NOTES TOWARD A HISTORY OF IMAGE-PROCESSED VIDEO

STEINA AND WOODY VASULKA

Ed.'s note: This is the second in a series of articles on image-processed video. The first article examined the contributions of the Society for the Electronic Arts Media Program. Sara Hornbacher, Peer Bode, and others. The project is funded by a videowriting grant from the New York State Council on the Arts Media Program.

Despite the fact that many video artists whose work is categorized as image-processed reject this term, it can be useful in describing the work of people who not only use similar equipment but share an attitude which treats the video signal as a plastic medium. Beyond such generalizations, however, the designation can be misleading since, as a genre, "image-processed" connotes any and all tapes which contain manipulated and/or synthesized imagery. This acknowledges obvious exceptions to the variety of approaches which produce works that can be more precisely interpreted. Of course, one interpretation doesn't necessarily preclude another, but an attempt must be made to get beyond the all too familiar responses to this work—that is, either rejection or total embrace.

The first experiment in this regard was the 1971 Whitney Museum's two-month "Electronic Video" exhibition, assembled by the late film curator David Bienstock. It consisted almost entirely of image-processed tapes. In the program notes, Bienstock wrote:

It was decided instead to limit the program to tapes which focus on the ability of video to create and generate its own intrinsic imagery, rather than being dominated by the electronic signal, for example, frequency, amplitude, or phase, which actually define the resulting image and sound.

Yet another recent example is the catalogue introduction to "The Electronic Gallery," an exhibition that included tapes by a number of people who use the Experimental Television Center. In it Maureen Turim writes:

The Center explores video as an artistic medium. To figure out, to give form to, to embody, to display the various properties that a video system can produce.

Such generalizations pose a number of problems. It is highly unlikely that a definition of image-processed video can claim to embody all the medium's "inherent properties." But couldn't it easily be that video's instantaneous and potential for interactivity are also inherent? More important, I think, is another point Turim makes: "Ultimately, though, the works gain their communicative impact in reference to other concepts and ideas.

These quotes refer to any and all kinds of image-processed work. It is important to recognize that people associated with this type of video, Steina and Woody Vasulka have been consistently associated with technological experimentation and all the attendant problems that come with great advance. They have been described as systematic, didactic, formal, and syntactic, and the Vasulkas—who are both very articulate—have encouraged such readings. Turim's comment may be worth considering, especially, since the effects and meanings of their work cannot be so neatly confined to these categories. As Shalom Gurewitz has remarked about some of the Vasulkas' multiple-monitor pieces that he saw at The Kitchen in the early 1970s, "They could talk about it being didactic and minimalist, but when you saw it streaming down a pyramid of monitors, it was so lush and exciting you couldn't be prevented with... I wouldn't call [their work] minimal, and I wouldn't call it pure research, because there's a lot of pleasure on a sensual level when seeing it.

Beyond being prolific and playing enthusiastic roles in pioneering electronic imaging, the Vasulkas—as founders of The Kitchen—were also major contributors to the development of an intellectual and institutional framework for video, and they have continued to nurture and promote video within a variety of contexts. I'll begin, then, with an account of their involvement in the early years of video and a discussion of how their work reflected—or in some cases, didn't reflect—attitudes dominant in the '60s about technology, art, and the "establishment.

Born in Iceland, Steina Fteinunn Bjarnadottir studied violin in Reykjavik and at the Music Conservatory in Prague from 1959 to 1962. She also played in the Icelandic Symphony Orchestra in 1964. In Prague she met Woody Vasulka, who was studying at the Academy of Performing Arts, Faculty of Film and Television. Woody Vasulka, following family tradition, had at first studied industrial engineering in Brno, Czechoslovakia, his birthplace. Privately, however, he was writing poetry and fiction and found that he had no use for engineering because it involved too much mathematics. Feeling more affinity with literature than with engineering, he attended documentary filmmaking. "I became interested in his desire to work individually as he had as a writer, rather than as a group; documentaries could be produced by one or two people, whereas feature work involved many more. However, documentary had its limits too, and Woody found that film in general was "absolutely a closed medium to me... I was exposed to all the narrativity and structures of film, but they weren't real to me... I could never express myself in what was called the narrative cinema."

The Vasulkas' decision to emigrate to the United States was based on cultural rather than political considerations. As Woody explained, "I was never attracted to this kind of political system; but I couldn't live in the twentieth century and not deal with America directly." When the Vasulkas arrived in New York in 1965, they had much to deal with, not least of all learning English. While they spent most of their time during their first two years in the U.S. getting oriented, there were many avant-garde activities going on with which they could then become involved. These activities—loosely labeled "intermedia"—grew out of intertwining music, dance, theater, and film communities.

