

THE VASULKAS

C A T L O G U E

Vasulka Catalogue

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Steina and Woody Vasulka:
Exploring the Phenomenology of the Electronic Image

Marita Sturken

The machine has constituted an important subject for artists since the industrial revolution. The rise of technological art forms, however, has raised questions about the act of collaboration with the machine. For Steina and Woody Vasulka, the creative process represents a "dialogue with the machine," in which they are not masters of a tool but receptors of its capabilities. Woody has said, "I have to share the creative process with the machine. It is responsible for too many elements in this work."(1)

It is at the rupture between the mechanical and the electronic that the importance of the Vasulkas' work is best positioned. Their work poses crucial questions not only about the role of the machine in the creative process but also about what constitutes the electronic image, and how electronic space, with its level of abstraction and spatio-temporal dimensions, is redefining established concepts of space and time.

In the work that they have produced collaboratively and as individual artists over twenty years, as multi-monitor installations or single-channel videotapes, the Vasulkas have pursued a phenomenological project of systematically deconstructing the properties of the video medium. Their work reveals a continuing concern with the process of electronic imaging. As such it provides a map of the principles that distinguish the electronic image from the legacy of film and

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photography. Theirs is, in many ways, a modernist project--to define the aesthetic language of a particular medium and to distinguish the properties of that medium in relationship to other systems of visual representation. Their work might be seen as offering a primer on the possibilities of image manipulation in video; indeed, it is often read as merely systematic and didactic. Yet any strictly formalist reading of the Vasulkas' work offers a reduction of its complexity. Each work reveals a journey into the phenomenology of electronic imaging, one in which we as viewers follow the Vasulkas as makers.

The Vasulkas came to the United States in 1965. Woody, who was born in Brno, Czechoslovakia, had studied engineering and film. Steina, from Reykavik, Iceland, was a classical violinist. In their work as collaborators and individuals, their diverse cultural and artistic backgrounds have influenced their approach to video as a moving image medium. Woody has been concerned primarily with the construction of a new visual code as distinct from the cinematic code of representing the "real." Like semioticians of the cinematic image, Woody is primarily concerned with mapping the intrinsic meanings embedded in specific image forms. He is also interested, however, in applying those codes as a means of reinventing narrative and anti-narrative structures. Steina has concentrated on the mechanisms of the camera itself, systematically setting up complex systems that, in effect, imitate basic camera movements--pan, tilt, zoom--in order to redefine space.

The specter of cinema looms over considerations of the phenomenology of video as a medium. Video inherited from film certain codes--camera movement, editing techniques, and the image frame. The electronic nature of the video image, however, irrevocably distinguishes it from the photographic nature of cinema. Woody states, "Each medium of the future will play host to the phenomenology of the moving image, which will live through that medium to the next medium, accumulating the language of each."⁽²⁾ Nevertheless, we bring deeply embedded and very different cultural associations to film and video images. Whereas the electronic image is still coded as immediate--the instantly transmitted, live television image--cinematic images, especially black-and-white film images, can increasingly be read as the past. In Art of Memory (1987-88), Woody poses this distinction when he places black-and-white archival images of the Spanish Civil War and World War II against a video tableau of the landscape of the American Southwest. These images exist as separate time frames--the electronic and the cinematic--the past set within the present.

In their early experiments with video, the Vasulkas were interested in manipulating the electronic signal without actually generating images from the camera. Many of these early experiments involved explorations of multi-monitor matrixes and the alliance of sound and image specific to electronic technology, in which both audio and video signals are comprised of waveforms. Playing off the notion of the image originating in sound, rather than sound mapped onto the image as in cinema, the

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Vasulkas produced a number of works in which both images and sounds were derived purely from the machine. Matrix (1970-72), which is a composite of works designed for multi-monitor matrixes, exemplifies these early experiments. Here, the Vasulkas examine the process of realizing sound visually, generating abstract audio and visual images simultaneously. In Matrix, shapes and forms skid, roll, and metamorphose across multiple screens like sound traveling through geometric space to our ear. In these matrixes, the Vasulkas reduce the image and the sound to their bare essentials in order to examine the essence of the electronic image and sound--the signal.

A central aspect of Woody's project has been to distinguish film and video through an examination of the frame. The cinematic image is constructed of individual still frames that are recorded and projected at the speed of twenty-four frames per second. Whereas film is rigidly structured on the frame, the video image is not essentially confined within the frame. Woody has remarked that while registration of the film frame is mechanical and is locked into a vertical framework with no notion of horizontality, the video frame is not so mechanically restricted. One of the Vasulkas' first experiments with the video image was to release the video frame from its standard position and allow it to drift horizontally, a property they discovered by accident. An early tape, Evolution (1970), humorously plays off the effect of horizontal drift with the

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evolution of moving image technology (from praxinoscope to film to video). In this work, an image of the standard chart of human evolution (the image of Cro-Magnon man and Homo sapiens so engrained in our memories) is released so that it moves backwards--rewinding across the frame and in time. Horizontal drift has remained an important motif in the Vasulkas' work (it forms a central element in The West [1983]) as a property specific to the electronic image.

This notion of the video frame as liberated from the rectangular frame of the camera viewfinder is important in Woody's work. He states, "I recognize video as frame-bound and frame-unbound. In frame-bound video, you're basically following the cinematic reliance on the frame. Cinema can't leave the frame unless it makes a special effort. But with the new generation of tools in digital video, it is possible to remove the image from the frame and treat it as an object."⁽³⁾ The frame-unbound video image can be manipulated like a sheet of paper on the video screen or reshaped into an object like the archival images in Art of Memory, and thus released from its role as a representation of reality. Indeed, while he situates video in terms of its inheritance from cinema, Woody's project can be seen as an attempt to release video from its bonds with film.

Since the mid-1970s, two tools have been influential in Woody's aesthetics as instigating factors and receptors of his style: the Rutt/Etra scan processor (designed by Steve Rutt and Bill Etra), which Woody acquired in 1974, is a device used to reduce the electronic image to its component scan lines,

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rendering a topographic effect to the imagery. When an image is seen through the Rutt/Etra, it is visibly reduced to its electronic waveforms (the basic element of the video signal), forming a kind of skeletal image; the light density of the image is spatialized (the bright areas of the image are raised, the dark areas lowered) and rendered three-dimensional. The Rutt/Etra forms the primary imaging motif in Woody's tapes, Reminiscence, C-Trend, and Telc (1974), where the mapping of the landscape creates an almost surreal environment, one filtered through layers of memory and association.

Lucinda Furlong has written,

According to Woody, electronically generated non-camera images--based on neither the lens nor the eye--indicated the potential for a new visual code that would supplant the traditional lens-bound mode of visual organization which has come to be accepted as most "real"... Woody's work with the Rutt/Etra, which he characterized as 'the inevitable descent into the analysis of smaller and smaller time sequences,' was the first step toward discovering a new code.(4)

This attempt to identify a visual code and to use a linguistic model for understanding the construction of the electronic image inevitably led to the design of his own machine. In 1976, Woody began working with Jeffrey Schier to build what would become known as the Digital Image Articulator, a digital imaging device designed specifically to manipulate electronic images via certain codes and to process imagery digitally in real time.

This step, from analog electronics (in which manipulation of the image is produced through a regulation of voltage changes) to

digital electronics (in which the electronic signal is constructed in discrete picture elements, or pixels, which are retrieved at specific intervals) was a major technological and aesthetic step for the Vasulkas. For Woody, the precision of the digital image both inspired and dictated an exploration into the vocabulary of images. His examinations of electronic syntax underscore the fact that language is an arbitrarily constructed code. Inevitably, the electronic language he envisions is mediated by the machine.

From these concerns with the fundamentals of language, it was perhaps inevitable that Woody would turn to the issue of narrative structure. As historian Louis Mink has noted, the narrative form is not intrinsic to human experience: "Our experience of life does not itself necessarily have the form of narrative, except as we give it that form by making it the subject of stories."(5) Yet narrative hovers over all visual representations. Despite their didactic and formal aspects, the early works of the Vasulkas also contain narrative elements. Highly manipulated images of the Czechoslovakian landscape in Reminiscence (1974) form a narrative of the past, seen through the murky veil of the present in which certain elements are highlighted via the Rutt/Etra scan processor--drawn out like memories and made three-dimensional and vivid--while others recede. In Switch! Monitor! Drift! (1976), Steina's methodical deconstruction of the electronic space via rotating cameras contains elements of suspense and the search for a resolution.

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Yet, in Woody's most recent work, it is the artificiality of narrative--the way in which narrative structure is imposed onto human experience--that forms his central subject matter.

Woody's concept of narrative is a highly ambivalent one, replete with anti-narrative strategies. Having grown up in Eastern Europe in the 1940s and 1950s, he sees narrative structure as inherently political and restrictive, representative of the voice of the state, and without nuance. He says,

We all knew about how narrativities are constructed and symbolic language. In communism you must disguise everything in symbolic language so it is a fluid form of expression. I wanted to purge it. I came here to be free of it and that's why it's a continuous temptation I have with narrativity--I cannot accept or practice it.(6)

The Commission (1983) and Art of Memory (1987-88) are works that have been heralded as Woody's entrance into narrative, yet the structure of these works is deliberately made problematic. In writing The Commission, Woody looked for the most "banal story of the nineteenth century, to pay tribute to the nineteenth century with an incoherent text, a kind of free treatment of real-time panels." He chose the "banal story" of two male art heros--composers Niccolo Paganini and Hector Berlioz--to explore the construction of a meaningful image.

The Commission is a complex montage of narrative and anti-narrative strategies. The "story" is concerned with the role of the artist (or rather the tragic consequences of the roles in which western society places artists--as the martyr, the starving genius, or the prima donna, dependent on patrons and government funding) and the tainted act of art-making. The central plot of

The Commission, however, is actually the way in which specific electronic imaging techniques can be used to represent meaning and symbolize narrative intent. The tape begins with a scene in which Paganini, who has lost his voice, whispers a strange and evocative speech about his life to his son, who attempts to repeat his words. Here, images burst forth to fill the frame from a central point on the screen, to create a cascading image stream of consciousness to embody Paganini's ramblings. As Paganini plays the violin, digital sampling is used to create shadowing of his movements, which trace the shape of the music. When Paganini hands an envelope containing a commission to Berlioz, a flip/flop technique (a primary motif in much of Steina's work) is employed, so that two images of Berlioz and Paganini circling each other switch rapidly back and forth to emphasize the tension of the exchange. Finally, the Rutt/Etra is used to create a skeletal feeling as Paganini is embalmed. In effect, an imaging motif is used to represent death.

Many of the techniques used by Woody in The Commission can be read as strategies not only to release the video frame from the video screen, but also to avoid the cut--the editing structure inherited by video from film. Since he identifies the strategies of montage and decoupage with the cinematic medium that spawned them, Woody's strategy is to avoid any instance of cutting directly from one image to another. Instead, he creates images that burst forth from the center of the frame, long segments shot in real time, and accentuates the fluidity of the

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video image.

This attempt to discover a new method of combining images is taken even further in Woody's more recent work, Art of Memory, in which an attempt is evident not only to release the video image from the boundaries of the frame, but also to turn the image into an object. In Art of Memory images are shaped into three-dimensional objects to remove them from any reference to representations of the "real." Woody states, "For me to truly believe again in the legacy of film, a new medium has to be constructed. First I was betrayed by politics, because at one time I did believe in a political possibility, and secondly I was betrayed by film, because I see now the hidden agenda, film as a mass-cultural product." This is Woody's goal, however utopian: to construct a medium in which strategies can be used to counter the use of the image as a propagandistic, mass cultural product, and formulated to construct image objects; to create objects that defy a fetishistic role.

Art of Memory reflects on specific major upheavals of the first half of the twentieth century that led to the atomic age, and the way in which the construction of memory and history is mediated through the camera. Art of Memory goes beyond the anti-narrative intent of The Commission toward a new kind of nonlinear narrative strategy, one in which the historical narratives of World War II, the Spanish Civil War, and the Russian Revolution are reconstructed and reformulated against classically beautiful panoramas of the American Southwest. Working primarily with the Digital Image Articulator and the Rutt/Etra, Woody transforms

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newsreel footage and documentary photographs into multi-sided shapes set against the saturated hues of canyons and rock formations. Image forms stand out from the landscape as cinematic artifacts, refusing to conform within electronic space.

It is the form of Art of Memory that underscores most profoundly not only the malleability of historical images, but the differing cultural representations of film and video. Woody has perhaps succeeded in forcing the viewer not to read these images in a traditional narrative structure, but to see the surface of the image. Each frame contains several time frames; each is, in Woody's terminology, both polytopic--in which the various codes combine to define these historical events--and polychronic. Images of Europe set against the dry forms of the American Southwest seem incongruous yet timeless: the desert landscape is the emblem of time passed yet still present within the earth. The desert is also an icon of nuclear destruction, symbolizing the postnuclear landscape. Hence, intimations of the atomic age are replete in this work, specifically references to J. Robert Oppenheimer and charged images of bomb tests set against the desert landscape.

