# SOME NOTES ON VASULKA VIDEO – 1973-1974

BY

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*The following text is derived from program notes for a touring exhibition of videotapes in 1978.* The Moving Image Statewide: 13 Tapes by 8 Videomakers *(Steina and Woody Vasulka, Peter Campus, Cara deVito, Joan Jonas, Andy Mann, Bill Viola and William Wegman), supported by the University-wide Committee on the Arts, State University of New York, traveled to numerous of the 72 campuses within the SUNY system in 1978-79.* (Figures 1 and 2). *Steina and Woody Vasulka* (Figure 3)*, at that time co-producing all their works, were represented by five tapes from 1973 and 1974:* Vocabulary, The Matter, Heraldic View, Solo for 3, *and* Reminiscence.

*Some material has been incorporated from another touring exhibition,* Beau Fleuve*, a ten-hour video and film program by Media Study/Buffalo sponsored by The American Center, Paris, France, which was presented in Paris, Lyon and Marseille in December 1979* (Figure 4). *The Vasulkas were represented by a selected retrospective,* From Demimonde to Digital Images (1970-1979) (Figure 5), *including excerpts of their early documentary sketches of the New York underground, the collaborative electronic imaging works through 1974, and subsequent tapes made separately.*

*These notes were designed to describe, for an audience largely unfamiliar with video and, especially, abstract videographics, some of the custom-designed electronic tools, procedures and effects that the Vasulkas employed in their early works. From the perspective of this digitally-dominated age, much of the material herein described, involving analog tools and so-called "primitive" processes, may seem curious and quaint. It does, however, represent the state-of-the-art of electronic imaging of its time, and may therefore be useful from an historical vantage.*

*For this publication in Prague 28 years later (2006), I have added a brief identification and photograph of each tool designer, supplied illustrations of each tool and its diagram, and a photograph of each Vasulka work that was made with these tools. Woody Vasulka was at the center of that dialogue with tools.*

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The tapes of Woody and Steina Vasulka exhibit concerns quite unlike those of other artists represented in this programs (see above list). Their engagement with video over the past decade has been a consistent exploration of the electronic image – an investigation of the unique properties of the medium and the variety of ways in which images can be electronically generated, manipulated and modified. In their conceptualization about the nature of their basic material – the electronic waveform – and their development and integration of image-making techniques, the Vasulkas have described their process of working as more akin to that of the researcher than the artist (at least as the latter is conceived as the maker of previsioned aesthetic objects or expressive statements). Yet their self-reflexive use of video falls very much within a contemporary tradition of visual, musical and literary artists contemplating and extending the nature of their materials. The Vasulkas remain the foremost explorers of the television medium. This is not to imply that their work is primarily didactic, for the tapes exhibit a sparse but meaningful use of symbolic imagery, a subtle wit and an immense beauty. The Vasulkas' tapes also evidence the potentials of video to create new kinds of image experiences, while manifesting some underlying aspects of the medium which make these new types of imagery possible.

Crucial to the Vasulkas' experimentation in video has been the engagement with systems of new and specially designed video tools. Of this, Woody has said:

> Our work is a dialogue between the tool and the image, so we would not preconceive an image, separately make a conscious model of it, and then

> try to match it, as other people do. We would rather make a tool and dialogue with it; that's how we belong to the family of people who would find images like found objects. But it is more complex, because we sometimes design the tools, and so do conceptual work as well.[1]

The tools, often designed collaboratively with other electronic artists, include video synthesizers, colorizers and keyers, as well as techniques which, at that time, were unique to the Vasulkas' own work, namely horizontal drift and the interface between video and audio signals (all described below). One might say that the concept of feedback takes on a special meaning in the Vasulkas' work: an interaction with new tools leads to further conceptualization about the medium which then engenders the design and construction of more advanced tools. The video camera, the primary image source for other video artists, is simply another piece of hardware at the Vasulkas' disposal, neither preventing a tendency toward abstraction nor forcing their work into representational or, especially, narrative modes. Rather, the real images gathered by the camera provide a concrete point of reference against which the radical nature of electronic image processing can be considered.

As the first Vasulka tape included here is titled *Vocabulary*, the note might well be called "Glossary." What follows are general definitions of the specialized means and methods mentioned, some more generally known than others, central to the Vasulkas' work. The tools are the video synthesizer, colorizer and keyer; the techniques are horizontal traveling and the interface of audio and video signals.