In November 1967 the Voice video critic Jonas Mekas proclaimed in his weekly column, "The medium of cinema is breaking out and taking over and is going blindly and by its own."

In 1966, he wrote, "Suddenly, the intermediate shows are all over town. Light shows, slide shows, multiple film projections, light-motion art, sensoria... these were the activities of people like Jack Cassie, Elaine Summers, Jud Yalkut, Aldo Tambellini, Stan VanDerBeek, Ed Emshwiller, Gerd Stein, Nam June Paik, and many others. Many, though certainly not all, of these events were inspired by Marshall McLuhan's influential media theories. Because of the widespread impact and popularization of McLuhan's writing, it may be helpful to briefly review his arguments.

McLuhan begins with the assumption that modern human experience is characterized by the simultaneous reception of vast amounts of information in the form of sense stimuli: sight, smell, hearing, touch, and taste. Because the attempt to communicate and process this vastened experience is subject to distortion, some methods of communication are better than others. According to McLuhan, a medium which "prolongs a single sense in high definition"—such as a photograph—is a medium which provides only minimal extension of a sense—such as print—is a medium which "inevitably extends our central nervous system itself in a global embrace, abolishes both space and time as we once conceived them. Rapidly, we reach the farthest possible extensions of man, the "hot medium, whereas a medium which provides only minimal extension of a sense—such as print—is a cold medium which enhances tactile and kinesthetic sensibilities. McLuhan wrote in 1964, today, after more than a century of cultural change, "we have extended our central nervous system itself in a global embrace, abolishing both space and time as we once conceived them. Rapidly, we reach the farthest possible extensions of man, the "hot medium."

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Thus, McLuhan’s “global village,” a harmonious world “tribe” linked via a network of instantaneous communication, would evolve. Jonathan Miller has pointed out that McLuhan’s overly optimistic vision could only have been achieved by “stressing the immediate mental effect of the various media at the expense of neglecting the messages they actually convey.”

This emphasis on the effect of the medium itself—regardless of its content—is the basis for the famous dictum, “The medium is the message.” This aphorism fits quite neatly with formalist art discourse: identifying those qualities specific to video as an art medium not only canceled with McLuhan’s ideas but Clement Greenberg’s formalism.

McLuhan’s theory has since been discarded by some scholars because his utopianism completely contradicts the fact that electronic media have been used as instruments of social control. Moreover, as Raymond Williams has shown, this analysis represents a technologically deterministic approach to history, which postis technology as a force in itself—responsible for the changes in society and the human condition—rather than something developed with specific purposes in mind. In Television: Technology and Cultural Form, Williams counters McLuhan: “All media operations are in effect desocialised; they are simply physical events in an abstracted sensorium, and are distinguishable only by their variable sense-colour (emphasis added).”

Still, as I said, many artists were creating intermedia sense environments, openly embracing McLuhan’s ideas. These events—as well as others less explicitly derived from McLuhan—were commonly known as “expanded cinema” (the term was later used as the title for Gene Youngblood’s futuristic survey of such work).

While the Vasulkas read Mekas’s column regularly and were peripherally aware of underground film makers, they attended very few of these events in the first years they were in New York. Steina continued studying violin, while Woody started working on commercial and industrial films and exhibits in 1967. In 1969 he started using video. His employer, Harvey Lloyd, was using closed-circuit, multiple-monitor video displays as well as multi-screen projections and this structure eventually became the model for much of the Vasulkas’ early work.

For Woody, video provided an alternative to film which he felt was an exhausted medium. In 1978 he recalled,

I was educated in film, which I understood as an extension of narrativity into space. So at that time, I was very concerned with literary forms presented in cinematic ways, which I linked directly to the economic structure of existing productions—studios, laboratories, equipment. Only much later, after I had worked in film productions in New York City, did I achieve any independence, or manage to personalize the process of image making, and that came about as a result of working with electronic equipment.

Beyond the compromises entailed in working in the film industry and the limitations of conventional cinematic narrativity, Woody also had an initial fascination with what might be called the phenomenology of video. “When I first saw video feedback, I knew I had seen the cave fire. It had nothing to do with anything, just a perpetuation of some kind of energy.”