Western culture has long been preoccupied with visual and spatial metaphors for memory and knowledge.(7) Early techniques situated memories within specific places, and employed the use of mental objects to aid recall. The inherent relationship of visual image to memory underscores the powerful role played by the camera. History is no longer represented to us as the word;

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rather it is the camera image that provides us with cultural memory. The fragmented film images that form Woody's image objects and the static photographs of figures of history--from the anarchist Durruti of the Spanish Civil War to the revolutionary Rosa Luxembour--that roll and unfold across the screen are artifacts that circumscribe and redefine history within electronic space. Hence, Art of Memory reflects not only on the memory of these historical events, but also on the historical role of cinema.

While the journey that she has taken through the phenomenology of the video image has led her through very different terrain from Woody, Steina's most recent work touches on similar issues. In her work, the Southwestern landscape, and what it symbolizes about the passage of time and memory, is also a constant presence. For Steina, however, history is inscribed not in fragments of archival footage but within nature; it is not the history of human beings, but the history of the land, of geological processes, of fire, water, and earth.

Steina's conceptualization of the machine is distinct from Woody's perception of a collaborative relationship between artist and tool. She states,

The difference in our backgrounds is that Woody was a seasoned image-maker; the image was not a secret to him, for him the whole magic of video was to discover the signal. But I was interested in how the image was made. Having been an instrumentalist in music, I regarded the camera as an instrument from the beginning... From my own camerawork, I saw that you are subjected to a very heavy editorial view. I started very early to think about how much better it

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would be if the camera image was not subjected to one person's vision.(8)

Violin Power (1970-78) demonstrates Steina replacing the violin with the video camera. The tape, which begins with a straightforward image of Steina playing the violin and progresses over time from black-and-white to color, is a complex study of the relationship of sound and image. Steina rigs her violin to imaging devices so that the music not only transposes the image, but actually generates it. Here, the fusion of music and image, of sound and visual, transgresses common distinctions between the two.

Since the mid-1970s, Steina has been working on a project called Machine Vision, a group of tapes and installations concerned with finding a camera view that moves beyond the idiosyncracies and restrictions of the human eye. Central to this series is an attempt to release the image from human vision and redefine space. The installation Allvision (1976), which consists of two live rotating cameras facing a mirrored sphere, is designed to restructure the space of a room so that the viewer's position within that space is always mediated through the machine. Through the reflective sphere, the cameras scan the space and remap it. The image of the viewer entering the space of the installation is thus transposed via the mirrored sphere into the abstract image space of the monitors, a space in which they are seen in a rotating cycle by the camera mechanism. Allvision redefines the space surrounding it so that concepts such as inner/outer, left/right, forward/backward, and up/down

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are transgressed. It places the viewer metaphorically within abstract electronic space.

Steina states,

The cameras alone scan the whole room. The idea was of course that the whole room can never be perceived or understood by human vision. Inserting the sphere in between emphasized the absurdity. When I mount the camera on the car, I define it as Machine Vision, but when I use the sphere, it is the concept of Allvision.

While knowing the impossibility of this task, Steina attempts to strip the camera of intentionality and to detach it from human intervention. She presents this to us as a kind of half-joke in which we as viewers are always complicit.

Machine Vision is also an attempt to release the specific components of camera movement into the environment. Throughout the 1970s, Steina worked through this process, with tapes in which she orchestrated increasingly complex machine setups. First, she fixed the cameras, then she rotated them on turntables, and then she added mirrors and other optical devices. The results were a rediscovery and redefinition of the actual codes of cinematic movement--the pan, the tilt, and the zoom. In reinventing these codes, and representing them within this mechanical framework, Steina strips her video work of its relationship to cinematic language. Instead, she presents a self-reflexive camera vision in which the movement of the camera is divorced from narrative meaning.

The tapes of Machine Vision, which include Signifying Nothing (1975), Sound and Fury (1975), Switch! Monitor! Drift! (1976), and Snowed Tapes (1977), are process tapes, permeated with

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the spirit of exploration. Each tape is a journey, in which Steina is both actor and director, and the process is presented to the viewer in real time as conceptual thought. Using her body as a mediating force and a kind of found object, Steina moves within the spaces defined by her camera mechanisms, creating a tangible presence--the mechanical within the electronic.

In later works, such as Summer Salt (1982), this exploration of the mechanical and the body within electronic space is mediated through the mirrored sphere. Like Woody's image objects set against a landscape, Steina's mirrored sphere transposes images out of the standard frame. Horizons become circles, simple landscapes appear to form microcosms, orbiting within the frame. By transforming the rectangular video frame into a circle, Steina blocks our reflex to read the camera image as a window on the world. In Somersault, a section of the tape, she humorously performs gymnastics while holding the camera inside the mirrored sphere, decentering the viewer's sense of gravity and inserting her body as an active force within the frame.

Perhaps because of her background as a musician, Steina tends to treat content ambivalently; rather it is space that is important to her work. For Steina, whether that space is her studio or the landscape of the Southwest is initially unimportant; of significance is how a space can be redefined. After the Vasulkas' move to New Mexico in 1980, Steina began to work within the landscape. While landscape is now a central theme for Steina, the important concept is not the tradition of visual representations of landscape, but the way different

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landscapes can be remapped and redefined through her machine mechanisms. She says,

I moved here because I wanted to experience what it is to live in beauty. I did not want to think that it was going to affect my images as much as it did. For the first two years I resisted it. First of all because the beauty of the West is so seductive. And, secondly, I didn't feel up to it. I mean are you going to take God on? I had always had large interiors in which to work, and suddenly we were restricted to a small house. I just went outside one morning and said, "Well, my studio doesn't have any walls and the ceiling is very high, and it's blue." I just adopted the whole Southwest as my studio. So that's when I made my peace with the idea that the landscape of the Southwest was going to be my image material.(9)

Steina's best-known work, and the first to deal with landscape, is The West (1983), a stunning two-channel installation (with sound by Woody) that embodies many of the Vasulkas' central themes. It is the relationship of the desert landscape to time that interested Steina the most in The West-- the way in which the human imprint on the land was not washed away but etched into the earth to remain for centuries. These conditions allowed the presence in New Mexico of various scientific enterprises, including the Very Large Array (VLA) radio telescope systems that stand like huge disks listening in the desert. Thus, the primal Southwest landscape constitutes a mapping of technological change, a symbolic indicator of the progression from the human mapping of the land to the mapping of space.

In The West, Steina recomposes the immobile landscape of the Southwest into movement. Working with a visual motif of horizontal drift, Steina orchestrates two channels of video so

that two constantly sliding and overlapping images give the impression of the video frame in constant motion, released from the bonds of the screen. Reformed into the circular shape of the mirrored sphere, the desert landscape takes on global proportions; it becomes a microcosm of the world, spinning and revolving, with no horizon, in which Indian ruins (as inscriptions of the past) stand in sharp contrast to incongruous, space-age telescopes.

This reconfiguration of the land is furthered in Geomania (1989), in which Steina uses the electronic image to transcend geography and combine disparate environments--the desert of the Southwest and the volcanic formations of Iceland--in a paradox of landscape. Images wash through the dry desert in waves, the steam and gases of the volatile Icelandic landscape and viscous lava rock unfold on the screen. Steina sets up dichotomies and then dismisses them. One is encouraged to see the global interplay of the earth. The ancient land of the Southwest represents the accumulated time of the earth--it is slowly eroding land, etched with the refuse of time; the bubbling energy of the Icelandic terrain is the formation of solid from liquid, the birth of the land from sea and the beginning of the earth. Each connotes the extreme spectrum of the earth's cycle, yet both are fused to present the earth as a regenerating force, as a living organism. Here, the landscape is not rooted in gravity, it is amorphous, malleable, and changeable. Embedded with layers of geological time, it is simultaneously death and birth; it

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transcends time.

Yet within all of Steina's work, the primary focus remains a reconfiguration of the viewer's relationship to space. From the redefinition of space in Allvision, which ultimately presents the viewer with a bridging of real and abstract electronic space, to the geographically transcendent space of Geomania, Steina's work repositions the viewer in relationship to the image. In these works, there is no central point of perspectival vision, no center from which the viewer posits his/her self, but rather a construction of space in which the viewer is floating within the rotating spheres of land and studio space, ever in motion, never at rest. The viewer's sense of self as constructed by Steina's work, surely a postmodern self, is constantly shifting, defined not by physical space and geometry, but from somewhere within electronic space. Above all, Steina's work presents us with space not defined by mechanical presence or rooted to the photographic, but the space of transmission and reception, space formulated as time with no physical boundaries.

Finally, however, it is the issue of temporality that is the central concern of both the Vasulkas in their work. From the beginning, their work has been structured in opposition to common notions of aesthetic and narrative time. The slow and methodical pace of many of their early single-channel works represents a different time structure, one governed not by plot or aspects of narrative structure but by process--the tape lasts only as long as it takes to follow through a particular discovery. In Snowed

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Tapes (1977), for instance, Steina walks the viewer through a series of image progressions--beginning with a single, rotating camera, then walking around the camera with another camera, and combining the images so that several rotating views slowly converge. This is not narrative time but phenomenological time--the pace of the process of unearthing the phenomenology of the image. Phenomenological time is thus a time frame in which the viewer's perception of the image is correlated with the artist's, and the unfolding of the process is revealed to both simultaneously. In Woody's work, the issue of temporality has become increasingly complex: time is conceived not as a single process but as a matrix of several levels. In The Commission linear narrative time is thwarted, and in Art of Memory different time frames are simultaneously at play, from the historically coded, edited time of the film footage, to the static time of the photographic image, to the transcendent time evoked by the landscape. Beginning with the playful reorchestration of time in Evolution, the Vasulkas' work has moved toward a reconceptualization of linearity, cause and effect, and the spatialization of time. In the trans-geological space of Geomania and the trans-historical space of Art of Memory we find a new way of perceiving the unfolding of events--one that reflects the experience of living in an electronic culture.

1. From the videotape Artifacts (1980).
2. From an interview by Gene Youngblood and Peter Wiebel, October 12, 1986.

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3. Ibid.
4. Lucinda Furlong, "Notes Toward a History of Image-Processed Video: Steina and Woody Vasulka," Afterimage, vol.11, no.5, December 1983, p. 15.
5. Louis Mink, Historical Understanding (Ithaca, NY: Cornell University Press, 1987), p. 186.
6. From an interview by Marita Sturken and JoAnn Hanley, July 24, 1987. Unless otherwise noted, all subsequent quotes are from this interview.
7. See Frances Yates, The Art of Memory (Chicago: University of Chicago Press, 1966).
8. From "Studios," in Steina & Woody Vasulka: Videastes 1969-1984: 15 Annees d'images electroniques, edited by Dominique Willoughby. (Paris: Cine-MBXA/Cinedoc, 1984).
9. From an interview with Steina by MaLin Wilson for the exhibition brochure, Scapes of Paradoxy: The Southwest and Iceland (Albuquerque: Jonson Gallery, University of New Mexico, 1986).

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Reading the Tools, Writing the Image

Maureen Turim and Scott Nygren

During the 1970s, Steina and Woody Vasulka helped define the parameters of video art. Like other artistic work that emerges at a juncture between established and new media, their work is infused with the rhetoric of its origin. This retrospective of their invites a reconsideration and allows us to speculate, by means of textual analysis, on underlying theoretical formations in their tapes.

The Vasulkas' video was conceived in the context of late 1960s rhetoric that celebrated involvement and exploration. In these terms, individual videotapes did not so much have intrinsic worth, but emerged as the by-product of a largely intangible generative process. Recordings were imagined as supplemental, analogous to the notes of physicists or anthropologists exploring an unknown domain. The central invisible concern remained the exploration of the electronic field, forever deferred and absent to the viewer of tapes. This rhetoric of process helped by pass critical methods of formalist analysis and authorial style still strong at that historic moment, particularly among art critics and curators who were beginning to address video. It functioned to legitimize apparently inconsistent styles, enabling the shifts from abstraction and logical systems to camera realism and expression that seemed to characterize the Vasulkas' work.

These rhetorical strategies, many of which are enunciated in the Vasulkas' statements about their work, functioned to suggest an orientation for the still amorphous field of video. But as so often happens, the narratives that surround and allow the original production of new work may

foreclose a theoretically informed viewing. In retrospect, the tapes have several concerns embedded in their existence as dynamic texts, which are inadequately articulated by the rhetoric of presence and process that originally accompanied them. Accordingly, textual analysis provides a more productive access to the Vasulkas' tapes than the often mythologized notion of artists at the electronic frontier.

This essay addresses several concerns sustained in the tapes and installations the Vasulkas have produced over a period of two decades. A common feature of much of their work is the juxtaposition or interplay of conflicting modes of representation inherent in the video apparatus. The means of setting these conflicts in motion vary, occurring in projects that otherwise seem separate and dispersed. It might now be useful to consider how these projects cut across periods, tools and styles. We will discuss how the Vasulkas' work functions to write "live" images, read electronic tools as texts, rethink machine logic, ground representation in contemporary neurophysiology, appropriate the panopticon as metaphor and transform art history into an analogy of programming.

