was made by George Brown, it was analogue with some digital features, and then he constructed programmer....so how it proceeded the transfer from improvisation to construction...

It has a little psychological background, now you have to understand, my interest in art were only literature and poetry, the film for me was extended literature. It was kind of literature in space and the syntax was positioning the camera cause that's what the film was, just to telling story by decoupage.

But when I went into electronic world, the most challenging was not really the artistic aspiration or challenge, it was basically the new electronic material on its own expansions, specially that I became structuralist as far as the material and its definition and kind of emergence.

I was kind of assuming some kind of socio-aesthetic duty to define that, what interest me most what constitutes this new language which is complete departure, not complete but I went thru literature as sort of form in avant-garde exercise, not really as poetic or narrative or literary accomplishment that was done by predecessors that I couldn't possibly compete with like Kafka and all those innovators that came after plus the new French wave in literature and so on. In film I also realized that this new expansion of film had some kind of peak in that context, I knew it so I just went further and said, what is the new territory for me that I could actually possess and this was the moment of emergence of this time and energy organization in let's say television frame to begin with. Because it's a new frame, it still had a frame of course like photography, film and...there was one more frame...and so I said in spite of ...

MODULATION OF THE SIGNAL
Actually the entrance for me into it was first thru electronic sound, it was the first departure from traditional instrumentation and composition. And so that I already discovered for myself, this organization or structural understanding that are waveforms that represent tones or acoustical part and then of course there is a certain organization or structure which then is interpreted by our ear as psycho-acoustic.

And it gives you an idea that from these little signal modulated by various waves you can assemble the whole sound of symphony orchestra, that was kind of miraculous for me. How can encoded simple code of modulation in particular organization represent the world of important sound psychological mediation. So it became full fledged interest of mine and then of course when I entered into the natural of electronic sound extension which is electronic image I found that even more challenging, how can you send time by time in meaning in this serial way, how can you really send a visual artifact which is a frame, like film, painting and photography. How can it be done. It really challenged me and derayled my interest in really what's called art, but for art coming from postwar generation in Europe I think that challenge of war has preempted all the idea of surrealism or whatever and cubism and all this was for me the great statement of the avant-garde in art. Because that avant-garde was an innovation, to really stumble on new codification, and this is what I was assembling and appreciating and actually referred to it as the interest and then as soon as I had chance to examine this new discipline I said O.K., this is my priority I've got to see what is it in its substance. Instead of taking the tradition of television which already give it to you and most of the artists accepted this as a vehicle for their ideology.

I found out that the vehicle or using medium as a vehicle for your ideology is unethical basically, you just use the picture that exists and you point the camera on the world and then there is art maybe if you encode it in some sort of the pretention like film is, in these two characters it's documentary which is the representation of reality and then all the feature film is illusionary production. You have the actors and they become protagonists in expanded theatre and you have proscenium which is the frame and then you operate on the expanded amount of primitives, and you assemble the particular register and then you can tell the story by for example montage, you know, there is the whole thesis on it. Bela Balász he specified the first what it is when you walking straight and you cut and there is whole new work, and then you say, what the hell, this never happens in theatre.

And the whole discussion about the truth and reality and all these things were already discussed very well in Europe. So this illusionary part I thought was good for literature and poetry but not necessarily

should be brought into narrative telling through film and if it is still extendible I would probably dedicate my life to it. But here I get this gift of electronic material and I had it and I could step by step pursue it.

ART AS SHELTER

Then of course I didn't want to divorce myself from what is called artistic, because that's a shelter in which you live under very exciting environment and it removes you from the duty of the daily labor and gives you a special good company because I kind of liked this intellectual artistic brand compared to film which is really highly industrial, specially in America. When I came here and looked around I still didn't believe in American avant-garde because that European one was profound, the film avant-garde and when I saw what Americans did I found it a little bit incidental. Some of them were intellectually gifted to bring their new structuralist principle into it, or minimalist at that time, but still it wasn't something that texturally I could fully belong to. It took me years before I could really, at that time five years is huge amount of time, because it was moving so fast, eventually after that I begin to understand what American avant-garde is, their interest in materiality, in the surface of the film, the scratches something, the definition of material which is in our terms Marxist and then distance of them from Hollywood which is illusionary idealist or realist and then you have to going back to Greece to Aristotelians and Platonians divisions so it all became more or less the radical part of the American art which had its own ethical concept. Also the way it was presented at that time, like the definition, Mekas was, the film is beautiful just because it was not made in Hollywood, you see, now the ethics and aesthetics would collide and then in a way ethics would win.