Like many other early video artists, Steina’s involvement was inspired by Howard Wise’s exhibition, “TV as a Creative Medium,” held in the spring of 1969. “I went in there and saw Einstein [a tape by Eric Siegel utilizing the video colorizer he designed and built], blasting out, and it quite blew my mind.” Soon, both the Vasulkas were using Lloyd’s equipment, and eventually Woody began bringing it home. At that point, they realized that the only way they could really experiment was by living with the equipment. “What started happening,” Steina recalls, “was that every day Woody would come home from work at five o’clock, and I would have another place for him. He got so jealous because in the evening he was tired. So he just came home from work one day and said, ‘I’m quitting!’ Using some borrowed equipment and some that they bought, in early 1970 the Vasulkas began to work “systematically,” making feedback loops and using audio inputs to generate and alter the video signal inside black and white monitors.

Although many of these experiments were not original since others had done them before, the excitement of that time was generated by the sense of being pioneers. There was a camaraderie among people who were making discoveries about the potential of video—and an electronic phenomenon and as a tool for social change. As Stein describes this animus,

Our discovery was a discovery because we discovered it. We didn’t know all these people had discovered it before us. It was just like feedback: pointing the camera at the TV set and seeing feedback was an invention that was invented over and over again. As late as 1972, people were inventing feedback, thinking they had just caught the fire of the gods.

Part of the excitement, too, had to do with the informality of exchanges among people. Tapes were shown in lofts or at clubs, and information spread through word of mouth or sometimes via small ads in the Village Voice or the East Village Other. But, says Stein, “It’s different [now], it was a seargent then. People would come and say, ‘If you go to that left there, there’s a lot of [video] stuff.’ ” And Woody summarized the attitude in a 1972 New York Times article: “What is special about video art at this time is that it isn’t yet trapped in rigid rules. There are not yet any cliches, and the artists haven’t had time to develop the maincausal egos one finds in the other arts. All the video artists are like one big family and thinking about video’s big future.”

The video “family” was not homogenous, though. The Vasulkas were more interested in art and the counterculture...
than in politics. Consequently, they found themselves situated between the established artists, who were doing conceptual pieces in mainstream galleries and politically active community access groups. Referring to the people they met, Abe, Dan Sandin, Don MacArthur, and younger people like David Jones, Richard Brewster, Jeffrey Schier, and Ed Tanenbaum—all of whom have designed and/or built electronic devices for artists.

While a number of people in the late 1960s and early 1970s were interested in politics, nothing else.

The Vasulkas were shooting documentaries for the Alternate Media Center as well as compiling their own informal archives. Taylor Mead, Candy Darling, and Holly Woodlawn—dine, Taylor Mead, Candy Darling, and Holly Woodlawn—were a kind of countercultural happening circa 1969-71. In it, Jimi Hendrix performs a New Year's Eve concert at the Fillmore East; a group of Andy Warhol's actors—among them Ono, Taylor Mead, Carrie's Cleaning and Corona, and Woodlawn—argue viciously on the Susan Sontag show over whether or not they'd been exploited; there are scenes from a transvestite porn film; and an electronic keyboard player plays impromptu jazz in Washington Square—not to mention an assortment of other events that today elicit pure, unadulterated joy.

For the Vasulkas these varied activities typified American culture. In an unpublished 1978 document, they stated, "We were interested in certain decadent aspects of America, the phenomenon of the time—underground rock and roll, homosexual theatre, 'alternative' art schools such as Global Village. People's Video Theater, and Rancidance Corporation. Steina delineates these restrictions.

None of them were particularly interested in art, although they had art backgrounds....This was their anti-art statement...so that none of them were particularly interested in art, although they had art backgrounds. This was their anti-art statement...so that one of them was doing conceptual pieces in mainstream galleries and typically non-art museums.

In the evening, they had what they called a Live Audio-Visualtronicsound and electronic imaging operators on many of the tapes. Both audio and video signals are composed of electronic voltages, which can be manipulated to produce light images. Video, but they probably couldn't have had a more intellectual and irresistible environment. In the same department were Paul Shirey, Woody Stenhouse, and Tony Conrad—all timemakers who were in different ways, dealing with structures of moving images.

Our work is a dialogue with the tool and the image, so we wouldn't preconceive an image separately, make a conscious model of it, and then try to match it. We would rather make a tool and dialogue with the tool and then the image becomes a process design-the tool, and so do conceptual work as well.

The Vasulkas often speak of their work as a dialogue with the tools they use. In fact, tools are so central to their work that they often have to invent new tools because sometimes design-the tools, and so do conceptual work as well.

