

ERIC SIEGEL: The Electronic Video Synthesizer

Eric Siegel, one of the early adventurers into the realm of video entering via electronics, invented the PCS (Process Chrominance Synthesizer) in 1968 which permits controlled colorizing of black and white videotapes and the EVS (Electronic Video Synthesizer) in 1970, by means of which abstract forms, mostly geometrical, can be created at will in color on a TV screen without the use of a camera. His EINSTEIN tape (1968) uses feedback to produce its psychedelics effects and was one of the first video art tapes to use this technique. Following are extracts from the description of the EVS by Eric Siegel, and from an interview with Siegel by Jud Yalkut, taped by Jackie Cassen in 1970 in conjunction with the FREE TIME WNET-TV, channel 13 broadcast series, the first screenings of experimental and portable video work on New York Broadcast television, supplemented by extracts from a radio interview for WBAI-FM in 1973.

"The Electronic Video Synthesizer (EVS) is an instrument for the creation of visual color information in the medium of video. This information is seen on the screen of a color TV monitor similar in appearance to a home TV screen. The instrument itself consists of a keyboard and a panel on which are mounted a number of knobs and switches. By manipulating the knobs and switches a wide variety of patterns in controlled color and motion may be created.

The colors may be produced in an almost unbelievable intensity and richness. This is possible because the instrument activates the phosphors on the TV tube directly without the intervention of a video camera, and in this manner is able to utilize the full potential of the tube, which the camera does not.

The patterns are geometric formations, either symmetrical or asymmetrical, as the player chooses. These may be held steady on the screen and the colors of the various elements changed at will; or the patterns set in motion and the colors held steady; or both patterns and colors may be changed in rapid succession as the player desires and is capable of producing. The latter procedure may be used to produce a visual accompaniment to mus-

ic, though considerable practice and manual dexterity is required to, produce satisfying results, particularly if the music has a fast beat such as rock.

Though the instrument does not require camera signals to produce the patterns and colors, nevertheless camera signals may be combined with the electronically-generated abstractions if the player so desires.

Technically the EVS is quite sophisticated. For example, most video signals are AC plus DC. On the other hand, most home TV receivers are AC coupled, and, therefore, produce signals that are highly inaccurate and result in incorrect brightness level on the TV screen. This video inaccuracy is termed B.L.D. (Brightness Level Distortion). All video signals in the EVS are DC coupled, thereby insuring a complete range from dense black to intense white, as well as accurate color range, provided the monitor is capable of handling such a perfect signal.

The EVS is the instrument of the New Television. Where conventional television is used to inform and entertain, the New Television will be used as a means of self-expression and a way for constructive meditation, of a person communicating with his own inner self.

Because the colors are so intense and the motion so hypnotizing, the EVS helps to expand the viewer's consciousness and brings up feelings and emotions which he did not know he was capable of experiencing. The viewer may be launched on a 'trip' which is controlled by the person playing the EVS, whether he be yourself or another." - ERIC SIEGEL.

JUD: A few words about the colorizer, and also the video synthesizer.

ERIC: For the last two years, out of necessity, I've been into a hardware trip, and in this time I've developed two pieces of video equipment, both of which were developed in San Francisco. I thought I would that I would work better out there. The main project was the Electronic Video Synthesizer, that's like the video equivalent of a music synthesizer, where you have a program board and you can start to set up a whole series of visula geometric happenings in color on the video signals- the screen- and this is designed for video compositions. At the Kitchen last week (NOTE: In 1973), I did a piece called YANTRA MANTRA with it, which was quite favorably received.

EVS

Page Three

JUD: Yes, I would say so.

ERIC: And the other piece of equipment is the colorizer. There have been, by the way, business and technical snags to getting out the EVS, but it is something that people should be able to go out and get.

JUD: The EVS operates predominantly with electronic input?

ERIC: On the EVS, you just have to put in sync, and everything is composed right inside of the synthesizer. But you can put in live cameras too, and do things that involve pictures and synthesizer images.

JUD: It could be used with a music synthesizer as well so you could synthesize both image and sound.

ERIC: Yes, I suppose that's the ultimate next step. But I'm not going to take it. (Laughter)- would be a total synthesizer- a synthesizer that is a video and a music synthesizer all in one box, and is built to compose totally.