So this is charged period, I am talking about the 60s and early 70s, thru 70s till the middle of the 80s but still it was certain aesthetics paradigm and I am coming from that interest from my childhood postwar, I very much was in favor of transcending this idealist principle of making images because after all the American Hollywood and Russian propaganda, large films, their feature films like comedies, what are the big movies about...tadadadyda...about Kolchoz and they used to make ..i'll tell you later about it because it was the same. The Russians at that time, the propaganda large films, operatic, they were not interested in scratches on film, they were not interested that this is the emulsion surface, they were not interested that film goes thru, they just wanted to bring the pure and clear ideology. And it was called Kubánští kozáci, this is absolutely fantastic because when I see them again, I am taken because it's really powerful and it shows you happiness, but it's complete fabrication. That's exactly what European emigrants brought to Hollywood, it's the fabrication and we had the discussion on it with Gene Youngblood.

SIGNAL AGAIN (AND CODE)

So this area which open which kind of asked me, what is it, how do you define it, how do you name it, how do you visualize it, and how do you compare it with the new code or the code that comes from the acoustic understanding of the seriality from which you make either psychoacoustic space in your head in sense of the sound or speaker environment, in which the sound, or electronic form of it just provides the step thru from original to the representation. But that stepping between which is the serialization, what's called the signal, contains this very different form, it's like a day and night or sound and silence. It is something immaterial and it's something magnificent and challenging that code in which preserve that kind of re-staging in your mind or in your environment that sends it again in this particular air. Because the air becomes the carrier of the sound and eventually hits your ears and then brain takes it over, and accepts it as legitimate. It's very interesting beginning of this electronization.

And the...code applies to the sent image, it's just the different frequency spectrum, it's much higher and then the frame is actually assembled from the seriality as the sound is a different format little bit but it still is a waveform that eventually symbolizes the state of the point once it travels, it's not really a point, it's an infinite idea of a point but it's really line-drawn and that line contains the information which is taken from the camera again which takes it line by line and delivers it to some kind of display device.

So this of course brings the whole different behavior load, it's same like in audio and suddenly you can transfer these original codes to various organizational challenges in a sense of processing. So the idea was already widely know and audio synthesizers built and established at least in unique steps, but they already began to become systems with access to this autoration, and this idea of autoration is another aspect and when I was still back in an old country before, I entered the military thru service, I already stumbled into this by work and assignment in military which was radio telegraphist, I could listen to these artifacts that came from ionosphere and troposphere reflections and with electrical pulse which is organized on the ground, comes to the distance, I was working with this European defense system, called Varšavský pakt, I was working on that network every night which was connecting about six airforce centers, I was in Zvolen in Slovakia and every night we were sending, every hour just four minutes of communication, sometimes the signals were inaudible by situation in the troposphere, some were processed by it, like flenging and all the later artifacts which I found in audio were already there, so I knew when I listened to my first experiences like Stockhausen which penetrated in curtain easily, we already knew about German experiments and other and since I was keenly tuned, I was actually prepared to...and Czechs right before I left it were already empire of media, we were exporting all kinds of visual compositions, we understood synchronicity and audio automata, but in a way all political, and very seldom you could see asking questions what is actually the medium, it was always what is the impact, what is demonstration, what is illusion.

So these questions were up to me slowly later rationalize and take them as the basis for later interest in looking into video and trying to find everything, how it is conceived, how it's organized, how the frame is made the same time. It means you send out the frame and image, it's really fantastic idea, you don't have a painting but you put in the frame, of course painting has its frame by termination of the canvas but it's basically the same. You have horizontal and vertical fibres of the canvas and you just put it on and put a frame on it and suddenly you have the ancient artifact which carries some kind of aeshtetic formulation thru color and so on.

So in electronics we were trying to emulate the same result by have to have employ in different way and it was to send signal which was continuity not only the image but also the timing comments, when the line has to be drawn, and when the next line is drawn and then third line is drawn and fourth line is drawn, and then goes on to full the whole frame. And that's what I was always obsessed is the innovation that signal not only carries the picture but it also carries the frame and it eventually ends in this cognitive unit of a frame which your brain willingly accepts. There is no trouble, your ear accepts sound as "true representation", whatever that is, but the mind accepts image in a "true representation" ...and re...as a form of reality or entertainment, it depends on the tradition of a content, and genre in which it is contained and way it's told.

But now this new electronic material has certain affinity between each other, image and sound, electronic image and electronic sound or transmitted sound they have exactly the same material, there's a certain potential distributed in time. And it differs in certain aspects of frequencies and repetition but there is a relationship that's generic and identical as far as the source. And so of course I am skipping the whole idea of enviroment and light in film and photography and video and these are preconditions for it but suddenly here thru synthesis and generation you skip it, the camera becomes secondary it's no

longer dominant instrument and instead of looking to the world and looking at people mostly or nature, people love to look at people, and people are interested in people.