Behind the Vasulkas' particular decision was their desire to understand the inner workings of electronic phenomena. They didn't want to become administrators, keep them all under one roof, that Steina has called "knob twisting," but to illustrate that artists had certain choices in their tools and that they're the tools that are unique....It's liquid, it's shapeable, it's clay, it's an art mate-

The Electronic Kitchen opened on June 15, 1972 by George Brown and allowed them to deviate from the normal existence. It only has limitation when it reaches the screen because the screen itself is a rigid frame.
While the Vasulkas initially focused on two basic areas—hand and a sphere manipulate with a keyer, colorizer—and a programmer, a digital device which could store and replay a sequence of operations such as a switching or keying order. Between 1971 and 1974 the Vasulkas made several tapes utilizing these tools in increasingly complex configurations. Black Sunnite (1971), described by the Vasulkas as a "performance of energies organized into electronic images and sounds," is a construction of concept art because they looked like a moving version of modern abstract painting, which was then becoming unfashionable. The theory that Woody first articulated in the mid-'70s and has continually refined reevaluates not only cinematic form but also the way we look at images. We see the world through our eyes, the reality has total dependence on perception, on how images are formed in the eye. In other words, what we see represents an external representation of human vision, it has been equated with a truthful rendering of reality.

This visualization of the world to Woody, electronically-generated, non-camera images—based on neither the lens nor the eye—indicate the potential for a new visual code that would supplant the camera lens as the primary means of capturing images and project them with a perfectly spherical mirror at the center of the axis. On the monitors, the viewers see an artificially created 360-degree image. While the viewers see an artificially created image, however, the image is not real because the camera lens has come to represent an extension and a distortion of human vision. The rigid and total confinement of time and space in the mechanical image, in contrast to the flowing continuity of a single image, is what Woody is attempting to end. His pursuit was not so much the investigation of video's inherent properties as a formalist end in itself; rather, it was more phenomenological, directed at challenging culturally determined notions of what constitutes reality.

Meanwhile, Steina began to setup apparatuses designed to disassociate the camera from a human point of view. Habitually, by looking, we keep selecting, subjectively "zooming," and "frames" the space around us. I wanted to create a vision that can see the whole space at all the time... And if I too derived from my watching so many videotapes, videotaping an "individual delivering" you space... It was a challenge to me to create a space that would not deal with the discolorations of human vision.36

Signifying Nothing (1975), Sound and Fury (1975), and Switch! Monitor! Drill! (1976) are all documentaries of Steina interacting with studio set-ups in which two motorized devices were not simply not tools but the means of the movement of the other camera. The most complex of these is Switch! Monitor! Drill!, which consists of 13 scenes that visually combine the two cameras. Automated movements with assorted effects achieved by keying, switching, horizontal drift, and scan processing. The result is not merely technologically impressive, but cerebral: the delineation of the picture plane forces the viewer to make sense of the surrounding fragmented space. In these tapes Steina is observing the system observing her and repositioning herself in the space in response.

In the installations Attention to Nothing (1974) and No. 2 (1978-79), set up respectively at the Abreet-Knox Gallery in Buffalo and at The Kitchen, these installations become one of kinetic sculpture and audio-visual play. Two cameras are mounted on the ends of a slowly revolving axis with a perfectly spherical mirror at the center of the axis. On the monitors, viewers see an artificially created 360-degree image. The viewers see an artificial space in which everything is part of the "real" space; they can see at the same time see themselves in the "imaginary" dimension created on the screen.

The idea that video images were nothing more than electromagnetic energy constructed in time was central to Woody, and he made numerous tapes and films from 1974 to 1977 depicting the process. Many of these used audio and video noise as the image source. One of the clearest illustrations of what he called "time/energy objects" is found in The Matter (1974). In it a generated dot pattern is displayed on the raster. Three primary waveforms—sine, square, and triangular—are created. The Rutt/Etra and used to shape the raster display so that the dot pattern assumes the shape of each waveform. Woody illustrated these kinds of changes more systematically in a set of grid displays like still photographs that depict the various states of the raster when controlled by the primary waveforms in conjunction with the secondary processing. While these pieces were designed as reductive exercises, other tapes and films apply some of these principles to camera-generated images. Because the Rutt/Etra processes the signal in such a way that light energy—or brightness—can be converted to magnetic energy—or voltage—using a keyer and shape the signal, the image is a visual display that is simultaneously a display of information. AJoana GILL described the effect, "what one is seeing is a topographical map of the brightness of an image; where the image is bright, it forms the lines. [of the raster]; where it is black, they fade."