JUD: That could be a one-to-one relationship between sound and visual?

ERIC: What's exciting visually, if you listen to it through an amplifier, is not always very exciting to listen to at all. And so, to make a total synthesizer would involve a whole interfacing system that interpreted the video signals into an audio signal that would have the same equivalent feel to it, but it would have to be changed.

JUD: And use that as source material for composing.

ERIC: Right. So that's the EVS, and the other piece of equipment I've been developing parallel to this is the Color Synthesizer, or Video Colorizer, as people tend to want to call it. That takes black and white video signals, from 1/2" tape, like people who have been shooting with their portapaks, and it allows them to synthetically color the picture. This doesn't work out well for interviews or straight types of photography, but it does work out extremely well when you move into the more visual and abstract things.

JUD: More video process imagery.

ERIC: Right. And I found it also works out well with shots of natural mountains, sky, water, trees, nature, things like that colorize very well. So that's the second piece of equipment.

JUD: What do you think can be done to improve video as a healing technique? To improve the vibrational food that people get from it?

EVS

Page Four

ERIC: I think that depends wholly on the particular video artist who produced the video, that they have to expand themselves- they have to go to the top of the mountain first, and then through their tapes show everyone else the top of the mountain. And I haven't met too many who have gotten to the top at all yet.

JUD: And also, as they say in Zen, when one goes to the top of the mountain, after achieving nothing, one must return to the marketplace.

(Laughter) Wasn't there, by the way, an earlier version of the colorizer?

ERIC: There were a few earlier versions, as a matter of fact. I would put it another way- it has been under constant development and has gotten to a stage now where I am totally satisfied with the way it works. You see, all the previous ones that I made and that other people have made have many problem areas; you couldn't get the colors clean, within the areas and the borders; they would always bleed into the next thing and smear and oscillate.

JUD: Some people did like that effect, and still do.

ERIC: Yes, there are some people who want this wild type of smeary effect, but I don't. I don't dig it at all, and electronically, it's totally inaccurate, and I don't even agree with the aesthetics of it. So, the way mine is right now, the colors are very clean and totally within their borders and areas. At times it looks like chromakey, where you see two pictures cut in so neatly and cleanly that you're convinced that it is one picture.

JUD: We can consider the synthesizer as a tool for the transmission of energy.

ERIC: Karma energy.

JUD: Karma energy, in what sense?

ERIC: In the logic sense. I think the synthesizer will enable Western man to take advantage of the technology that he has created and only put it to the use of pro-life, pro-spiritual powers. I think that the synthesizer, used by people who have advanced to higher levels of consciousness, whatever you wish to call them, can be used in that way so that this can rub off to an extent onto the people at home watching it.

JUD: We mentioned earlier the possibility of having an interface between "electronic gurus," as we'll call them, who can speak through this transmission to each other, creating perhaps an energy field which is capable of enveloping a larger number of people.

EVS

Page Five

ERIC: Hopefully, yes. If this should continue, perhaps with the energy that is transmitted being received by other video gurus, so to speak, they would pick up on that and send a new flow of more concentrated energy back out into the airwaves once again, and start not an atomic chain reaction, but a psychic chain reaction.

JUD: A psychic chain reaction which in this case is being initiated totally by electronic means, by the direct electronic interpolation of the performer-guru in reaction to his external and internal environments.

ERIC: Right. In other words, video, because there is this portable equipment, because it is being used to make this segment which will go out on the air now. Because there is this equipment, it means that you don't have to make videotapes in the environment that we're making them in now, and we're only isolated from the horror city by hundreds of feet (NOTE: This interview was taped in Central Park.) and so the karma of New York City is still upon us, and we can't escape that, and it will come through on this tape. But this recorder that we're using can be taken out where there is good karma to make recordings, and then the tapes can be sent to places like New York where there's bad karms, and good karms can be transmitted through the airwaves.

JUD: The synthesizer, too, is also basically a portable piece of equipment and can be used to broadcast quality transmission, or for 1/2", or for any type of equipment.

ERIC: Yes, and as a matter of fact, it can be worked on batteries. You can have a battery-powered tape recorder, a sync generator, and a video synthesizer, go up to the top of a mountain and do it.