IMAGE AND SOUND

I was looking at the instrument and said, what the hell is the property of the internal apparatus, does it have any aesthetic definition, so I was beginning to understand the waveforms and it looks like in sound first when imposed on this different time raster, and so this suddenly brings you certain differences but certain similarities. The difference is that sound is actually more or less random, it doesn't have a clock it works on its own continuity as undivided in time segments. Video comes line by line, it does have a piece of definition, which is beginning and end of the line which is the pulse, negative going compared to positive going information of the line and then each field, field frame, suddenly it has very significant audible pulse, 60cycle pulse in the NTSC which in fact disturbs the continuity of the sound.
So when you listen to audio from sound, it's continuously expressed by the 60cycle hum which is classic new age environment, we hear 60 cycles everywhere even if we block them psychologically but that's the hum of our electricity. Another precision or definition or limitation is when you want to intervene with the sound, want to influence by sound electronic image, you find this dilemma that there are two basic frequencies, in television is the line frequency 1507 on the 15 above audio or barely audio, you still hear it as a child and your dog hears it all the time in that frequency spectrum, it's the only time when you stabilize the waveform that comes into it in a cognitive horizontal display otherwise it just very unorganized like, it becomes total anarchy.
The same applies to the vertical pulse, each field there is a pulse and if you are not synchronized to that the image is not stabilized vertically, it just rolls horizontally, so the verticality and horizontality play the paradoxical description.

So if you want to generate for example the cognitive shape or form, without that your mind cannot lock to the object-like image, like photographic image, can only receive it as textural, just rapid activity on the screen like the noise. Your struggle is how to prove that these two media are in relationship, how they are the same material, you have to device instruments like scan processor it was devised by friends and it comes form the tradition of observing some medical events, and you create either variable raster, it has to be run by different frequencies to lock them as territory and then you put in some input that could be interpreted on it or already the computers understand it the same. Or if you work with television, if you want the medium to communicate with the environment, with the art for example and show them, hey, there's something going on, then you have to confine this horizontality and verticality as frequency range into those of a television.

So you have to squeeze yourself into very small area of locked frequencies which have to be always triggered and taken from the age of each line so they would not really drift drastically. It's not about how it looks like, it's all about how to conform the material that's not coming from the camera but coming from the different source like an oscillator or something that can function under this confinement, and then what gives you control over this shape of that because then you have certain way of dialogue between photographic image or lens and camera image and something that is electromagnetic display processing, you use the electromagnetic form of it that enters into horizontal and vertical deflection which basically draws the line on the screen and you can alter them, slightly of course because once you go to far it loses its cognitive meaning. Again mind has the limits in which it accepts the image or say it has nothing to say to me.

So this dialogue not only with your mind but comes with your instrument and within its medium and

sometimes you can put in certain part of the reality, let's say just electronic content of it and then you modulate the process of the line forming by exchanging the code of the light, the code of the electromagnetic drawing of it like let deflecting it left and right or up and down and all the modality of the instrument gives you some kind of language that you can talk about, maybe a code and you say we have a basic primitives like waveforms and then there are sinusoids, triangles and square and this is our set of primitives from which we can assemble various textures and events.

And you always feel that you have an alternate nature, as the nature is the reference to your photography or photo-chemical process or light particle or light affecting molecular structure of...it's then brought by photo-chemical processes, you are photo-electric area, you distinguish these two areas and you separate yourself, and so then you look into new code and set of codes.

I approached this by simply making tables for myself because I couldn't truly comprehend it in truly abstract way, that's what I differ from the scientist. Scientists have complete understanding of this mental image of the process but I like to go back to the static image in which I kind of suspended emotion, and just demonstrated to myself in two dimensional way. And then I have to meditate what it is and so forth and so I built these first tables of analogue images and I called it "Didactic Video" and meanwhile I was working on different aspects of processing video and audio or exchange of video and audio.

Because when you take video and you want to affect sound you cannot go directly because you would induce that 60cycle hum, so you usually have to take what's called the envelope of change. It means the whole frame change because the time scale in audio is extraordinary more generous than in video, in video we would talk about inaudible spectrum. So in that infliction of the envelope like slow changes we can introduce into audio syntheses with success and you still maintain the basic law that this is the same material but it's just simply differently organized.

FROM ANALOGUE TO DIGITAL

So that definition stood in our decade but just in the middle of the decade we entered the situation of the digital world, this is the middle 70s for us, it started earlier for the industry and military and so but not really in any aesthetic investigation, which I even if I was looking for the material I also subconsciously and very consciously tried to look at it as a set of aesthetic primitives. Something that could actually represent this undefinable idea of aesthetic.