Writing the Image

In part, the Vasulkas' work seems to continue the modernist project of questioning illusionistic representation. Much of their work substitutes abstract pattern for an unexamined experience of camera imagery as live unmediated presence. Jacques Derrida argues that the desire for "presence" is a central myth of western civilization. By presence, he means seeing specific meanings as fully and naturally inherent in representation. Meaning is thus constituted as truth. If western culture can be characterized in

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this way, then these myths reach a peak of development in the technology of "live" television. "Live" camera illusionism perpetuates nineteenth-century assumptions about perception as a passive, direct, and unproblematic receiving process. These assumptions in turn operate to embed ideology and desire in the appearance of the "natural." In contrast, images generated entirely by video synthesizers do not appear natural. Even camera images that are processed by synthesizers depart from traditional concepts of realist or expressive representation. Both move closer to theoretical concepts of moving imagery as a mode of writing. An interest in imagery as writing is already suggested by the title of the Vasulkas' early work, *Calligrams* (1970), which refers to Apollinaire's poems that reshaped printed texts into images.

The idea of camera imagery as writing is one of the oldest concepts of mechanical reproduction, embedded in the terms "photography" and "cinematography," both neologisms derived from the Greek for writing with light and with motion. Yet these have been displaced by the terms "television" and "video," literally "seeing at a distance" or "I see," a direct equation of perception and technology as complete simulacrum. This equation unreflexively extends premodernist habits of thought, which often re-emerge in practice even when theoretical premises to the contrary are well known. In part, the Vasulkas' projects interrogate such unconscious habits: In works like *Soundgated Images* (1974) and *Time/Energy Objects* (1975), the Vasulkas have seemed to insist on an analytic understanding of the electronic signal or waveform as a model for visual representation. *Soundgated Images* channels the same signal to both image and sound so that we are invited to imagine the electronic waveform that unites them. *Time/Energy Objects* displays abstract forms in which we can visually

identify oscillator-generated sine, triangle and square waves as constructive elements. As such the signal becomes both the substance that enables writing and the evidence that such a writing has occurred.

Yet the Vasulkas' use of abstraction always alternates with, or is tied to, a return to camera imagery. Late modernist aesthetics, such as articulating the pure characteristic features of the video medium, are now taken for granted. The camera image returns in a different context, precisely because it is known and seen to be a signifying construct, one means among many to generate an image. A tape like *Time/Energy Objects* not only visualizes the signal, but also plays with the constructed illusion of three-dimensional objects on the flat video raster. The blank white screen of video's 525-line display is magnetically reshaped by the Rutt/Etra scan processor into simple geometrical forms.¹ The minimalist aesthetics of the objects so represented are tied to 1960s concerns in painting, music, and the other arts, but the new interest in how an illusionistic image can be seen in itself as constructed shifts the tape's stance into the postmodernist 1970s. The camera image in the context of the Vasulkas' abstract work becomes one more means of generating objects through signal manipulation. Even the sensuous landscapes of *The West* (1983) set the camera image against a subtle but vivid use of synthesized color unique to video. If pure abstraction never becomes completely central to the Vasulkas' work, neither does camera illusionism ever appear quite enough. The play between the two, together with the disjunctive values they represent, replace a hierarchical valorization of modernism or nineteenth-century styles.

Further, this tends to be true whether Steina or Woody are credited. Part of the narrative that surrounds the Vasulkas' long-standing collaboration is that Woody moves toward the abstract while Steina returns

to the concrete. Woody will become a purist at a certain point, insisting on only processed imagery as in *C-Trend* (1974), while Steina will return to easily recognizable camera imagery as in *From Cheektowaga to Tunawanda* (1975). Yet both these tapes involve processed imagery that fuse camera material with abstraction, and the difference between their aesthetics might be better characterized as parallel principles in different domains. Even this is problematic, since Woody embraces camera imagery in his later narrative work and they collaborated on the purely abstract *Naisetfields* (1974). It is perhaps more appropriate to abandon any and all easy polarizations of their aesthetics as ephemeral and anecdotal, in order to recognize shared operational principles and complex as well as distinctive aesthetics.

Reading the Tools

One of the established tropes of the Vasulkas' video has been the notion of tool exploration. They have both tried out new tools (e.g. digital imaging devices beginning in the mid-1970s) and rediscovered the old (e.g. introducing a deliberate horizontal drift into cameras long capable of such activity, but from which such drift was conceptually excluded). In both cases, they sought effects not yet discovered or fully developed. Yet in retrospect, there is a figure embedded in this project somewhat different than its apparent novelty and innovation of visual design. The underlying assumption here is that tools are not self-evident in their use or in their internal organization, and that tools require an activity not unlike that of reading. Tools themselves in the Vasulkas' work *become texts*, with an internal logic that is far from unproblematic.

Much of the Vasulkas' tool use seems driven by an interest in discrepancies between different levels of organization within the machine. These discrepancies are normally concealed in commercial television production, which prescribes a central aesthetics of camera illusionism to unify otherwise disparate styles. All anti-illusionist aspects of electronic imaging are relegated to the domain of technical problems or to transitions between programs. The tools themselves are manufactured to automate this ideological demand for illusionist effect, and to efface all internal contradictions. The Vasulkas reverse tool organization from this automated set of conventions to an open-ended multiplicity of possibility and purpose. For example, *Evolution* (1970) marks their first use of deliberately induced horizontal drift as a compositional strategy, while *Digital Images* (1979)² investigates the capacities of digital synthesis to control the individual pixels that form a video image. In these tapes and others like them, the implication is that such image-generating capacities are internal to the machine and contradict camera norms.

Machines as texts can be read in terms of their plural constitutive elements, from signal pattern and raster design to horizontal stabilization and pixel units. In the Vasulkas' reading, each element can be deconstructed to generate distinctive compositional possibilities not predictable by conventional practice. The tapes in a sense become print-outs that allow us to read the machines that generate them.

Rethinking Machine Logic

The Vasulkas have often referred to the underlying code by which images are constructed or inscribed on the monitor surface. Woody, for

example, has said, "You have to master the code. ... The code should be controlled and finally specified by creative people, artists." ³ But we might generalize this interest in the code or signal to other parallel processes of depersonalizing, mechanizing, or programming image production. This area of concern might also include the Vasulka practice whereby one person "sets up" a system (i.e., programs it) and the other runs or uses it; this is the story they tell about the production of *Noisefields*, and also of other tapes.

Also, their commitment to "real time" image synthesis, as in *Digital Images*, paradoxically fits this project. This commitment limits computer processing to the programming of moving imagery, rather than reconstructing motion through slowed computer generation of separate video frames (or fields).

WV: [I]f you involve the computer, the picture must be disassembled and assembled again, point by point, number by number, and this can take a much longer time than necessary to represent a moving image. So we say if a system cannot process or originate pictures as continuously moving, we lose *real time*. When we lose the illusion of continuous movement, we lose *real time*.

SV: It's the most important thing ... I would sacrifice any kind of image resolution, any kind of perfect image, rather than sacrifice *real time*^A

For the Vasulkas, the choice is to sacrifice image resolution or detail rather than movement, in order to keep the image dynamic. Again, programs are written to encode imagery. The crucial factor here is the simultaneity of processing and recording that allows the entire process to remain visible, and avoids any "post-production" reassembly of material. Movement is the guarantor of this simultaneity. Realism is not the goal. The commitment to "real time" is not an appeal to an imaginary truth of presence that we discussed earlier as inherent in realism. It is something quite different.

"Real time" insists on locating this writing within the image, within moving figuration as experienced through time. The illusion of movement allows the tapes to indicate how video is a "writing apparatus" creating the illusions operative in representation.

Video practice can in this way be reoriented away from a metaphysics of pure presence in a way that other types of video programming can not. Commercial computer image-programming, as at George Lucas' Industrial Light and Magic, slows down the process to program frame by frame, and runs the series only later in a re-assembly process not unlike animation. This process maintains as primary the illusion of reality, the visual replication of a plausibly real world, even as it mobilizes all the artifice current technology can offer to engage in fantasy (science fiction, robots, imaginary beings, etc). The images that result, strange as they are in some aspects, appear and move according to familiar codes so as to hide their technological genesis. This practice conceives of programming as subserviant to an illusionistic presence, as something that happens before and outside of the images we watch without leaving any apparent traces except as illusionistic magic.

Programming in so-called "real time" in a sense insists that the process cannot be so hierarchized, with programming or writing subordinate to an illusion of unmediated perception. Implicitly, it argues instead that writing or programming is internal to perceptual and cognitive experience. Nor are we simply concerned in their work with a modernist foregrounding of technique or of the reflexivity of the art object. Signifying practice is instead in the Vasulkas' work a continual and simultaneous play of perceptual experience and representational construction, of presence and absence, not a subordination of one to the other.

Perceptual-Cognitive Cycles

The Vosulkos' own, longstanding interest in neurophysiological experimentation concerning visual perception is one indication that we need consider how their tapes engage the perceptual and cognitive processes of the viewer. Their formal experimentation with the specific properties of the video image suggests we ask how the viewer is engaged by these properties in new and challenging ways.

Scientists now believe that we do not receive images as entities projected onto our consciousness, as believed in earlier models of perception that posited a retinal image transmitted periodically as a whole picture. Painting, photography and even film images offered analogues for this earlier model of perception. Their images seemed to present themselves to the eye as framed pictures, ready to be inverted as projections on the retina. Film projection even "mirrored" this process in reverse in its light projection of the image onto a screen.

Rather than assuming a matrix of perception that is comprehended only once it is received in full, contemporary cognitive theories of perception conceive of sensory and brain processes as entirely intertwined. No perception occurs prior to cognition. Cognitive psychophysicists such as Ulric Neisser have argued that the terms perception and cognition are misleading insofar as they reinforce a notion of an absolute boundary between two separate stages and prefer a notion of a perceptual-cognitive cycle in which all impulses received from external sources are joined to cognitive processes.⁵ The video apparatus offers a model for such interactive circuitry, that while not in any way as sophisticated as the human perceptual-cognitive system, can be more cyclical and internally

dynamic than prior modes of visual representation. Although the monitor can hold an image as a framed entity similar in many respects to the painting, photograph, or film frame, its internal temporal construction as a field of phosphors shifting at a rate of sixty cycles per second offers a more dynamic correlate to the retina's own cycles of diverse transmissions. Though television was designed to mimic conventional uses of the filmic apparatus, video has the capacity (already there in experimental filmwork) to dissect and deconstruct this entity of the image. In so doing it allows not only for the conscious perception of distinctive qualities of video, but a more self-conscious perceptual engagement by the viewer. The viewer looks at the means and limits of his or her own perceptions.

Noisefields, in an implied comparison to the perceptual play of op art and the "flicker" film, examines video flicker.⁵ Solid color fields and snow flicker in alternation at field rate (sixty cps), within a space defined by a circular mask. Though individual frames (temporal units of image display) only have simple patterns, the tape as it is perceived in its temporal unfolding generates more complex "illusions." Video flicker is more complex than film flicker, since even the "frame" is assembled by the viewer. The screen's phosphors are illuminated for only a fraction of the time that each field or frame demands, so that complete "frames" are displayed only through automated VCR features or within the perceptual-cognitive system. If perceptual "illusions" are stimulated by *Noisefields*, they suggest the reciprocal illusion by which we imagine that a video "frame" exists as a unified entity like that of film.

Whereas flicker in video is usually concealed as much as possible within the flow of a representational illusionism, just as it is in film, here it is manifest as a phenomenon which undermines and illuminates the

threshold of our perception of discrete units. It simultaneously highlights the role of mental processes in perceiving stimuli as "images." The perceptual field is never simply an external object that we sense, but a creation of our mental activity as we participate in perception. The shimmering quality of video snow gives this work properties different from its filmic counterparts; the closer equivalent might be the pointillist op art works (although the "movement" of the dots in op art is entirely illusory, while in video the pixels do change). One can imagine an animated film that would blend the graphic qualities of the art work with temporality and actual change. *Noisefields* is just such a hybrid, different from its engendering precursors, suggesting that video itself will come into its own through an understanding of its hybrid heritage. In reconceiving flicker as videographic (rather than as previously, cinematic) the tape acknowledges its closeness to perceptual experimentation in film, while marking video's difference (spatially and temporally) as another sort of image.

Similarly, *Land of Timateus* (1977) borrows principles of single screen 3D effects from the work of Alfons Schilling, a New York artist with whom the Vasulkas collaborated. Like Schilling's 3D slide presentations, this tape creates the illusion of three-dimensional space by temporally alternating slightly displaced fields of vision. Again, there is a filmic counterpart in Ken Jacobs' double projection performances, which create the illusion of binocular vision with depth perception by using two variable speed projectors to train two slightly displaced images on the same screen. In Steino's tape, a panning shot of an Icelandic landscape provides the representational material, in which jutting foreground rocks are sharply distinguished from the background space. It is rendered as a three-dimensional image by switching back and forth between two spatially

displaced shots at a rate of approximately six times a second. Alternating spatial displacements create the illusion of spatial depth. The perceptual phenomenon of binocular vision is mimicked by the systematic spatio-temporal rearrangements permitted by the video apparatus. Cognitively the viewer receives somewhat the "same picture" as unmediated binocular vision, but the rules of this game are not simply the thrill-seeking greater (stylized) realism of a 3D movie. Here the perception of depth itself is examined as a lesson in the relativity of space, time, repetition, and displacement within cognition. At the site of maximal perceptual immediacy, the landscape of one's homeland, the apparatus intervenes not to reproduce a reality, but to subtly dislocate the viewer from the space presented to him or her through relocation and accentuation of the perceptual act.