In addition to the Horizontal Drift/Variable Clock, Brown constructed a switch in 1971. He also made a cascading multi-keyer in 1973. Unlike most keyers, which key two images—one over another—the multi-keyer could key up to six images. This allowed images to be manipulated to create foreground-background relationships. In 1974 Brown also made a programmer, a digital device which could store and replay sequence of operations such as a switching or keying order. For the Vasulkas, however, their work was based on various abstract painting, which was then becoming unfashionable. They have all been made artificially from various free-floating principle defined. This tradition has shaped our visual perception, which I seem mostly as a camera obscura bound, or as pinhole organizes the world. Woody's pursuit was not so much the investigation of video's inherent properties as a formalist end in itself; rather, it was more phenomenological, directed at challenging culturally determined notions of what constitutes reality.

Woody's work with the Rutt/Etra, which he characterized as "the inevitable descent into the analysis of smaller and smaller time sequences," was a first step toward discovering a new code. The code was derived from nature, in that the devices he was using—in particular, the Rutt/Etra—were capable of revealing and displaying as waveforms the electronic properties of their input. These became available as sounds and images only when artificially processed by oscillators, and displayed on oscilloscopes or video monitors, or processed through devices like the scan processor. Hence Woody's pursuit was not so much the investigation of video's inherent properties as a formalist end in itself; rather, it was more phenomenological, directed at challenging culturally determined notions of what constitutes reality. Meanwhile, Steina took a different, though related, track in Machine Vision, a series of tapes and installations begun in 1975. By utilizing a variety of mechanized modes of camera control—originally built by Woody—for the Horizontal Drift Variable Clock the Vasulkas began to setup apparatuses designed to disassociate the camera from a human point of view.

The potential for a new visual code that would supplant the camera lens as the primary means of capturing images and project them was not new to the Vasulkas. In the mid-'60s they were part of a group of artists and designers who had set up apparatuses designed to disassociate the camera from a human point of view. They too were attempting to end the mechanical image, in contrast to the flowing continuity of a single image, is what Woody is attempting to end. His pursuit was not so much the investigation of video's inherent properties as a formalist end in itself; rather, it was more phenomenological, directed at challenging culturally determined notions of what constitutes reality.

inini hands Berliozan enevelope containing a commission for a new piece. The opening of the tape, we are told that toward the end of his life, Paginni lost his voice and had to speak through his "beloved illegimate son." The exactment of this relationship be-
comes a metaphor for interpretation but is also a device which aids the audience in apprehending the story. In the next scene, a gaunt Paginni whispers—the use of both audio and video effects as narrative devices. Im
tan, the extreme slow pace of some sections of The Com
mposition is completely maddening and frustrating. At the same
time, the work is so carefully structured and the texts so com
pelling that upon repeated viewing the viewer can discern various themes unfolding, binding together the materiality and the context as a whole.

The Commission is a metaphor for art-making as realized in
the story of two eclectics—the violinist Niccolo Paganini and the composer Hector Berlioz. Both are self-indulgent, like appearance suggest a tortured artist, who is abused and self-interested man. Similarly, Gusella's Chris
typal artist characters. Paganini, played by video artist Ernest Gusella, is a sickly, agonized, romantic figure, near death, who describes his grotesque, fantastic visions. Ber
l's case, his Berliozismuch like his other perfor-

cerning the main signifying units used in the film materi-

cinematic model for imagining: "The process of under-

cerebral and rather fussy character who speaks in abstrac-

ting to a narrative: "The process of un-

With the video, too, is carefully conceived. In one scene Pagan
nine hands Berlioz an envelope containing a commission for


From Cheektowaga to Tonawanda (1975) 36 min., color.

Signifying Nothing (1975) 15 min., black and white.

From program notes for an exhibition at The Kitchen, 1978-79.

Unpublished paper by Robert Haller.


43. Ibid., p. 49.

52. Ibid., p. 50.


55. Ibid., p. 106.

56. Hagen, p. 21.

SELECTED INSTALLATIONS

Steina and Woody Vasulka

Tattsee (1970) two channels, black and white.

Soundprints (1971) two channels, black and white.

The West #1 (1972) three channels, black and white.

The West #2 (1983) two channels, color.

Steina Vasulka


Switch/Monitor/Drift (1976).