Also it has something to do with linguistics because as a poet I thought, Nietzsche used to be one very dominant force of poetic expression or material, then of course aided usually by strong force of psychological state of the human mind plus maybe some narrative system. But then the modern movement just from the beginning of 19th century tried to reduce it like the French poetists and all that experimenters, like Czech version of poetist movement, and symbolists in France and modern futurists and all that stuff which I was very interested in and studied in fact by reading a lot of the material, a lot of these new poetry and also prose and suddenly this kind of new principle of looking at things and also in a way of living environment and also the support, because as you know video became very lucky or it all started at the moment when the idea of social change came from the personalization of the media like thru small portable equipment.

And of course video immediately separated as far the content, into socially active documentary branch and then the experimental branch and then the gallery, it usually came from established sort of situation of the gallery artists and they already had names in painting or performance, there was already very interesting mix from sound thru all the disciplines, to visual arts and so. But what's called the experimental part which was looking for its definition and its aesthetic independence because we were

trying to separate, we said no no, it's different what we are doing from what you do not only how it looks like but how it behaves and how it's made...

So experimental part you mean people who concentrated on the medium, like synthesizer video...

...and they all had to be educated in new media so we have almost involuntarily associated with each other, it was community. For example in socially conscious part was interested in media, they had to still consider broadcast so they had to have way how to get this out and they had to study the same thing, the television system or radio system or whatever so actually the tools united us completely. And also science and art they were always trying to put it together these people outside, they didn't understand that they have very little in common. But technology and art have lot to do with each other, it's a direct ascent to a tool which you can take any form of art activity, you could always employ this kind of technological tools that we got available. So this united us, the learning period which was very steep, just to produce something which is normally confined within standards that are television standards that you are supposed to obey and you are supposed to have a scope and will see the look of your brightness and contrast and color and that's whole kind of technological priesthood that watches in television studio. But when the artists came it was either totally incompetent or it was done by third grade technicians somewhere at the universities, mostly students. And now of course we have number of dilemma about it because the material that comes from that period from the artists looks actually very insignificant visually as image compared to paintings and these established things, but now it's taken by the galleries and the history as the way it looked. But it was just the total incompetence in production of it.
But this small group of people I am talking about, that was interested in medium, we had to look into it, what is the contrast, and how the color is made, so this is all still about a dialogue about what category of aesthetic practice that is. I don't call it art much because for the art scene it was curiosity. And still maybe is. But this is basically what we went through this analogue period.

Steina was working a little bit different, but she was acquiring the same knowledge because we were together and taking all this, she was interested in all these aspects but she coming from violin acquired idea that camera is an instrument like violin and she accepts that violin makes a sound and she accepts consciously that also camera makes an image as camera as violin makes the sounds, that's my definition of the understanding. But as far as understanding it and practicing if you look at some early work of her it is both, looking into the machine and looking out. But she would always not mind using image of the camera because for her it was irrelevant, she didn't have the same ethics about it.

My dilemma was the camera, even if I used it, it was just referencial, sometimes as a documentarist I used it as a camera and we both used it as a camera but when I went into my work, the way I was recognized by the art scene, because they understood that it was not only technical experimentation, that it was also aesthetic experimentation, so in order to stay in that category for myself and actually, at that time we were striken by this idea of dissemination of knowledge, as I would say we wanted to take the fire from gods and bring it to the people.

And that was struggle thru many details like time-base corrector invention which could eventually interface us with the industry but it happened so rare in these early years...

So there was always this division between television as system that's organized for delivering those images and it still does which is expanded film basically and those other independent assignments to the medium like what we were interested in looking what is structuralist attempt to disclose the secrets of it. To scientists and technologists it was a banal affair. But integrated into this art experience was

kind of challenge. So that was how important it is we still don't know, it could be complete rococo event, totally mislead by this new medium, but it has the whole connections thru appearance of the digital code.

Suddenly this transition from analogue to digital, for us it was the tragic moment as well because we wanted to follow this our religion which is to look at the code itself and define the code which was quite possible in analogue, suddenly we stepped thru another territory which none of the code of the structure of the analogue would be applicable. Everything in analogue world has to be changed into digital code. There's no copulation between these two, simply you have to take one and as soon as you want to interface it with the digital, you have to break its system, its structure, its continuity, into even more, not only line by line definition of horizontal sync but you have to go to the range of megaheartz, to chop its incoming analogue continuity into small and smaller elements and each of these clicks of these high frequency clocks has to freeze this value and wait certain time until that frozen moment is translated into a digital leather.