In *Naisefields* and *Land of Timoteus* visual tropes explicate the active cognitive processes at work in even the simplest act of perception. At some level these tropes seem to interpolate the phenomenological subject, the viewer as a self-aware and privileged entity, a being philosophically engaged in the terms set out by Maurice Merleau-Ponty:

We shall no longer hold that perception is incipient science, but conversely that classical science is a form of perception which loses sight of its origins and believes itself complete. The first philosophical act would appear to be to return to the world of actual experience which is prior to the objective world, since it is in it that we shall be able to grasp the theoretical basis no less than the limit of that objective world, restore to things their concrete physiognomy, to organisms their individual ways of dealing with the world and to subjectivity its inherence in history. Our task will be, moreover, to rediscover phenomena, the layer of living experience through which other people and things are first given to us, the system "self-others-things" as it comes into being; to reawaken perception and foil its trick of allowing us to forget it as a fact and as perception in

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the interest of the object which it presents to us and of the rational tradition to which it gives rise.⁷

Objects and their "rational" systems of representation are treated by the Vasulkas' tapes as neither self-evident, natural, nor simply available for reproduction. Yet if video here becomes an apparatus for underlining subjectivity, increasingly it does so while undermining the sure, safe, and familiar placement of the subject as observer of a world believed to be known. In the Vasulkas' other tapes and in their installations the acts of perception are multiplied and varied with great complexity; these works in one sense continue to address the phenomenological subject, but also question this construct. Perception is troubled, treated ironically and metaphorically using some devices with a rich history of ironic uses in the pictorial scheme (i.e., Steino's *Allvision* [1976] recalls the convex mirror of the Renaissance most famous for its appearance in Van Eyck's *Giovanni Arnolfini and His Wife* [1434]), coupled with some that by virtue of their mechanized movements or electronic basis are new. Human vision is countered with machine vision. The parallels and discrepancies between what machines present to us and our recollection of unmediated vision are one "object" of our gaze.

The Mirror, the Panopticon, and Multiplicity

In a series of recent installations, Steino's interest in both human and technological interaction with landscape and architecture are manifest. Both *The West* and *Geomania* (1989) reexamine landscape. The panopticon vision, historically introduced by the wide-lens, composite photography, and the cinematic 360-degree diorama, is here automated through the use of a

machine Steins calls "Allvision." A rotating support for the camera, most often aimed at a mirrored globe held out in the same rotation like a reflecting moon creates a hyper-panoptic gesture by combining a 180-degree wide-angle image with its reverse field within a circling camera vision. The image produced by *Allvision* with its globe is not only a 360-degree pan, but one in which each pole of the 180-degree arc is present simultaneously, the "back view" inside a centered circle, the forward distance framing this circle. Inherent in this gesture is a survey of space that extends the conic vision of the subject into a powerful sweep of all that surrounds a central location, a metaphoric exploration of vision's power, geometry and limits. Michael Snow's *La Region centrale* (1970-71) explored this metaphor of a circling, machine vision taking its rotation systematically around a spherical course in the midst of a landscape in a day-night cycle. As in Snow's film, the tropes generated by the evocation of panoptic vision in *Allvision* are multiple and contradictory. Enveloping, flowing, repetitive cycles generate one sort of association, while the fragmentation of various image frames and analytical trajectories generate another. We are engaged in a vision fully imbued with both the sensation and the promise of power (certain aspects of the power engaged by the panopticon as established by Jeremy Bentham are elaborated by Michel Foucault in *Discipline and Punish*⁶). To overcome the limits of a fixed position in space and to be capable of surveying all who could threaten or attempt to escape one's control is a motivation for the tower and the turret. Through exaggeration, the Vasulkas' hyper-panopticon becomes, in part, a parody of the paranoid desire to seek, know, and control everything, a wish already embedded and automated in the use of video for surveillance systems. Yet in its inscription here this panoptic vision is also deeply

phantasmic and playful, like the vision sought by children as they whirl around, including the additional points of view afforded by such toys as swings and merry-go-rounds. Ominous and delightful, powerful and innocent, the panoptic vision is an oxymoronic look at its field.

In *The West* the panoptic vision comes as the middle segment, after a hand-held exploratory camera is combined with selective colorization to etch out the architectural forms of the Chaco Canyon ruins. The blue that fills in and accentuates the shadows on the golden stone construction just barely denatures the image, lending an uncanny, emphatic quality to the ancient construction that could almost seem a natural element of the Western landscape, so keyed is it to earth and sky. Then comes the panoptic survey of a desert landscape that includes the VLA (Very Large Array) satellite antenna installation followed by a section in which the panoptic survey is of a forested landscape. Alternation occurs between natural and built environments, not just between the sections, but sometimes within the same image, as the circular "insert" (of the mirrored sphere) will show primarily the artifacts of military science, while the frame shows the natural landscape that lies in the other direction, or vice-versa. *The West* uses a bank of monitors. A series of wipes split the screen further as one image progresses across another. Alternate monitors carry images from two tracks/versions of this tape, a checkerboard pattern of repetition and variation that is constructed at times to graphically match the wipe movements. When the wipes match, they transcend the limits of the individual monitors and create flowing imagery, at times to maximize contrast and emphasize the fragmentation.

Metaphors are engaged in *The West* that do not simply rest on obvious or singular interpretations. Surely one could read it as a poetic indictment

of the contemporary reconstruction of this space for industrial and military purposes, or conversely as a fascination with the forms that obliterate such a reading by an equally poetic vision of both. We would like to suggest that such readings are not only too partial, they miss the problematizing of image-metaphors at the heart of the work. The nature/culture opposition does run through the tape, reiterated in the opposition of the machine (that produces the vision) to the humans (who make and see that machine vision). This nature/culture opposition is but a preliminary proposition. Once made thematic, the opposition is varied and left to reverberate as a more fundamental questioning of a subjective placement within this world of the western United States.

The play with metaphor is further articulated in *Geomania* (1989). Geysers and tides become not so much the content of these images, but are evoked as metaphors for video keying in its washing-over, blending, and energizing of images. As in several other tapes, the perceptual differences inherent in the properties of two substances (earth and sky, rocks and water) are arranged in the frame to coincide as the conjunction between two images in overlay or in a wipe. This sort of matching suggests that the energies of nature and of electronic representation can be brought into mutual correspondence. It is perhaps a more Romantic vision than the tensions produced by the multiplicities *The West* suggests, yet *Geomania* maintains its own plurality in presenting energies and conjunctions as abstract concepts within the space of a metaphor.

The geometries of the Allvision machine's rotations in several of Steina's tapes suggest the obvious metaphor of reflexivity, especially when the video camera or its shadow appears in the image. However reflexivity is presented with such variation that what by now has become self-evident

within modernist reflexivity is troubled. Even if we are shown and know all the components of the construction of an artwork, do we know anything more of the process of textual construction? So much reflexivity has been limited to externals: the filmmaker in the film, the camera in the image, the characters speaking themselves as actors. Not that the music of these spheres is simply better left to an appreciation that remains magical; the geometries of Allvision suggest perhaps that the deconstruction of metaphysics cannot occur by the merely physical reflection of the apparatuses of production.

Meta-Art Projects

A number of Vasulka tapes engage the history of the arts in a critical and self-reflexive manner, either as a comment on art history as in *Golden Voyage* (1973) or as an appropriation of music history as in *The Commission* (1983). *Golden Voyage* replicates *The Gill Legend* (1956), a Magritte painting of loaves of bread suspended in the sky, but places the loaves in motion, drifting across the screen. Arrested movement, displacement of objects from their "proper place," and the inversion of literary metaphors through their visual literalization (floating bread as manna from heaven) are what make the Magritte surrealist. The reproduction of Magritte through a playful refiguration suggests that video is automatically surrealist, as it is able to electronically dissect the picture plane, literalize the movement, and accentuate the collage-like presentation of objects set against imaginary grounds. The instantaneous multiplicity of imagery produced by keying and switchers in video performs as the automation of a modernist art movement. Similarly, *Digital Images*

suggests the fractured imagery of analytic cubism, or at the level of pixel organization, the pointillism of Seurat. These works demonstrate that video can be programmed to automatically replicate any and all styles of representation throughout art history not as simple reproduction, but as an elemental reworking. Unlike photography whose automatically replicative capacities have been limited to copying the original work, video makes it possible to recreate the processes or effects of image construction by breaking into the image surface through electronic reconstruction of the signal. Each and every point on screen can be reworked in relation to the others. Instantaneously, previously handcrafted techniques can be imitated on various image sources. A colorizer can be adjusted for fauvist effects, scan processing could warp the figure like Donatello, rapid switching can simulate cubist multiplicity of perspective. If photography became an important stage in the history of art in part through its reproductive capacities, video is shown to be an equally significant device in its ability to reproduce non-Euclidian geometries, differentiated image planes, and the selection of surface texture and color as it manufactures its images.

The implication of this incorporation of art history into the Vasulkas' video, if read seriously, is a re-evaluation of the relationship between art and history not unlike Michel Foucault's conception of discursive formations. Foucault argues that history operates through decentralized dynamics and that such separate disciplines as medical practice, criminology, and economics are organized through implicit rules that govern their discourse. These rules set boundaries to what is or is not part of the discipline. They establish the discipline's claim to legitimacy as a form of knowledge. The Vasulkas' reference to specific painters similarly rehistoricizes art in terms of rules or regulations, which can be programmed into the video

apparatus. Art history becomes spatialized in the process, with each period and style reconceived in terms of boundaries and internal organization. Yet the material does not become dehistoricized, as Fredric Jameson argues occurs in postmodernist conceptions of art.⁹ Rather, the manner of intervention in history is reformulated.

Woody Vasulka continues this process of spatializing history in his recent narrative works, which may appear at first to be unrelated to previous Vasulka concerns. In *The Commission*, an incident from music history legend becomes the source of narrative and formal development. Paganini acted as go-between for a newspaper editor's commission of a piece by Berlioz. The recounting of this tale in video unavoidably suggests the contemporary problems of art funding in the United States and the process by which a panel of artists or experts evaluate competing grant proposals for public or private funding agencies. Paganini's virtuoso violin performances, however, resonate with Steina's past training and performances on the violin, as well as with the operatic form of *The Commission*. The past is situated at a balancing point between personal memory and public history. This conjunction occurs in the desert, with European characters displaced, located in the landscapes of the Southwest. The desert seems to function as a metaphor for America as zero-point of historic traditions, an imaginary antithesis of Europe, as it does in Jean Baudrillard's *Amerique*. As immigrants, Steina and Woody seem to share elements of Baudrillard's vision of America. Yet the European history of music is chosen as the substance to which an American composer, Robert Ashley, turns to create a post modernist American opera. History is not absent, but refigured. The form of inscription selected for this new historical opera, video, allows for the tradition of the spectacle to be

reinscribed as a text of sound and image. The desert is therefore also a place where history can be freshly reexamined, where displacement works to overturn the myths surrounding performing artists. Art history need not be an embrace of the cult of personality, but a reflection on the historical transformation of forms and a study of how art is commissioned by forces that involve both the personal history of the artist and the history which surrounds him or her.

Art of Memory (1987) evokes the iconographic heritage of World War II in the form of film clips, among which are films from UFA, the German national film industry, and newsreels from the Spanish Civil War. The films are laced through shapes and multiple frames that digitalized video can create within the video screen. A landscape of displacement and fantasy, the desert wilds of the Southwest, are not so much background as overlay, interposed in a tension with these haunting images from the past. The desert here echoes its use in *The Commission*, as absence of history frames historical material, filmic material. Woody's Eastern European training in cinematography functions as a personal reference.

Imaging the past, memory and history are never so directly addressed as they are in the film flashback. Certain formulas repeat across film history, as a means of subjectivizing history or defining memories through positive uses to which they can be put or means through which they can be overcome. Most film flashbacks are clearly narratives of legitimation, construing a position from which history can be worked into the present and/or future. *Art of Memory* is intriguing as it points to video as a support through which the logic now operative in the flashback's conjunction of memory and history might be undone or at least rethought. This rethinking process began with such modernist films as Alain Resnais and Marguerite

Duras' *Hiroshima, Mon Amour* and Andrej Munk's *Passenger*. Woody Vasulka's work may show primarily the haunting of images that can't be entirely worked through or forgotten, the ironies of our fascination with visual power. It may primarily introduce an intense subjectivity, beyond the controlled subjectivity of history that narrative film uses to frame and legitimize the past. It also opens the possibility that a sense of history can emerge out of a different presentation of the icons of history, though it must be stated that here much is dependent on the spectator bringing to the text both points of reference and active critical engagement.