JUD: Right. That seems to be the type of environment that it might well find a home in.

ERIC: I think that technology is finally going to go into its second phase of existence. To help mankind, not for war.

JUD: This is a very vital aspect of what we're talking about, because basically the use of technology up till now has been only one small percentage towards the beneficial use of mankind, as per atomic energy. The comparison of budgets of the amounts spent on defense as against the amounts spent for the equivalent types of technology in beneficial aspects has always been one of the problems. More of the technology in

the hand of the military and business should reach the hands of the creative aspects of society like the artists and the spiritual teachers.

ERIC: Right. As a matter of fact, there doesn't seem to be any let-up in this state of affairs. It seems that there's a great apathy that is over all of us now, kind of a feeling that it's not going to work, that we're getting nowhere, and it's not true. This television broadcast is proof of the fact that we're going ahead.

JUD: Now to talk about the nature of the synthesizer itself. It works through the generation of the three basic colors of the video system—red, green, and blue.

ERIC: With the addition of magenta if you want it.

JUD: Is that magenta, cyan, and yellow, in terms of pure color light mixing?

ERIC: Right. In other words, you have four colors that you can work with, and the harmonics thereof, or you can choose to work with the three television primary colors. It's a positive color mixing in that when you have two colors mixed over, you get a lighter brighter color where the crossing occurs.

JUD: In terms of the generation of forms, there are some circular forms, but a great many tend towards the diamond. They seem very much related, in a sense as we've seen them today, to the form of the video mask as we see it. Can you make some comment on the range of form. We've seen differences in tempo and oscillation also, but what range of form is possible? For example, could the machine generate a completely circular mandala? We've seen other types of mandalic images today

ERIC: Not in its present state, but the machine is in its infancy now. It was born just a few months ago and conceived a year ago. When it grows up it will be the machine that everyone has been waiting for. And the most important thing about it is that it will be that machine, and it will go directly onto the airwaves, and it will transmit out of those 50,000 watt transmitters, and it will go out and reach everyone.

JUD: The machine has several oscillators in it. Is that correct?

ERIC: It has a limited number of oscillators right now and I have ideas in my head about what the new circuitry should consist of, plus a new way of interfacing that I have been thinking about for a long time is the direct electrode system of picking off the EEG, electrical impulses from the brain, so having an individual just sit down and think and the

EVS

Page Seven

machine shows it up. But I'm not working on that now.

JUD: They've taken EEG, for example, of Zen monks in meditation, or of yogis in samadhi, and they've found a direct correlation with particularly alpha waves, and also in terms of the visualization process, the theta rhythms have figured in. Of course the alpha range is between eight and thirteen cycles per second, and four to seven for theta.

ERIC: They have found that when they're in a state of meditation that they go right into alpha and stay there constantly. But alpha is nothing more than a sine wave going up and down, and it has to be interfaced in a certain way so that picture-wise it comes through with some intensity as to what alpha is, that state of consciousness. So there has to be another interface made. That's part of the reason I'm not working on it yet.

JUD: The oscillators in the synthesizer are basically capable of generating which waves- sine, square or sawtooth, or the whole range of electronic waves?

ERIC: A limited number of electronic waves right now, but it has the capability of accommodating far more circuits and waveforms and so forth. It has been designed to be expandable to no end.

JUD: It can be expandable in the sense that Moog, Arp, and Putney synthesizers in music are, modular, and you can add so many more components, and generate so many more harmonics, perhaps.

ERIC: Yes. Like I'm studying biochemistry now and there are parallels to things that the synthesizer does.

"The Electronic Video Synthesizer was created to enhance the interface between the Video artist and the people. Each human being is enshelled in his own perception of reality. Rational logical communications have their severe limitations. The communications which take place on the Aesthetic Abstract level- deal with the inner tune of a being. It's like the DNA code of the artist speaking to the world- Since we all perceive different worlds, in the same world- it becomes our necessity to find witnesses- when we find the ultimate witness...we find love. The current trend towards Religion and god is in a way a frustrated attempt to find the ultimate witness. One can not do without a witness. What you see on the screen is my attempt to get a witness deeper into your being."