It means you have to freeze and transpose it into a digital leather of digital world for example, see word.... I don't know if you understand at...without that you don't know how the infinite change of analogue world, infinite time immunity because it goes in its own time as a total continuity, and if you look at it unless you freeze it, you could see its state...

...if you have a continuity, let's say a half a waveform of energy, it's a raising energy and it's a falling energy, it repeats six times a second, as a tone you hear it because it's more pleasant sound than any other, like if you have square waves, how would you take this continuity and how would you translate it into a code that has no up and down, it is either high or low, it has these two states. And when it comes in it has to be organized by that timing of the apparatus that receives it, it means it has to become synchronous to the timing of the machine called computer and it has to be assigned a certain value of the moment in which the clock of the machine can accept the value of the changing signal.

It means that the signal has to be able to receive the value and then in certain moment it clocks it, freezes it momentarily, read it, and sends the information in a state of on and off code to this particular register which is after a while in a short time filled with these numbers and then let's say.
It has to sample very fast the waveform, fasting up when it eventually goes thru an apparatus, it comes out the same way, because after that code it's coded into on and off signals by this idea of the logic how it's put it into the register, called most significant bits and least significant bits, so that structure has to be recorded in a computer memory and carried thru the machinery on retrieval, and reconstruct whatever it got at that moment, as a number which is encoded in that register of digital numbers and retrieve it out thru digital to analogue converters into a continuity of our perceptional real world, or illusionary world.

But this idea of construction and deconstruction of the code connects it to the outside reality with the digital computer reality and then to the retrieval into the reality of the human perception on the end. Now if you cut off the input idea of the world like continuity of the light line by line, into the computer and you just close the box and say, no, no, there is no input, there is internal organization of bits and bytes that have different rules and it's now run by some kind of ability to handle and assemble these bits and bites that would represent perhaps something like real world because now the question is how do we communicate with human mind and the machine. So this idea of different or redefined structuring of the material of bits and bytes thru some laws which in the end correspond to human cognition and have a meaning inhuman observation, even if now you can create different worlds, which surpass ability of the nature to exist because it can show you all aspect of space and even going to

universe with the fantasy represented thru ability to organize this new code into a kind of perceptual units that say something not only to science which is interesting in certain events, like analyzing time and energy in different aspects like looking at particle functions, but now also in this kind of general narrative sense that either emulates the world as film use to or it finds the challenges in the computer where it invents its own new existence, new worlds and changes and narratives and communication and network.

So that's how I would characterize it. For us, as I said it meant slightly tragic thing, we could no longer work alone because we understood analogue to the degree we needed to and we could learn more about it but it is not discipline that could take too much time, within a couple of years you've got systematic work, what I said we played all the time, we played day and night, for us it was not difficult to understand, we also were lucky to get instruments from some strange situations so we had a scope and we had a signal generator by trick tronic which was very elite piece of equipment, and we could sometimes when we build something with designers or alone we could insert the whole sync at the end just by being that provided by instruments that we didn't have to build because these were more complex and so forth. So suddenly to leave that convenient life of complete control into this need to be helped by computer programmer and I even tried and Steina tried to do some programming and I succeeded in working with programming it even if we built the real time machine later, the Articulator. But it was compared my time with people that do it every day it took me months to do what they do in two days.

So what was the idea of Articulator?

To find the code, so then I assembled the same thing as I did my analogue assembly, with something called Syntax of Binary Images, it interested me what constitutes the language of image, and again I found very early when you take Boolean algebra, AND, OR, NOR, OR exclusive OR, negative positive, these are in a way related to film and photography in a sense of mask, matt, negative, positive, because when you put something which is A, just A and you say minus A, it becomes negative. So the whole modality of this coding, became very clear and rational once you start photographing it, transfering into a visual page, assembly.

So again I had to do it in stills, but meanwhile we found all the other aspects of it that you could use things that you couldn't do in video, like you could freeze any moment or expose just the things that were in motion, because when you are using the Boolean algebra and other programming, you start go into this higher and higher codes. But i've been always interested in what's called the media primitives, the basic tools from which media are based.

Once I understood that I dropped the scholastic part because both these series, Didactic Video and Syntax of Binary Images, they were for me assignments as I would get it in some imaginary school, but buy working with both aspects of the media, especially in digital, we had excellent teacher, Jeffrey Schier who taught us basics that we needed to operate the system, I could even fix it one time because I built it with my own hands, he would work at night and he would draw schematics every night and ...for like a year and half of daily operations he had system working, and it was real time with field rate and we could only operate it outside of a computer, we had this LSI, the first computer we could buy...so we could actually see the phenomenology of frame and field and study it and have a moving image because we couldn't work with stills, neither of us was interested in stills that much but I had to do it for its understanding.