Throughout this essay we have attempted to see the Vasulkas' work not merely as the product of their intentions or as trails blazed by two video pioneers, but as works which become increasingly intriguing in light of contemporary theories of the image, writing, and perception. The methods of textual analysis, which may at first seem impersonal, rework preconceived notions of the artist as a central unifying force that controls his/her work. Instead of a model of the artist as unitary auteur, we can reconceive artistic activity as multiple and dispersed even within the body of work produced by individual artists such as the Vasulkas.

1. See Woody Vasulka and Scott Nygren, "Didactic Video: Organizational Models of the Electronic Image," *Afterimage*, vol.3, no.4 (October 1975), pp. 9-13.
2. Unlike other tapes in the *Vasulka Video* series that excerpt materials from other tapes, *Digital Images* includes materials not available elsewhere.
3. Woody Vasulka in, "Woody and Steina Vasulka: From Feedback to Paganini," interview by MaLin Wilson and Jackie Melega, *Artlines* (May 1981), p.10.

4. Ibid.

5. Ulric Neisser, *Cognitive Psychology* (New York: Appleton-Century-Crofts, 1967).

6. See Maureen Turim, *Abstraction in Avant-Garde Films*, (Ann Arbor, Mich.: UMI Press, 1985), especially the chapter on the flicker film entitled, "Flickering Light, Pulsing Traces," pp. 93-106.

7. Maurice Merleau-Ponty, *The Phenomenology of Perception*, tr. Colin Smith (London: Routledge and Kegan Paul, 1962), p. 57.

8. Michel Foucault, *Discipline and Punish: The Birth of the Prison*, tr. Alan Sheridan (New York: Vintage, 1979).

9. Fredric Jameson, "The Cultural Logic of Late-Capitalism," *New Left Review*; no. 146, (July/August, 1984). See Turim's discussion of this in "The Cultural Logic of Video," to appear as a "Working Paper" from the Center of Twentieth Century Studies, University of Wisconsin-Milwaukee.

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Playing in the Fields of the Video Image:
Steina Vasulka's Visual Pleasures

Lucinda Furlong

If I read this sentence, this story, or this word in
pleasure, it is because they were written in pleasure.

Roland Barthes
The Pleasure of the Text

The idea of pleasure may seem antithetical, or at the very least tangential, to a discussion of an artist whose work has been consistently described in modernist terms. The modernist dictum that the unique and irreducible properties of a given art medium must be identified and attended by a high seriousness is nurtured by the myth of the angst-ridden artist painfully engaged in the creative process. In contrast, Steina's sheer pleasure in art-making flouts this myth. Often irreverently, Steina brings a sense of playfulness to her work, since art, she feels, "should be done for the passion and the fun."(1)

Perhaps the best illustration of Steina's penchant for fun is Violin Power (1970-78), a tape that she occasionally updated over a period of eight years. Because she is trained as a classical violinist, Steina's work in video and electronic music is rooted in her passion for music. While music is often based on notational systems, it can also be improvisational; the tension created by the imposition of a system and the desire to break its rules--control versus spontaneity--underlies the pleasure to be found in Violin Power and in much of Steina's subsequent work. As Barbara Herrnstein Smith has pointed out in her study of poetic closure, there are "varying degrees or states

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of tension...involved in all our experiences, and...the most gratifying ones are those in which whatever tensions are created are also released."(2)

Violin Power opens with grainy, black-and-white footage of Steina very seriously playing a piece of classical violin music. In an eloquent shift from the acoustic to the electronic--from high-art seriousness to high jinks--Steina breaks away from her classical roots; the tape cuts to footage of her once again playing the violin, but this time, she's accompanying the Beatles in "Let It Be." A close-up shot reveals Steina's toothy smile as she lip syncs the song. In subsequent scenes, the violin--patched through an audio synthesizer to a video switcher--activates a switching between two opposite camera views of Steina playing. The action of the violin bow is used to trigger the switching from one shot to the other, resulting in a rhythmic, jerky movement in which the sound, in effect, creates the image. Later sequences become increasingly abstract, as when the movement of the violin bow is reduced to a series of squiggly lines. This cause-and-effect relationship between the movement of the bow and the resulting video image produces an elegant transformation of an immaterial phenomenon--electronic energy--into material visual form. With the addition of an electronic pick-up attached to the violin, the title "Violin Power" becomes a play on words in which the idea of electronic power is conflated with the power of the musical instrument.

In Violin Power, Steina introduces the idea of "playing" on a number of levels: not only does she play the violin, she is

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clearly having fun. But in her work, Steina is also "playing around" in the sense of tinkering with electronic and mechanical gadgets--setting them up, seeing what they can do, and then structuring the resulting tapes much like a piece of music, with a theme and several variations. Using this modus operandi, Steina explores two primary themes--the relationship between sound and image and the camera point of view. These concerns are articulated in videotapes and installations that took two different trajectories in the 1970s--the pieces done in collaboration with Woody that explored video and audio signals as electronic phenomena; and her own Machine Vision series.

Steina and Woody Vasulkas' collaborative work in the 1970s grew out of their desire to understand the nature of the video image as distinct from film. They were intrigued by the fact that the video image is constructed from electrical energy organized as waveforms--voltages and frequencies that unfold as a temporal event. They began to explore the inner workings of the electronic signal by teaming up with electronic designers with whom they designed specialized equipment. Since both audio and video signals are composed of electronic waveforms--sound can be used to generate video and vice versa--one of the first pieces of equipment they bought was an audio synthesizer. Many of their early tapes, such as Black Sunrise (1971), Keysnow (1971), and Soundprints (1972) illustrate this relationship--one type of signal determines the form of the other. In Soundprints, two different audio signals generate dual concentric images that form

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an endless loop. The structure of these tapes was derived not from the Vasulkas' own preconceived ideas of what might make an interesting image or sound, but from the parameters of the system itself.

In tapes such as Explanation (1974) and The Matter (1974), Woody set out to systematically document what various combinations of these devices might produce. The Matter, for instance, is a display of the three basic waveforms--sine, square, and triangle--that were also used to produce the tape's audio. In contrast, Steina took a less didactic approach in a group of tapes that evoke the landscapes in which they were shot. Flux (1977) is a series of vignettes in which images and sounds of rushing water are continuously switched at different speeds. Drawing on some of the earlier experiments with switching and keying as a point of departure, Steina doesn't merely capture an image of the water, but intensifies our experience of its surging power and movement. In one section, she alternates two images of water flowing in opposite directions, creating a back-and-forth, push-pull rhythm. The roaring sound of the pounding surf produces a jarring effect, a reminder of the water's constant state of flux. The sense of movement is accentuated further when Steina applies the same switching rhythm to images of a truck as it travels down a road. At the tape's conclusion, Steina cuts from natural phenomena--the water imagery--to electronic waveform images that resemble water. This juxtaposition of camera-generated and electronically constructed images--the "real" versus the artificial--is central to both Steina's and Woody's

work in the 1970s.

Because the camera lens has been culturally coded as an extension of human vision, camera-generated imagery has been equated with a truthful rendering of reality, while electronically produced or processed imagery is considered "artificial." Steina often exploits this perceived distinction as a means of structuring her work. Beginning with straight, i.e. camera-generated video, she switches to processed video and then concludes by returning to more recognizable imagery. This juxtaposition, and the rhythms Steina creates with it, establishes a structure that achieves closure, a quality that "reinforces the feeling of finality, completion, and composure"--and produces gratification in the viewer. Thus, the use of conventions like repetition, variation, and climax, in these works functions in much the same way they do in a traditional poem or piece of music.

In Land of Timoteus (1976), Steina begins with a shot of Woody (who took the name Timoteus Petursson upon receiving Icelandic citizenship) sitting on a rock overlooking the sea. She then switches between images of the rocks and of the water, selectively keying certain areas (an effect in which one video image is electronically inserted into another), so that the imagery and the sound become increasingly abstract. The audio builds to a crescendo, creating still more complex rhythms. As it dissipates, Steina returns to a "real" image--the shot of Woody seen in the beginning of the tape. Like Flux, Land of

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Timoteus achieves closure by returning to the real.

Steina's fascination with different modes of representation and the way they play off one another is reiterated in Selected Treecuts (1980). In this tape, Steina uses computer controlled switching to juxtapose digitized and non-digitized images of trees. The process of digitizing produces a checkerboard effect, visually not unlike the half-tone dot in an offset print. The smaller the size of the pixels (picture elements), the better the resolution. As in the preceding tapes, Steina purposefully uses the lower resolution of the Vasulkas' digital system, resulting in larger pixels, to structure Selected Treecuts. As the images zoom in and out and rhythmically switch from non-digitized to digitized versions of the same scene, the colorful brilliance of the autumn leaves is heightened. The paradox of Selected Treecuts is its fusion of the cerebral and the sensual. It not only directs the viewer's attention to two different modes of representation, but produces a mesmerizing visualization of swaying trees.

In both Land of Timoteus and Selected Treecuts, the difference between camera-produced imagery and what is electronically generated remains clear. In Land of Timoteus, for instance, Steina uses the footage of the Icelandic coast as a pictorial ground on which to superimpose an electronic landscape. In a more recent series of tapes and installations called Geomania, this distinction, however, is often blurred, as Steina slyly creates illusionary landscapes. The four channels of Geomania (1989) incorporate images of earth, water, and sky. In

this work, Steina almost seamlessly mixes together landscape images of disparate climates. For example, images of the rocky, volcanic coastline of Iceland are keyed over footage of the American West, so it appears that the ocean is rushing over the desert floor. These "landscapes of paradox," as Steina has called them, are like visual riddles that challenge us to figure out "what's wrong with this picture." At the same time, they form vivid fusions of opposing natural forms: the warm, reddish tones of Chaco Canyon are coupled with the inky purples and blacks of the glistening, cold Icelandic waters. Heat and cold, water and earth, smoke and fog, wet and dry--these natural forces and the sensations they produce are evoked and continually mutate within the picture plane.

The most distinctive characteristic that Geomania shares with Steina's other work from the 1980s is a tactile quality that results from her use of color and mixing of images. In Lilith (1987), Steina uses this tactility to conjure up the mythological female demon excised from the Bible. Lilith is the first wife of Adam before the creation of Eve, and Steina suggests her presence and absence in visual and aural forms. By mixing colorized images of Lilith's face and hands and by continually moving the camera in and out of focus, Steina creates a highly textured image, making her skin look so withered and wrinkled that she evokes a kind of primordial spirit. What firmly establishes Lilith's ethereal credentials, however, is the way in which Steina combines textured images of Lilith with images of swaying

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tree branches. She appears in focus, only to disappear when the camera focuses on the trees, as a kind of phantom witch inhabiting the landscape. The mystery surrounding the myth of Lilith is heightened by the audio track, in which her voice is slowed down and distorted.

During the 1970s, Steina's work took a second trajectory that also addressed the ways in which a given scene is represented. Between 1975 and 1977, she produced a series of tapes and installations under the title Machine Vision. Utilizing an assortment of mechanized apparatuses to control camera movement, Steina sought to automate the camera's optics, thereby freeing it from a human point of view.

Habitually, by looking, we keep selecting, subjectively "zooming" and "framing" the space around us. I wanted to create a vision that can see the whole space all the time.... And it too derived from my watching so many videotapes, watching an individual 'delivering' you space.... It was a challenge to me to create a space that would not deal with the idiosyncracies of human vision.(4)

Signifying Nothing (1975), Sound and Fury (1975), and Switch! Monitor! Drift! (1976) document Steina's use of studio setups in which two motorized cameras monitor not only the surrounding space but each other's movement. The most complex of these is Switch! Monitor! Drift!, which consists of thirteen scenes that variously 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 dislocation of the

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picture plane forces the viewer to make sense of the surrounding fragmented space. In these tapes Steina observes the system observing her and repositions herself in space in response to the camera system.

In the installations Allvision No.1 (1976) and Allvision No.2 (1978-79), these contraptions become at once kinetic sculptures and activators of the seeing process. According to program notes that accompanied its exhibition at The Kitchen:

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 monitor, viewers see an artificially created 360-degree image. While the viewers are part of the "real" space, they can at the same time see themselves in the "imaginary" dimension created on the screens.

Allvision fragments and reconstructs the three-dimensional space +before the camera and, in so doing, draws us into the two-dimensional space of the video monitor. Incorporated into the collapsed dimensionality, we are prompted to engage in the process of decipherment.

The desire to blur the boundary between what is "real" and what is illusion is taken a step further in Urban Episodes (1980), a tape for which Steina set up a motorized contraption in downtown Minneapolis. It consisted of several devices that were mounted in various combinations on the end of an eight-foot pole--its length determined by the lens' depth of field--which was then attached to the camera. Included were mirrors and a rotating prism, all motorized by batteries of varying voltage, and a mirrored lens attachment that created the look obtained by a "fish-eye" lens. The whole mechanism was then mounted on a

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battery-operated turntable to create a slow, circular pan. During the course of the six "episodes," these components were variously combined to execute the four basic camera movements--pan, zoom, tilt, and rotation. The rotating lens was paired, for instance, with the motorized mirror to create a tilt effect; the motorized zoom lens, focused on the rotating prism, created a kaleidoscopic effect; in the first and last episodes, the mirrored lens attachment was combined with the motorized zoom lens, and then with a rotating lens, to catch yet another view of the surrounding buildings, people, and vehicles. The segments were smoothly edited together, one pan picking up where the previous one left off. The ambient sounds of footsteps, buses, and church bells, coupled with the slow movement of the optical system, created a remarkably tranquil perspective on a bustling metropolis, one that blurs the difference between what is reflected and not reflected so as to render three-dimensional space almost unintelligible.