**The Video Synthesizer** – Video synthesizer is a general term for a system of electronic modules that can generate and/or alter video imagery in real time. There are various types of synthesizers, more or less general purpose as regards their capacities for image manipulation. Some video synthesizers, like the famous Paik-Abe, are "Image Processors" (Figures 6a and 6b), dependent upon the input of live camera and pretaped images which they then transform. Image processing synthesizers usually perform the functions of colorizers and keyers (again, described below) as well as mixing many

inputs in complex ways and even abstracting and distorting representational imagery. Another type is the "Direct Video Synthesizer" (Figures 7a and 7b), like the one described by artist Stephen Beck (to whom this categorical distinction of synthesizer types is indebted[2]). Without the use of camera inputs, direct video synthesizers produce, solely through electronic generators, a full-color video signal which is most often displayed as abstract videographics such as Beck's "video weavings."

In 1973, the Vasulkas moved to Buffalo, with Woody accepting a position of Associate Professor at the Center for Media Study at State University of New York at Buffalo. At this time, they acquired yet another sort of synthesizer, a "Scan Processor" designed by Steve Rutt and Bill Etra (Figures 8a and 8b). The Scan Processor displays a video camera image on a small monitor built into its console and specially prepared to reorganize the television raster, or the 525 horizontal lines that make up the screen. This raster reorganization or manipulation is done by a process of *deflection modulation*. In an unaltered television, deflection circuitry regulates electromagnets (the yoke) which in turn guide the movement of the electron beam in a precise, regular scanning pattern of 525 lines, top to bottom, every $1/30^{th}$ of a second. The video screen of the Rutt-Etra Scan Processor contains a system of electromagnets and deflection coils into which the user can input signals which alter the scanning pattern of the electron beam across the face of the display in unusual, but predictable, ways. In *The Matter*, as an example, generated sine, triangle and square waves are used to reshape the display raster, and the image of the dot pattern alters accordingly into analogous wave shapes (Figure 9). The altered Rutt-Etra image must then be recorded by a second camera pointed at its display screen, in order to impart the proper TV timing information that allows us to re-view the image on a standard monitor.

The Vasulkas also used the Rutt-Etra Scan Processor in the making of *Vocabulary* (Figure 10) and *Reminiscence* (Figure 11), although in very different ways. In the latter, a portapak tape of a farmyard in Moravia, a place of reminiscence from Woody's youth, was displayed on the Scan Processor. The raster lines, according to their intensity, were

vertically deflected in varying degrees. The result of this process has been described as a "topographical map of the brightness of an image."[3]

**The Colorizer** – In black-and-white television (more properly known as monochrome) the picture is composed entirely of various intensities of light of a bluish-white nature. This signal is known in television terminology as the *luminance* signal. It coveys information of values (brightness). With color television an additional information-bearing signal is used to convey the hue (wavelength of the color) and saturation (intensity of the color) information, called the *chrominance* signal, or chroma.[4]

A Colorizer is an instrument with which "artificial" electronic color can be added to a black-and-white picture. Through internal circuitry, a chrominance signal, or signal subcarrier containing color information, is electronically generated and integrated with the monochrome luminance signal. In real time, the user can select colors of specific intensities as well as the areas of the monochrome picture into which each color is to be inserted. The same color will be placed in all those areas of the black-and-white picture with the same gray value. For example, one could decide that all areas of the lowest luminance – dark gray to black – will be colorized blue, while areas of white, or the highest luminance, are turned orange, red, green, or any other color from the electronic pallette.

Colorizers of the type described above are not particularly conducive to the simulation of naturalistic tones. Artists using Colorizers have, in fact, tended to exploit the nonrealistic aspects of electronic color, using vivid, deeply saturated hues, some of which exist nowhere in the world except on a video display. By comparison, with the colorizing techniques of other artists, the Vasulkas' use of Eric Siegel's "Dual Colorizer" (Figures 12a and 12b) is controlled, almost subdued in effect. Nevertheless, portions of *Vocabulary* and *Heraldic View* (Figure 13) provide a sense of the unique and brilliant colors available by this type of video instrument.

**The Keyer** – A Keyer is a tool which allows the user to "cut out" portions of one video image-signal and replace them with portions of another of another. (It is an effect seen commonly on television news, as the footage on the large display screen behind the newscaster is "keyed" in.) The basis of keying, similar to that of colorizing, is a comparison within the circuitry of the Keyer between voltages, or luminances. More simply, the user of the Keyer decides upon a *threshold level* of brightness, and that any portion of an image-signal of a brightness above or below that threshold will be replaced by a second image input. The effect is often seen as one of revealing the second image as though it were behind the first; in actuality, we are seeing a special type of composite of two video signals (e,g., the sense of layering or depth is illusory).