So this was the introduction into this world and from there both of us a little bit separated, what united

us was interactivity, but then came this new aspect of it which we never, we always had audio, we were born in interactivity, and sound and image for us was absolutely essential, and there were very few works where we separated them but then of course we went into looking into narrative formats, this was after 70s which was completely exploratory except some strange documentary of sketches of social underground of New York, all the gay theatre and rock-and-roll and all these things, we have very large library which we hadn't really experimented enough with, and then we did a lot of interactive experimentation, with laser disk, sent later into memory directly and that whole era...

FILM SEMIOTICS AND DIGITAL

So as you notices from that and this is very interesting article for me, because of course he tried to induce this idea what was at that time essence of ideological aesthetic investigation about the semiology. But the semiology of film as I was understanding it, because I understood semiotics from Czech semiological school of the 20s and 30s but that's just total derivation, because film at that time when I was working in video it was in different questions, it still had the questions about the structure and science and myth, but all for me was semiology was going into the archetypes and the most banal subjects. They were seriously discussing the King Kong because it's the movie and you know all these modality of the traditional success of film didn't interest me because I found it completely irrelevant. Even in a way of an intellectual examination of within experimental film they totally failed, there were very few people that even from the official semiological investigative that had some substance like the philosophers of the French or whatever, they were kind of looking into popular culture, they were not really interested in experiment, and they couldn't because remember, this is experimentation in film at that time was continuous motion, it was in movement, it developed day by day almost in a short period and what semiology needs is to freeze it, they need some translation, and we had this discussion with Gene as I now remember was a complete in a way misunderstanding and it was in a way.

I was trying to explain to Gene that it may sound too mechanistic to his intellectual interest but we are not there in description of code system or coding arrangements or coding composition or coding this new code any other exploitation just by the struggle with time, these are all the old time machines and then you see what captivated me from the beginning since we are functioning of clock, each of these machines called computers are based on the clock division of time. And between these two functions, one is addressing, one thick, which is followed by accessing the data, this all addressing and then the performance of the data. In accessing one thick, you have to get new data in or you have to develop data in and in second thick you have to process them and put them into a storage or somewhere. The timing between these things are crucial if you have a long time within this two in a modern system, you waste time, suddenly the time acquires the bulb, that's why the struggle is to make it faster and faster but between these two functions of acquisition, processing and storage you have to squeeze in so many aspects of information about the next frame.

So it goes all about this idea of struggling with time and finding time for more functions in a smaller and smaller time division. So this idea of how you gain space in a machine, in order to serve our cognitive process of vision, this territory was the most interesting for me. But it's an esoteric thing. But it now plays major role in real time machinery, what can you do in so called real time. In those years there was virtually no real time. It was just animation, it was dominant. So I was trying to avoid the issue but I know I had to answer something but I was trying to squeeze his kind of interrogation away from these archetypal subjects of semiology of time. And especially the French school I had total disrespect for because they would use publications like Time magazine and data from Heresay because they were into a different representation, of the social consciousness, so it never ran with me well and I find this in film possible, because there was no struggle about frame by frame, they were not concerned

with time between two frames because there was a mechanical thing, you had a piece of machinery that represented new frame which was there already before. So these two time machines which I later described in that revised new article were early interest of mine. I should have continued but I didn't I went into whole different, because there was no audience for it anyway, but I should not have been dependent on the audience.

Did someone develop these ideas?
There was just one man I could speak about with and it was Werner Nekes...he was very interested in this also, but for film it's a terminal question because what can you discuss between preceding, suceeding except the mind and nobody from film could enter the mind because it's purely psychological, at that time it wasn't clear how actually the brain receives, if it actually prints the frame, it's still not clear, it's called the cognition of moving images and if you type it on the computer you just see first of all it's expensive because they charge you 25 dollars for reading it but that's not what I am interested in, it's not to analyze existing media but to challenge it into completely futuristic rate of representation of images and see what brain says to that.

See, brain is the territory of investigation that I have no tools, I could had have tools but I missed that completely. Because I went into this robotic, or media constructions, just to keep my too feet in art content, if I would be let's say professor, I never wanted to be, I would probably establish some machinery that would examine what happens between very fast frames, that would interest me. But not what happens to the frame, we know that mind accepted film so willingly that's stunning, it's almost obscene...it's like it was waiting for it. Of course there was some proto-cinema which was absolutely clear gateway to this future cinema, but there's the way how society and industry of image making have ladged on it and how it exploited every aspect of it and established immediately after two decades there was intelligent constructive system of syntaxing, editing the material and it brought it very rapidly into intellectual mainstream. It could compete with anything, like music of very established artist in history and literature, it coopted literature and so forth. It got all kinds of scholarship instantly and get intelligencia being interested. It was just success, and after this purely new avang-garde, like in film also in Europe had to deal with questioning these other aspects, not those that are semiologically containable and scholarship and professorship could be built on, this was unknown, only few people could jump into this and try to swim but they probably regretted it, so that's kind of a strange end of it.