Like the Machine Vision series, Steina's videotapes from this period, including the five short works that comprise Summer Salt (1982), are explorations of camera movement and point of view. They are also playful performances--a kind of visual gymnastics--in which Steina achieves a spontaneity by using a hand-held camera instead of the steady, controlled pans and tilts rendered by the motorized mounts of Machine Vision. In the opening segment, Sky High, Steina is seen pointing the camera skyward through the car's sunroof. The mirrored lens attachment

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used in Urban Episodes is attached to the camera lens, creating an image resembling an eye. Steina disappears inside the car as it moves forward; her eye--and, by extension, her vision--is supplanted by that of the mirrored lens attachment. This eye-shaped image, through which the passing landscape is seen, becomes an elegant visual trope that Steina fractures at the tape's conclusion when she pulls the camera back inside the car.

The idea of optical gymnastics is literalized in Somersault, the central tape in the series. Once again, the mirrored lens attachment is affixed to the camera, but unlike Sky High, Steina uses her body to make the point. As she moves around the camera, the mirror on the lens transforms Steina into a contortionist. Her legs become elongated as if she were the "tall man" in the circus; her face is distorted as if seen in a fun-house mirror.

Somersault is a humorous pun in which the idea of a formal aesthetic exercise is conflated with physical exercise. The next sequence, Rest, extends the analogy by providing respite from Steina's exertions. In this tape, the camera focuses on a section of hammock hanging from a tree swaying lazily to and fro. Steina pans up the tree's branches and then abstracts them through colorization and digitization.

The final sequence, Photographic Memory, is a play on the ability to see an image in the mind's eye. Steina uses various methods--dissolves, mixes, switches, and wipes--to move between images of swaying tree branches at different rates. Because the images are similar--but not identical--they seem to leave a visual trace that conjures up the mental process referred to in

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the title.

The motorized installation pieces in Machine Vision are controlled by a preprogrammed system that leaves little room for spontaneity; conversely, Steina's videotapes, though highly structured, are more playful and open-ended. Perhaps most emblematic of Steina's synthesis of the control and spontaneity evident in her earlier work is The West (1983), a two-channel multi-monitor installation. Just as Steina used electronic image and sound to heighten the experience of natural phenomena (such as rushing water in Flux) and set up motorized cameras and prisms to explore issues of space and movement in Machine Vision, in The West, she combines these elements to produce a stunningly vivid evocation of the vastness of the American Southwest.

Drawing on the mechanized camera movement used in Urban Episodes, Steina uses a circular motif--revolving pans, the mirrored sphere, a semi-circular arrangement of the monitors, and circular images--including pans of a satellite "dish farm," New Mexico's VLA (Very Large Array) radio-telescope system--to replicate the experience of standing in the open space of "big sky" country and looking around a full 360 degrees. The circular pans and gliding tracking shots create a sense of perpetual motion that renders the landscape not as a static scene to be captured as a frozen moment, but as a constantly changing dynamic in which natural forms are marked by human presence. With this conception of landscape, Steina reinforces the impression that one could move across the West's seemingly endless expanse

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indefinitely. While The West succeeds in creating a "vision that can see the whole space all the time," it also provides an approximation of what our phenomenological experience of the Southwest might be.

In The West, Steina employs a number of techniques she and Woody pioneered in ways that are particularly suited to her subject. For instance, Steina's selective use of colorization intensifies the earth tones of the landscape; like a super-realist painter, she makes the natural appear more real. The feeling of perpetual circularity and continual space is heightened by the use of horizontal drift--an effect the Vasulkas developed and explored in such tapes as Evolution (1970) and Home (1973). By altering the timing pulse of the video signal, the Vasulkas could create an image that continuously drifted horizontally. In The West, this effect is used not only to emphasize the movement of the images from one monitor to another--in effect, creating a homemade "video wall"--but also to create the illusion that the monitors are windows onto the expansive Southwest.

In Poetic Closure, Barbara Herrnstein Smith provides insight into the impulse to create gratifying aesthetic experiences:

It would seem that in the common land of ordinary events--where many experiences are fragmentary, interrupted, fortuitously connected and determined by causes beyond our agency or comprehension--we create or seek out "enclosures": structures that are highly organized, separated as if by an implicit frame from a background of relative disorder or randomness, and integral or complete.(5)

Steina uses machines to seek out these structures of meaning, but

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she is not willing to surrender to them total control. She intervenes, fiddles, and restructures, always maintaining a balance between spontaneity and control. That is the source of her pleasure, and our pleasure too.

1. Steina Vasulka, in Linda Cathcart, ed., Vasulka. Steina: Machine Vision/Woody: Descriptions (Buffalo, NY: Albright-Knox Art Gallery, 1978), p. 22.
2. Barbara Herrnstein Smith, Poetic Closure: A Study in How Poems End (Chicago: University of Chicago Press, 1968), p. 3.
3. Smith, p. 36.
4. Steina Vasulka, quoted in program notes for "Video Art Review," Anthology Film Archives, New York, March 1981.
5. Smith, p. 2.

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Final edit
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The Images of the World

Raymond Bellour

The images of the world have returned, every one of them. Those of History and of legend. Like those of the machine-body that receives and emits them. They arrive with a violence that heightens our sense of urgency. We need to know what these images have become, and how they come back to us--today when the world has disappeared, vanished, swallowed inside itself, and been devoured by its own expansion. Today when, as Gilles Deleuze says, we no longer believe in this world because the bond with man has been broken--how can we believe, in spite of everything, in a world in which we find ourselves "as though in a pure visual and aural situation"?(1)

In Woody Vasulka's videotape, Art of Memory (1987), at least four levels of memory are presented. First, let us examine each level of memory separately:

First is the memory of the artist as a child, returning insistently through a memory: it is the end of the war, he's ten years old, he lives near a military airport that has become a cemetery of planes; in the German fighters, he finds ultra-perfected war machines in pieces, which he takes apart and reassembles, subjecting them to an endless autopsy. "Europe was a huge junkyard after the war. You could find everything from weapons to human fingers in the dump."(2)

The next memory level is that of the grown-up Vasulka, who remembers the power these war machines had on him as a child. He has since become an amazing creator of vision-producing machines,

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in his search for new images. For years, with Steina, he has gathered, constructed, and deconstructed the basic elements of a language that he sometimes envisions as a new "natural language": a "vocabulary" capable of establishing, then developing the immaterial physicality of images created in real time both from simple reality and from the video signal, through the machines' half blind, half-visionary power.(a) Jean-Paul Fargier has demonstrated how this basic research grew into an oeuvre, for Woody, through the "selection of a subject matter" that accorded the "story" a particular "destiny" entirely contained within its mode of processing (the decline and death of a virtuoso musician in The Commission [1983]); for Steina, the subject matter is the "West," understood as a vanishing of limits.(3) Paganini's life, decline, and death in The Commission is depicted by his body being subjected to a perpetual motion, undergoing a figuration-disfigurement (like that of Berlioz, who also plays a part in the violinist's fall). "There are always two images on the screen: a virtually complete image, and one of the partial and transitory states presented by its constant mobility."(4) This is The Commission's great novelty: it creates new states of the images for a fictionalization that both employs and reinterprets the high-contrast lighting of German Expressionist cinema (in its lines and image fields), as well as the diffused lighting of Impressionist or Fauve painting (in its strokes and

a. Trans. Note: Untranslatable pun: Bellour uses extra-lucide ("visionary"), an allusion to voyante extra-lucide, the French version of "readers and advisors."

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pointillist touches). The Commission, which displays a filmic aspiration to opera, thus lends unsuspected vitality to the narrative archetypes of Romantic subjectivity (death, the contract, guilt, castration, etc.) that, to my knowledge, video has never before attempted to return to so directly.

Art of Memory departs from the concerns of The Commission toward another subject matter, which itself has a dual aspect: its own particular mode of processing and experience of the world. The world proceeds by incorporating the medium that historically has been entrusted with conveying and instilling memory in the child and the teenager born out of war: Cinema, as witness to all wars of this century, whose memory video seeks to extend and renew here. A two-fold memory, that of the war and that of cinema as a place of passage between an old and a new way of waging war--projecting images as well as missiles, projecting missile-images--war and cinema both being on the point of vanishing, as Paul Virilio has shown.

The third memory in Art of Memory, which plunges us deeper into the work, is that of the performer/character that Vasulka has assigned to be his alter ego. He is the man with deeply etched features who appears at the beginning of the second section to challenge the enigmatic creature--angel, devil, sphinx, Spirit of History, Icarus, or Superman--standing in the landscape (fig.14); the man whose wrinkled face bears the mark of experience, which in itself is the subject of the tape. Later, in a powerful image at the start of the third section, the man is

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faced with his doppelganger, all wrinkles, who speaks to him from behind with Oppenheimer's voice, as if from the inside of a materialized brain/consciousness: he is made of pure webbing, through which electronic memory is suddenly, exemplarily, blended with the web of history (fig.19). It is between these two extreme points of representation (photographic and processed imagery) that the actor's body oscillates--in a more direct way than in The Commission. Here, the man is either one or the other in order to be one and the other for the spectator. Similarly, the tape as a whole is determined by the double, vertiginous use of cinema and video.

At the start of the second section, in the foreground, the protagonist faces the mythical creature; suddenly, the sky in the background changes, turning into an abstract grayness split into particles, while a kind of metallic rain comes down like a heavy curtain (figs.14,15). The following shot--a wholly unique shot--is edited with a very rapid matching cut: the protagonist, up to this point seen from behind in three-quarter profile, is reframed in a side close-up, hurling himself onto the ground to escape the threat of an unidentified flying object that darts across the screen (fig.16). Here is a truly filmic shot, without any video processing--a shot one might imagine coming straight out of Steven Spielberg's Close Encounters of the Third Kind. This is followed by the effect Vasulka uses again and again in the tape--splitting each of the shots in the middle--that governs the transition from one shot to the next. The character of the fiction/opera is thus distinguished from the start; the strategy

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that makes him the conscience of the drama is made clear from the onset both in terms of shot construction and the substance of the image; thus conflicts and changes that affect the shot construction also become elements at stake in the narrative, and in what it suggests.

Finally, there are the spectators, whose memories are being put to the test because, as moral subjects, they must mentally go back over the terrifying space opened up by the metaphysical upheaval of modern war from World War I to the end of World War II, reabsorbed in the images of nuclear apocalypse. This is true particularly because, as psycho-physical subjects, they have to try to memorize what is presented to them as a particular reading of the event. In Vasulka's work, the ungraspable or just barely graspable aspect of what is shown becomes very acute. The vertigo thus created is less subtle than in The Commission; but it becomes more interesting conceptually (albeit at the cost, sometimes, of a certain heavy-handed didacticism) because the spectators are led to a more active consciousness in order to maintain the visible coherence of everything they see. Echoing the tension that occurs between "real" bodies and bodies made of webbing, we attempt to grasp the two levels of the circular dialogue that is set up between cinema and video, as well as between analog and digital representation. The first level denotes a trend toward the shot (and the filmic segment as well); the shot, while imploding and redefining itself in the act, still forms narrative and dramatic units whose perceptible divisions

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give expression to the ungraspable character of the event. The second level--internal to the first, yet quite specific in itself--seems to be the one that gives this tape particular import: it lays out a "theory" of the single frame image and the photographic image, as the most intimate part of the relationship between video and cinema.