The Vasulkas use George Brown's "Multikeyer" (Figures 14a and 14b) in *Vocabulary*, *Heraldic View* and *Solo for 3*. In *Heraldic View*, the "openings" on the drifting abstract pattern which reveal the colorized camera image of a brick wall are keyed effects, with voltages generated by an audio synthesizer (also creating the soundtrack) controlling the size and rate of the openings. The appearance of electronic textures behind the ball and hand in *Vocabulary* is a similar example of keying. The Multikeyer which the Vasulkas use is also capable of more complex functions, such as the "layering" of the different sized numbers in *Solo for 3* (Figure 15).

**Horizontal Traveling or Drift** – Horizontal traveling or drift is the result of the retimed horizontal drive of a video camera, a "tampering" with standardized technology to make apparent the existence of a frame, like that of film, in television, and the dynamic properties, unlike film, of this electronic frame. (The television image, rather than a series of fixed celluloid pictures, is a continuously evolving and decaying sequence of lines being tracked by an electron gun on a phosphor-coated television screen. The movements of this stunningly rapid electron gun are "normally" regulated by horizontal and vertical control signals, which insure a stable, non-drifting image.) Horizontal drift is a technique special to the Vasulkas' early work, and it continued to appear in Steina's later *Machine Vision* works.

In the austere and elegant *Heraldic View*, all of the described video processing techniques – image generation, colorizing, keying and horizontal traveling, are combined with a fifth – sound and image interface.

**Audio/Video Interface** – Steina has said that the "art materials" of their work are video and audio signals, voltages and frequencies.[5] Of their early tapes, Woody elaborates:

> What was really, truly significant to us at that time was something nobody really detected. That was to make pictures by audio frequencies, and to get audio frequencies out of pictures.[6]

Although in none of these works is the sound totally derived from the image, or vice versa, the signal generating one is a means of controlling the other in *The Matter, Heraldic View* and *Solo for 3.* The waveform-generated signals that reshape the dot matrix in The Matter are also the source of the electronic soundtrack. In both the aforementioned *Heraldic View* and *Solo for 3*, voltages from audio synthesizers control aspects of the image. In the former, the audio signal controls the keying of the image and, in the latter, the sequencing of different cameras which are viewing, at different ranges, the number "3" is determined by the sound source.

1974 marked the end of Woody and Steina's collaboration for a time, with Woody initially becoming more involved in the theory of the electronic image based on his work with the Rutt-Etra Scan Processor:

> Compared to my previous work on videotape, the work with the scan processor indicates a whole different trend in my understanding of the electronic image. The rigidity and total confinement of time sequences have imprinted a didactic style on the product. Improvisational modes have become less important than an exact mental script and a strong notion of the frame structure of the electronic image. Emphasis has shifted

> towards a recognition of a time/energy object and its programmable building element – the waveform.[7]

In 1975, Woody began to build "The Vasulka Imaging System" (Figures 16a and 16b), a digital computer- controlled personal facility which continues to evolve. The digital system, developed by Vasulka with digital design by Jeffrey Schier, utilizes a high-speed digital computer specifically intended for the manipulation and processing of television images. This investment of time in design and theoretical work on digital imaging is presented in "A Syntax of Binary Images," published in *Afterimage* (Rochester, NY) in Summer, 1978 (Figures 17a and 17b). The Vasulka Imaging System has been a tool for both and Woody and Steina, individually and collaboratively.

A series of short pieces, provisionally titled *Digital Images* (Figure 18), shows the early fruit of imaging experiments on a system still under development. The complex beauty that these fragments display, and the possibilities they suggest, point the way to future explorations of the electronic image by the Vasulkas.

1978-79/2006

John Minkowsky (Figures 19a and 19b) was one of the first curators who regularly selected, exhibited and wrote about the new video art. He was Video/Electronic Arts Curator and Music/Audio Arts Programmer at Media Study/Buffalo from 1976 – 1984. He was the Co-Director of the conference, *Design/Electronic Arts* in 1977, and wrote and edited the extensive catalogue for the traveling show, *VIDEO/TV: HUMOR/COMEDY* in 1983, as well as early essays on the works of Bill Viola, Tony Oursler, Ernie Kovacs and Bart Robbett. He was guest curator of exhibitions at the Hudson River Museum, the Fort Wayne Museum of Art and the Whitney Museum of American Art.