SHARITS, FLICKERS, ETC.
When you were in Buffalo, did you discuss it with other people there, Paul Sharits and Hollis Frampton?

Yes, Sharits was the only one but he was interested in slightly different, the major question which was already asked by Peter Kubelka and Nekes and perhaps two or three other people we knew which was what happens between the frames, two frames. And this question was not enough for the others, they couldn't just think because in fact it is true, the question is in the perception, in the mind, but for that there was no literature and no tools they had access to, they would have to build them. But I knew what I wanted, I had fields in video compared to 24 frames and we knew what was there at least between two colors, but luckily that was what Sharits was interested and looking for, but he would call it abstract narrativity and he had a class which he taught which had the same title and when I asked him straightforward where do you think this syntax is, he said actually it's a train three frames. So you see he broke the rule in a sense that he couldn't find enough in two colors. But in our switcher of George Brown on field rate we discovered the third color which is the result of succession of two colors in that speed.

And we said, O.K., we at least got somewhere but then of course it got closer to the binary work of Alfons in stereoscopy but as I said in that tool we missed the idea of exchanging the A and B continuously so we could actually work in stereoscopy in naked format and see how we could play further, if there is anything further there in a fast interchange of binary information. I know we could just filter it, we could separate it because then later there were machines that flicker for your glasses like what CAVE has probably done in experimentation and everybody else. But they built a number of the same systems right after or in the same period, in 70s and 80s but it's a different environment and we always belong to this art and also thru the funding and also our audience wasn't science, it was actually art and we were integrated in the art with few people without much trouble, so. We are still more or less and Steina is now exclusively in the art gallery which happened the last two three years, and I kind don't want to get involved much in this because what I want to do would really need five years of research to get into it and build new machines and all kind of stuff. And I don't find anybody else doing it, there must be scientists now that do what we call the era of the mind or the brain. Now the studying the brain for the century is really opening because there are tools, this new drugs and all kind of stuff is exquisite so I think that just after I die they will get somewhere, it's the thing that I might have been more involved....so anyway

VICTOR GRAUER AND "NEGATIVE SYNTAX"
There was a chance to do new nomenclature, if I could work with Nekes further and if he wouldn't turn in this jubox which completely alienated me from this then it could possibly get some meaning. There is one person in Pittsburg, Victor Grauer, which I had great promises in, he was interested in film but I introduced him this machinery of computer, it was in Buffalo and he came to visit and I showed him that I could already program the fade-out in film very funny and he played it, he was also stunned because this is just one thing and it took me long time to achieve, to program. So we had good dialogue but he calls it negative syntax, I couldn't understand what he meant, what is the positive syntax and we didn't have words for it and so it fell side of our interest but he was not interested in anything else at that time but he had complete understanding of the dilemma of what happens between the frames at least on the side of the machine but we couldn't discuss what is on the side of the mind because it was purely hypothetical.

You were building some machines with Frampton and Sharits...

This is kind of an interesting episode, since I understood and liked his obsession of colored frame as building element for something he called abstract narrative system which was the direct critique of the Hollywood, on the other hand I must confess all these people in America that I met have Hollywood on their mind all the time, he couldn't get rid of it since he was children and there was this kind of looming love that Gene has, these things that I found completely beyond my interest, it was a barrier, I could never accept film of this kind as something that could be part of filling my mind. I'd rather go to the literature and find this as a silent but not the film because I knew that this was for the masses, groasly invansive, preemptive and folse and glamorous and all these negatives that I could find in my pristine catholic ethical system which wasn't that big because my admiration for the decadence was profound but this were not decadent things they were not meant to be provocative, they didn't...HOllywood just occasionally would break some cliché but it was built on cliché, but it was unique presentation of personalities, actors were picked up by very unique qualities, and that represented the whole model behind and they got this roles and perfected this strange world of writing, which was put into space.

So I took this single color frame as interesting element of film and as it happened at that time, I could program computer to the degree of being able... let's put it this way, in my search in the junkyard for

some interesting apparatus I find in little town called Horseheads in upstate NY a time setting machine that had strobes, small strobes that is done to project time-setting system, it was rotating disk of letters and you could change the disk with various letters, it rotated by its location...it rotated fast, there was a flash of a strobe, that put and set time on page, it was professional thing made by German printing...factory and it was declassified, so it shouldn't be selled, it should be destroyed, but I asked the guy if I could pay for it and of course it was already surpluss space, so they said sure, so I bought it and when I brought it home I realized I could trigger it because there was this power supply.