Art of Memory is divided into seven clearly defined acts or sections. Sections three to six each correspond to a particular theme: nuclear holocaust; the Spanish Civil War; the Russian Revolution; the war in the Pacific. The first section is an overture of sorts, the second introduces the performer/character (who returns in sections three and four); the last section reintroduces him, changing his status as part of an epilogue.(5)

The effect used to pass from one shot to the next (for all but one shot) is a sort of sinusoidally shaped "wipe" that opens up (and closes) from the center of the frame (figs.8,10,11,17), lending new versatility to the ancient "wipes" of silent cinema (the same "wipe," without motifs and in a solid gray, marks off the different sections.) From the fifth section on, this transition process is doubly complicated: either only the top part of the image seems to change, because the bottom part of the two images is identical; or, most frequently, the top part of the image, when pushed away, instead of moving off the top of the frame, narrows and becomes a sort of scarf that seems to wave within the frame before moving off (or reentering: special effects always work both ways) on the left. This second

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variation is very disturbing for the eye of memory because it adds to the confusion between the two separated shots thus increasing the time the image lasts even as it is already being "drained away." This, however, is nothing as compared with the process that permeates the sixth section: an image strip, frayed at the edges, enters sideways, passes through, breaks up the shot (fig.36), and then expands, imposing the new image in combination with the dividing "wipe"--so that we witness a sort of dilation of the time-space the two shots share, like the very long dissolves that stunned the spectator's gaze in the early cinema. Thus, this kind of effect somehow recreates the shot and redefines editing, as it always has done in cinema--marking the limits of the shot at the same time that it challenges them: "video" is one of the names for the passage that leads from the marking out of the shot to the vanishing of its limits. As one might guess, however, the strongest challenge created by the effect arises from within the shot, destroying its unity by multiplying it--thus opening the perspective to two connected levels: the single frame image and the apparatus.(6)

Nearly all of the shots are divided between two motifs. The New Mexico landscape--mountains and desert--makes up the background: this image is wholly photographic, even if its color is often a processed one; inscribed against this are large digitally created gray shapes whose complexity comes from their relationship with analog representation--they either redouble it by mimicking its motifs, or they capture and redistribute it. In

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the first instance, the first shot (over which the opening credits are shown) (fig.1) simultaneously shows a background of red mountain and yellow sky, and in the foreground a series of gray waves are propelled with a slight rotating motion that evokes the mountain shapes. The simultaneous appearance of these motifs sets up a reversibility between nature and artifice, form/figure and background, while the contrast between them remains highly conspicuous. In the second instance, which comes up as early as the second shot, a gray, geometric shape, like a double folded screen, stands out against a background of rocky desert (fig.3); on one of its sides, one can make out an obscure, fascist/revolutionary sign (7), on the other, a spinning globe of the earth on which the shadow of the sign is projected (to the accompaniment of sounds of wars, of the language and words that punctuate them: "Stalingrad... Africa...").(8)

The primary interest of the tape comes from the activity of the large gray shapes. Their role is either to represent something--animate or inanimate--or to serve as a kind of image support. In the first instance, they create a certain confusion, allowing for alloys, ensuring transitions between various levels (of ideas, of categories, or matter). In the second and more profound instance, these shapes involve the functioning of memory, of the memory-image, at the core of the experience comprised both by the vision of the tape and the double history displayed in it (figs.5,7,9,12,13,28): the history of this century and the history of the medium--the transition from cinema to video and the computerized image--and the photographic images

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that hover between them. As an example, I will analyze one shot--in which, at the very beginning of the second section, the protagonist faces the devil-angel, casts a stone at him, and then photographs him five times (figs.14,15). At this point, the sky, which forms the background, changes into a gray shape (the only case in this tape, I believe, of a clear transformation of the analog into the digital, of the figurative into the abstract). The sky becomes a screen of metallic rain whose imaginary drops, propelled by a constant motion (upward then downward) are actually many solid micro-fragments, juxtaposed and welded together. It is as if each fragment of this part of the artificial image, born out of the act of taking a still photograph, is reduced to the equivalent of a single frame image--and that whole is a simultaneous image of the shot itself (or, by analogy, of the tape in so far as it is the sum of all the shots). The single frame images, rendered two-dimensional though in motion, both construct and represent the screen that contains them. Thus, we can then pass on to the only shot of the tape that is purely filmic--the gray shape--because it penetrates the film from within it, jogging and reviving its memory, and is charged with representing film mutation.

With the third gray shape of the first section, the die is cast: the elbow-like "bachelor machine" that straddles the landscape is composed of unequal parts that appear to be welded together (fig.9); onto this entire surface, however, film is projected, modulated by the cuts, recomposing so many shots

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and/or single frame images, both real and virtual. Eight (out of thirteen) shapes of this sort can be counted in the first section (figs.5,7,9,12,13). The images that throng and follow on each other constantly reach the limit of visibility/legibility, mostly because they match up with the most unexpected compositions of the gray shapes: thus they become moments of a sort of global phenomenal body, mutating, external/internal--as well as fragments of perception, originating from an autonomous vision. They are at once propelled by a constant motion and ceaselessly interrupted, one might say, by moment/points of fixity that imply barriers from one scene to the other and images "lifted" within the same scene. Finally, one does not know if the scene (minimally) changes or is (merely) reproduced from one shot, from one single frame image to the other, if it is sheer repetition, or constant difference (rather, one has the feeling of going beyond, as if toward a possible image, a visible beyond the divisible yet made of it, close to repetition, as Deleuze defines it, as difference within concept).(9) Nothing is really decipherable, not even for the analyst/spectator who struggles against this decomposition of memory in order to see how it is composed. Everything happens too rapidly, or too obscurely, or too undefinably, even if one guesses or "sees" the totality of what escapes vision: army movements, cities on fire, aircraft carriers, charges, assaults, rocket launches, flights, take-offs, silhouettes, frightened faces.

Thus, the gray shape seems to harbor the body of film, its purely material substance, and make the film unravel beneath "the

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other film"(10); however, the variations of figures, rhythms, frequencies are also in themselves possible echoes of the content of the scenes. The gray shape materializes the thousand and one shapes of this body--the film--only to the extent that it functions at the same time as a screen (fig.15). This takes place in the third section, just after a section that engenders the most beautiful of imaginable shapes: a machine worthy of Kafka's The Penal Colony crosses the desert like rake or a mad insect (fig.18), while scenes of extreme violence seem to vanish and rebound against the edge of the receptor panels where they may be halted yet may also pass through. The effect is enhanced by a movement sweeping the landscape that serves as a background to the machine, which appears to be followed by a tracking shot (this is an extremely rare occurrence in the tape, where movement almost invariably arises from within the image). This shows the extent to which this quite short third section, involving three singular shots (the conflict between the protagonist and the mythical figure, with the steel rain coming down; the "filmic" shot of the protagonist; and this gray shape) underlines points of tension between video and cinema.

The screen is first placed behind the actor, as a memory toward which he turns back: a huge concave screen, cinemascope spread over the landscape, like a Richard Serra sculpture that's finally found its natural surroundings (fig.21). The solid gray is gradually disturbed, clouds float by, the light rises, gathers, and vanishes. The atom bomb explodes. All the world's

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memory. All the energy of a single movement in a huge, still, single frame image.

The screen thus returns as a leitmotiv for the entire third section, with or without the protagonist or the spectator interposed (fig.23). The interest of that section, however, lies mostly in the other gray shapes, which appear in ambiguous, yet powerful alternation. Nearly all these shapes are spinning, spiraling, and most are prismatic, composed of micro-elements arranged in curves, and shattered with intense vibrations that recall the steel curtain-screen originating in the sky (fig.22). The atomic explosion, commented upon by Oppenheimer's voice and processed face (fig.20), is represented both on the screen and by the infinite division of abstract cells conveying pure energy on shapes that function as screens. These all function together as a revival, an amplification of the gray shapes, a background for the projections dispersed in the first section.

Up until this point (roughly in the middle of the tape) one can find three main kinds of gray shapes:

--the undivided screen, with the single event that seems to be reabsorbed in the shot/single frame image (fig.23).

--the myriad form, whose own "empty" event is the processing of the screen, fluctuating from the pure pulsing/twisting of light to a nearly infinite division of cells (fig.22); these cells, produced along a model of geometric progression, are nevertheless largely unequal because of the form of the gray shapes, but they, too, come close to achieving singularity.

--the gray form with a divisible screen (an average of ten unequal screens, themselves dependent on the variations of each form) onto which historical scenes are projected, in an extremely broad range of speeds stilled by brief motionless moments (figs.5,7,9,12,13,28).

Thus, the attentive viewer will appreciate what is being carried out around the single frame image/screen: A single frame image per twenty-fourth or thirtieth of a second, one screen per single frame image. This is what should be visible. For example, in the Spanish sequence (IV) the photograph (or the single frame image?) of a man's face glides upward and downward (fig.26): the chain is interrupted by dark spaces (like black leader on the film-strip) that run so fast that a single frame image seems to occupy the whole screen, even though its connection with the other images is perceptible (every occurrence of the image is, in addition, underlined, mechanically punctuated by a voice that repeats, like a broken record: "Por la Revolucion, Durruti!"). The same thing happens in the Soviet sequence (V). Here, the gray shape first consists of two identical images (of Lenin, Trotsky, etc...) turning on themselves (figs.29,30). These fragments of film-strip coiling and uncoiling, that look like the beginning of a series that stops at the moment an image is split in two, are situated precisely in the interspace between (unique) still photography and (individual or multiple) single frame image. This feeling grows even stronger when the Spanish sequence starts to glide

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again, in a more significant way: moving horizontally now, the images take up nearly the whole screen (one only catches a glimpse of the colored desert landscape) and assume the shape of the screen. Two women's faces glide by, from right to left--both single frame images and still photographs (figs.31,32); by themselves they nearly fill the shot which they set in undulating motion. This "parade" (b) ends with the image of the book that has become emblematic of the psychic leafing through produced by the filmic apparatus; this image, long inscribed by cinema, has been recognized in film theory (by Thierry Kuntzel) and re-worked by video as an afterproduct of cinema (by Vito Acconci, Kuntzel, and others).

Earlier, by way of introducing the transformation affecting the gray shapes, I used the phrase "from a single frame image to the apparatus." The single frame image is at the heart of this transformation--but only because the screen is in itself re-worked as a variable of the photo-cinema-video apparatus. Recall, if you will, the two-sided screen on which, at the very beginning of the tape, the fascist/revolutionary sign and globe of the earth were inscribed (fig.3). This effect is not connected with the gliding and stratification of the images, but with their spatialization within the apparatus, that is, the virtual position of the spectator's eye. When the screen is only

b. Trans Note: Untranslatable pun. Bellour uses the verb defiler (to glide, to glide by) for the images; the beginning of this sentence reads cet album-defile: in this sense, defile means fashion parade (hence the connection with religious procession, and, more significantly, military march).

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(and variously) double--instead of becoming polymorphic (as in the gray shapes with multiple images where the gaze confronts a sort of tactile multiplicity) it is the apparatus' mirror structure that is the direct subject of vision. What then, happens to my mirror/body (facing the screen) which continues to function, even if my eye has already become a polymorphic body? The sixth section (war in the Pacific) tackles this problem by setting up two double screens twice and, what is more, together (to multiply the effect). On the left-hand side, there is the two-sided screen, very close to the first one (though with multiple size variations between its two parts) and, in the middle, an even stranger double screen (fig.35). The part of the image this latter screen covers is split in two and folded vertically at a right angle: its top portion appears in frontal view like a normal movie screen, while its bottom part, much larger, stretches down slantwise to the bottom of the image. Thus the action--here, mainly bombers taking off--occurs twice: the second time partly as a mirror, partly as a ghostly, excessive prolongation of the first one. Meanwhile, on the other pair of double screens, the action embodies other motifs (the soldier's dirty work). Thus, the gaze is constantly relayed from a crossing/breaking of the mirror it continues to face. Each section, in effect, advances one step further in the systematic exploration of a virtuality of images as an extension of the theater of war.

The seventh and last section takes a decisive leap: it draws the character/actor back within the field of memory and

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casts him, as a being made of pure webbing, within the gray shapes. He is enclosed in a split screen, with one of the two images lagging behind the other (fig.37). He suffers within this frame and, being his younger, former self, turns back into his own spectacle, a bygone-image. This double, strained face is subjected to two other unfoldings--all I was able to see, guess, project in this borderline, ungraspable, and enigmatic section, where the unfolded screens are vibrating over themselves, multiplied, and substituted for one another; and inhabited by exchangeable figures with exchangeable features. The first unfolding shows the protagonist, half-recognizable, half-made of fiber and folds, abandoning himself to a performance/dance that leads the images of the world back to video art and its origins, to the exertion of one's body, triumphant inside its screen-cage (fig.39). The second unfolding turns this standing body into a sitting body, making it a spectator, its own spectator (fig.38). One cannot say that these three figures of the same--metamorphosing and gliding under one another--are tied in a loop, for no image has the power to prescribe an overall meaning; but one has the feeling, nonetheless, that the images of the world are hostage to a memory designated within the very art that calls them forth.

To further convey the complexity of the work and conclude this analysis, which is partly a description, I offer a few additional remarks, if only to convey how hard it is for mere

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words to render some of the new states of the image given the extent to which, in this work, a truly "unattainable" text (11) is composed. The word "text" no longer makes any sense, except as a reminder that language's sole prerogative is still its ability to try to say something, to remonstrate against anything. The first striking fact is the interdependence created, with the gray shapes, between figure and background; what exists as figure, or moves toward the figure, may also be background. Some of the most disturbing moments of the tape are caused by the way the screens/backgrounds become in themselves objects that seize some meaning, some possible meanings. Such is the case for several gray shapes that are loaded with films and single frame images. In the Spanish section, for a huge stratified mass on which a still projection that could be mistaken for a fresco is inscribed, like an immense mausoleum (fig.24), a comparable mass appears at the end, as a false background for the credits: it is hollow this time, however, as though frayed from within and laden, so to speak, with all the undone memory that has accumulated throughout the tape--for the spectator as well as for the protagonist and the author he represents: this mass might be (and this is where its power lies) tomb, monument, brain, rock, face, a mass of undifferentiated memory (fig.40).