He was awarded grants for writing and criticism from the New York State Council for the Arts and the Indiana Commission for the Humanities, and a research travel grant from the

National Endowment for the Arts, and has taught for the Department of Media Study at the State University of New York at Buffalo, the Visual Studies Workshop in Rochester, the Maryland Institute College of Art in Baltimore and the San Francisco Art Institute. In 1990, he held an Andrew Mellon Fellowship in Arts Criticism in the Division of Critical Studies at the California Institute of the Arts.

He is currently a freelance media arts critic and consultant, has recently worked for Steina and Woody Vasulka and the Zentrum fur Kunst und Medientechnologie in Karlsruhe, Germany, and is researching the experimental video works made at public television centers in San Francisco, Boston, and New York in the 1960s and '70s.

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[1] Gill, Johanna, *Video: State of the Art* (NY: The Rockefeller Foundation, June 1976), p. 48.
[2] Beck, Stephen, "Image Processing and Video Synthesis" in *Video Art: An Anthology*, Ira Schneider and Beryl Korot, eds. (New York: Harcourt, Brace, Jovanovich, 1976), pp. 184-7.
[3] Gill, p. 49.
[4] Beck, p. 186.
[5] Gill, p. 47.
[6] Ibid.
[7] Cathcart, Linda L., *VASULKA: Steina Machine Vision ν Woody Descriptions* – exhibition catalogue (Buffalo, NY: Albright-Knox Art Gallery, 1978), p. 33.

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**Individuals Cited Above**

**Shuya Abe** (Figure 20) was working in the Research and Development Section of a Tokyo broadcast station and had developed a video amplifier. In September 1969, Nam June Paik approached him in Tokyo with diagrams for a video synthesizer, which they later created collaboratively while artists-in-residence at WGBH, Boston's public television station.

**Stephen Beck** (Figure 21) came from a background in electrical engineering and electronic music when he constructed his first analog Direct Video Synthesizer (1969-70) while an artist-in-residence at the National Center for Experiments in Television of public television station KQED in San Francisco. In 1974 he created the digital Beck Video

Weaver, and has since founded the Beck-Tech Corporation for microelectronic research and development.

**George Brown** (Figure 22) served in the United States military during the Vietnam War and did electronics design for C.T. Lui Electronics, an early New York City supplier of video equipment to artists, and for the Vasulkas. He later served as an assistant engineer to John Godfrey at The Television Laboratory at WNET-13 in New York.

**Bill Etra (**Figure 23), co-creator (with Steve Rutt) of the Scan Processor Video Synthesizer for raster manipulation (as well as other video instruments), is also a video artist whose tapes and installations have been exhibited at the Whitney Museum and the Museum of Modern Art in New York City, as well as other museums worldwide. He has received grants for his videographic work from the Rockefeller Foundation, the National Endowment for the Arts, and the New York State Council on the Arts.

**Nam June Paik** (Figure 24), who was an electronic music composer and a central figure in the seminal international Fluxus movement in the 1950s and 60s, is often considered the "father" of video art. As the single figure whose videotapes and installations have the been most widely exhibited and collected and the recipient of many awards and honors, his individual accomplishments are too numerous to mention. He has been the subject of major retrospectives at the Kolnischer Kunstverein in Cologne (1976), the Whitney Museum of American Art (1982), and the Guggenheim Museum, Ho-Am Gallery and the Rodin Museum (2000).

**Steven Rutt** (Figure 25) began his career in telecommunications in the 1970s as co-designer and manufacturer of the Rutt-Etra Video Synthesizer, which employed proprietary analog computer technology to perform real time three dimensional processing of the video image, and, later, the Video Image Repositioner, as well as many other electronic devices and systems. Through Goodman/Rutt Exhibits and Technologies, he has worked with some of the world's leading museums and arts institutions, entertainment producers and innovative corporations organizing comprehensive exhibits, developing innovative software solutions and displays - both personal and environmental – and designing entire corporate broadcast studios.

**Jeffrey Schier** (Figure 26) was a design engineer for the Vasulkas, and facilitator of the software/hardware interface of a variety of special video processing tools with a microcomputer. He later designed and implemented the Vasulka Image Articulator that has been widely employed by both Woody and Steina. He has since developed numerous instruments for industrial and personal use.

**Eric Siegel** (Figure 27) invented the Processing Chrominance Synthesizer in 1968, the Electronic Video Synthesizer in 1970 and the Dual Colorizer in 1971. His groundbreaking tape, *Einstine* (1968), was among the first to use feedback and synthetic color to create "psychedelic effects," and was exhibited at the Howard Wise Gallery and elsewhere.

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