And then I built the machine that could be triggered, 3 of them, in RGB filter, and RGB filter I naturally found in RGB old camera one of the first color cameras that I found in the surplus and it had exactly the filtres RGB that could assemble the color you need,   ...additive processing in color theory and color practice. It would analyze colors and bring them....my invention in it was that I would go sequentially to each gun and put a train of pulses, generate pulses numerically, like this gun would have red, green and blue, each of the guns would have certain amount of pulses, you couldn't do it with one pulse, because you had to use smallest pulse was one but in order to build the whole gama, whole scale of intensivities that you can assemble going thru the color filters different color scale. So at first I got this other machine that let me step through different windows which I could advance and then I kind of experimentally fleshed into certain numbers, but then I understood that I have limitation in really the right colors, because they were not nearly sufficient and they didn't produce any particular result, and then I talked to my friend Tony Conrad and he said down and wrote the program which is algoritmical and of course this program had to be assembled probably to make a real grey scale in a large shadow for each gun and then in a result in a color, it has to be constructed from close to 400 flashes....but former machine was just music...

so I then built that together into the machine, computer, it was advanced, it had a camera that had removed shutter and I made experimental strips, and they were what we expected, and then I went to Sharits and I said, listen Paul, there is this machine and there is this software but he was completely fobic about the machine because he knew he would have to step away and ask someone to operate it because he couldn't operate it of course. And so this project went nowhere and he went back into his sources of color which were the color slides and there were usually scores that were made with filled tip pen so he went into his method and at that time he had an assistant that would execute it from these color, score put it thru color frame and then it would be recorded as an animation. But that's what he wanted. So it means that I didn't really pursue this cause I had no clients, so to speak. I would have done it for free of course.

But when I was investigating these RGB flashes, I went to a scientist there at school in Buffalo who was actually in laser research and color and he was in right proper thing and I explained to him what I was doing and he said, you know, there's one problem when you charge the capacitor that flashes the light, you cannot distinguish between its duration because it discharges on its curve the sign wave and it has to detect the right moment and it's usually approximated so don't look at the science as a source of that precision. But since we were working with about 400 pulses, ...it could probably average..in small amount it could not do averiging but on a long run it would averidge it to some precision. When I did discover strips as tests and I would bring it to the photolab in Buffalo, they could calibrate what kind of buff they did every day because they couldn't do that precise analysis. So for week I became scientist and inventor because I could sell it to them and say you can calibrate every day exactly what you have because they could look at it and shoot it with this machine then develop it and locate it to have the right colors.

ZKM_machine for exhibition
But then I just did other things so it never really was realized that as a tool which was towards film was

not so much interested in it, because in video you could just program the colors with such an ease. You just have color channel, you have red, green and blue that comes and assembles you ...the colors that could be made with high precision depending on the quality of display. And so later in this show last year for ZKM I asked friend, guy who was there to write new program about RGB and color generation for Paul Sharits' participation which he did and now we could go further, not only twenty four frames but over 60, I think he had it somewhere around 80 frames per second which was very interesting to me but now I would have to return to it and I am looking for software that I was supposed to bring from that and I can't find it now.

And actually Don Foresta sent me to the place in England, the university that does such a research and its artificial laboratory and I suggested this other project to the man who works there, visual psychologist, he was completely uninteresting, he felt threaten a little bit, because these are trivial problems, why would he be interested in looking above hundred and twenty or fifty there's nothing to find, people look at it and they have the same experience which I doubt very much but I couldn't prove him that it was worth studying. It was really disappointing, it is still because I am finding that over in that higher rate there is still somewhere a neural logical response, but I am sure that someone has done it so that I don't have to be worried that I will have to invent it. But I could use it as art tool perhaps, but then again I don't know why I don't want to return to it, but something there's always preempting it as urgency.

Now the problem with the archive is still preoccupying me most of the time and I always return to it, but as you can see it's a whole environment needs a revision, but we don't know we might not live long enough to do what we want to do.. .these are the episodes that always got the interesting moments. One opens certain interest, but when it's not done as a community, then in art it's usually dropped, in science it has to have some kind of funding also, people don't make science sometimes because they don't have it supported, either they have to teach and I feel sorry for the scientists that have important things to do but are unable to do it because they can't do it on a kitchen table which I can still do most of the work here. And that's very good. If it goes beyond that, and I have to hire somebody to just do some of the programming