Next comes the very substance of the shapes--particularly of the shapes that are also backgrounds for a projection. I depicted them as being both full and flat (in spite of the strange profiles that can be seen in the illustrations). Yet, part of their power comes from their malleability, their

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transformability. A gray shape can become thick like a wall (fig.24), the screen a mass that accumulates memory and seems a part of the real things of the world, even if it is a mere mirror for its images. A gray shape can be translucent, like a silhouette cut-out. Curiously then, the shape is no longer really gray but gradually takes on color, having a less clear-cut relationship with the natural background than the other gray shapes in the tape. Finally, the gray shapes can be frayed, cloudy, hollow. In the Spanish sequence (where the backgrounds for multi-screen projection powerfully reappear) these different occurrences of the gray shapes are combined in the most extraordinary way: images are projected onto false dissolved screens where representation seems to collapse within the very time-space in which it is presented. This process grows more vertiginous when the actions of the bodies contradict the nature of the background that holds them: soldiers charging with guns and bayonets, or digging up the moving ground of this screen (fig.25), which is always on the verge of splitting open under the weight of its own lightness. There is as well an extraordinary moment in the Soviet sequence: shots/photographs of women glide by, from right to left, nearly filling up the entire screen; they are followed by the image of a man that moves past in a similar fashion (fig.33), except that the gray shape has now become both thicker (like a wall/screen), and hollow, distended, with its lines of memory left agape. In this image, volume and surface compete and verge on disappearance; in turn the image spawns a

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series of screens-words-images-books: the very image of the stratified and layered (c) cultural memory that could be emblematic of the entire "art of memory."

One may imagine how the transformations I just described are combined with those I mentioned earlier, and especially how this continuous mutation of the gray shapes within their own space, as within the entire screen, is ceaselessly combined with the constant, yet variable special effects that establish transitions between shots or moments (figs.8,10,11,17). A continuous mobility results, one of unceasing intersections and crossings, and one that would seem to defy any drawing of distinctions.

Nonetheless--and such is the power of the tape--the idea of the shot, the feeling of the shot, though split, fractured and, as it were, vaporized, still endures. The shot remains the decoupage and memory device, for the contemporary spectator as well as for the spectator whose mind scans the history of wars captured by cinema in this century, which has become a history of cinema itself. The effort to maintain the shot as a unit of comprehension, destroyed then renewed, is quite close (yet with extremely different applications) to Marcel Odenbach's work on the strip-form (12): there is the same re-possession, the same distance-taking from the world, proceeding from video's formal re-articulation of major works from the past--Hitchcock for Odenbach, Eisenstein and Vertov for Vasulka. Destroying, then

c. Trans. Note: untranslatable pun: feuilleter means both to layer apart and to leaf through, so the past participle feuillete connotes both books and "stratification."

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reconstructing the shot, then making this work visible: this, too, is the art of recognizing the memory of and within cinema.

There is, however, within this very movement, a more profound way to reach cinema while being beyond it. I have spoken of the structure of the cinematic apparatus--as screen, scenic place, solid memory--as constantly renewed with the aim of materializing the filmic apparatus and thereby capturing the single frame image, both actually and virtually. More precisely, the single frame image is shown in its infinitude, multiplicity, and singularity, but primarily in both its immobility and movement--one overlapping the other without completely encompassing it. One comes to realize, as in Vertov's work, how this immobility itself creates movement, and also how, at the very moment this movement (here infinitely accelerated) speeds up, motionlessness might at any point fall back on itself. The photographic function emerges as an element both visible and invisible, but always di-visible, of the transformation process that carries it to infinity. This is fundamental. The whole of Woody Vasulka's art is directed toward a processing of the image that aims at determining its substance and modes at every point, beyond the natural dictates of photography and its corollary: analogy. It is directed, in effect, toward a camera-less art. The power of this work lies in its ability to restore to us, in real time, the conditions of memory, at the very moment when we can glimpse an abstract time devoid of all connection to a pre-existing visible world. One might say, as long as lines and points bear the mark of a pre-existing photography, memory is

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still matter for history, and cinema is still captured in the course of its own development.

1. Gilles Deleuze, L'image-temps (Paris: Minuit, 1985), p. 223.
2. Woody Vasulka, in "Woody Vasulka: Experimenting with Visual Narrative," by Ken Ausubel, News & Review (May 11, 1983), p. 8.
3. Jean-Paul Fargier, "Steina et Woody Vasulka: Zero un," in Ou va la video? (Paris: Cahiers du Cinema/Editions de l'Etoile, 1986), p. 76-82.
4. Ibid, p. 79.
5. I have deliberately "cheated" on the decoupage. Syntagmatically, there are, strictly speaking, eight sections, if one follows the logic of segmentation demonstrated in the demarcation device--the gray "wipe" that closes shut (with a clapping noise that heightens the image-effect). From the point of view of the theme, however, section three and what would be section three or four are homogenous, since both deal with nuclear holocaust and are based on comparable elements. We find here, in an amusing but significant way, the basic problems of segmentation of classical cinema.
6. The word apparatus is used in English to translate two different French concepts, appareil de base and dispositif. Appareil de base denotes the situation of the subject in relation to the mirror stage and Renaissance perspective. Dispositif denotes the whole filmic situation, including the spectator's unconscious. In film theory, both meanings are used, but in this text, I refer mostly to the second meaning.
7. In fact, the sign bears the letters "UFA"--the initials of the biggest producer of German movies, that later became the producer of propaganda films for the Nazis.
8. There are exceptions to this omnipresence of the gray shape: the single "filmic" shot; several shots with the devil-angel in the landscape (for example, six in the first section); two shots of Oppenheimer in the third section (a third shot turns Oppenheimer into the gray shape); and a few colored solarizations behind the protagonist in the same third section.
9. This is the emblematic formula used by Gilles Deleuze in Difference et repetition (Paris: PUF, 1968).

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- 10. By "filmic apparatus" Thierry Kuntzel designates a space both material and mental, between the "projected film" and the "film stock." See "A Note Upon the Filmic Apparatus," Quarterly Review of Film Studies vol.1, no.3 (1976), pp. 266-71.
- 11. See Bellour, "The Unattainable Text," Screen, vol.16, no.3 (London, 1975), pp. 19-27.
- 12. See Bellour, "The Form My Gaze Goes Through," Afterimage, vol.16, no.4 (November 1988), pp. 4-6.

Translated from the French by David Jacobson and Berenice Reynaud.

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Vasulka Catalogue, program notes, 1

Early Documentary

Participation, 1969-71, by Steina and Woody Vasulka, 60 min.,
b&w

After acquiring their first video portapak, the Vasulkas, like other early video practitioners, took their camera to the streets to document the counterculture life in the late 1960s and early 1970s. Through their newly arrived eyes, the alternative movements of American culture presented unlimited possibilities. They later wrote of this time: "We were interested in certain decadent aspects of America, the phenomena of the time-- underground rock and roll, homosexual theater, and the rest of illegitimate culture. In the same way, we were curious about more puritanical concepts of art inspired by [Marshall] McLuhan and Buckminster Fuller. It seemed a strange and unified front-- against the establishment." In Participation the Vasulkas present vignettes of marginal culture--rock concerts, gay theater, and impromptu street theater. These tapes embody the originality and spontaneity that characterize early experiments with video--Don Cherry eloquently playing his trumpet in Washington Square Park; Jimi Hendrix and Jethro Tull performing at the Fillmore East; Andy Warhol's gang arguing vehemently on the "David Susskind Show" about whether or not they are being exploited; and transvestites acting impromptu skits in makeshift theaters. Participation evokes not only the utopian moment of the counterculture at a time of political upheaval but also the utopian moment of the video medium, when a sense of immediacy seemed to imbue every shot--a time when video practitioners like

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the Vasulkas were excitedly discovering the possibilities of electronic imaging.

Note: This program contains several scenes with nudity.

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Time/Journey

- Evolution, 1970, by Steina and Woody Vasulka, 16 min., b&w
- Golden Voyage, 1973, by Steina and Woody Vasulka, 28 min., color
- In Search of the Castle, 1981, by Steina and Woody Vasulka, 12 min., color

Total: 56 min.

Many of the Vasulkas' early experiments with video employ the use of horizontal drift, a technique in which the video frame is released from the confines of the monitor screen (by altering the timing pulse of the video signal) and allowed to drift horizontally. This technique has been a primary visual motif in their work and is important to their conceptualization of the video image as unrestricted by the frame (in contrast to the cinematic frame). Evolution, one of their first uses of this technique, deals with notions about the development of humankind and imaging technology: the standard evolutionary chart of human development is set into motion horizontally across the screen so that it appears to rewind in time. Here, horizontal drift is used to represent the passage of time, humorously set in reverse, as a means of relating a particular video effect to specific narrative content. Golden Voyage also reflects this playful and experimental quality. Inspired by Rene Magritte's painting The Golden Legend, the tape was remarkable at the time for its integration of a three-camera setup with horizontal drift to create the impression of objects moving through a landscape: one camera was focused on the landscape, one on the moving frame through which the landscape was inserted, and one on the object. The Vasulkas humorously play off Magritte's surrealism as they

animate loaves of French bread. The loaves embark on a journey through various cities and landscapes, and assume numerous metaphoric roles: they are phallic symbols interacting with a naked woman, spaceships flying over the city, and finally, planets orbiting in space. In Search of the Castle concludes this program with a symbolic journey. Videotaping from their car with a sphere-like lense, the Vasulkas travel through various landscapes. As their "search" continues, the landscape is transformed by increasingly complicated imaging techniques. Finally, they arrive at a highly digitized, abstract electronic space, a space purely defined by video--in effect, having traced their own journey through electronic media.

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Sound/Image

- Soundgated Images, 1974, by Steina and Woody Vasulka, 10 min., color
- Noisefields, 1974, by Steina and Woody Vasulka, 13 min., color
- Violin Power, 1970-78, by Steina, 10 min., b&w and color
- Bad, 1979, by Steina, 2 min., color
- Voice Windows, 1986, by Steina and Woody Vasulka in collaboration with Joan La Barbara, 8 min., color

Total: 43 min.

The relationship of sound and image in electronic technology has been a central concern of the Vasulkas. Their early experiments with audio/visual interface concentrate on the way that both sound and image are generated by waveforms in video technology. In these tapes, the image is both a visualization of abstract electronic sound and an element that modifies and distorts the image. Textured compositions are created in which the two elements are, in effect, inseparable. Soundgated Images demonstrates six different instances of audio/visual interface in which sound and image are generated simultaneously: for example, a gentle flute-like sound that produces abstract visual forms is interrupted by a harsh electronic buzz and compressed, flashing shapes; a raspy, clapping sound alters the colors and shapes of several abstract forms. In Noisefields a field of video snow, or noise (defined by a circular shape set within the rectangular screen) flashes alternately in a rhythmic pattern. This experiment with "video flicker" produces a mesmerizing image with a dense tactility and texture--the snow begins to symbolize the materiality of the electronic signal. The irrevocable tie of electronic sound and image is playfully pursued by Steina in Violin Power, her "demo tape on how to play video on the violin."

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The tape begins with a straightforward black-and-white image of Steina playing the violin and progresses over time toward her increasing use of the violin in conjunction with video tools. Steina's eventual replacement of the violin with the video camera as her primary instrument, results in the violin becoming an image-generating machine. Rigged up to imaging devices, the violin transforms the camera image, rendering it a surface onto which "music" moves as a kinetic force. In Bad, these sound/image experiments are extended to a digital context. In this work, Steina weaves rhythmic sound and image to examine the up/down, right/left movement, and squeezing/ stretching of the image in digital technology, using her face as the image material. Finally, Voice Windows is an integration of sound and image in which the singing voice of Joan La Barbara produces energetic permutations in a grid of lines (reminiscent of a musical scale) that forms a window onto images of moving landscape. The rifts, chants, and scat singing of La Barbara's voice become a visual dance in this electronic scape.

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Machine Vision

Orbital Obsessions, 1975-77, by Steina, 28 min., b&w
Urban Episodes, 1980, by Steina, 9 min., color

Total: 37 min.

Steina's Machine Vision project, which she has been pursuing since the mid-1970s, involves the creation of a machine-derived way of seeing uninfluenced by the idiosyncracies of the human eye. Her early experiments involved constructing mechanical devices through which the camera could be preprogrammed and hence, operate by itself. Steina began by rotating the camera on a standard turntable, then combining several different rotating perspectives, and adding mirrors and prisms to further layer the image. In Orbital Obsessions, Steina experiments with the process of creating increasingly layered, revolving images that problematize the notion of the camera view. This tape, which is a composite edit of her tapes Signifying Nothing (1975), Sound and Fury (1975), Switch! Monitor! Drift! (1976), and Snowed Tapes (1977), shows Steina's impromptu experiments in reformulating video space. The tape begins with one camera rotating on a turntable in the Vasulkas' loft in Buffalo. Steina then complicates the image by walking before the camera with the video monitor. As she adds each new element, the image becomes increasingly layered and in depth, with images revolving within images. In other sections of the tape, Steina sets up two cameras facing each other and uses a flip-flop mechanism to switch between the two views; she moves in the space between the cameras, using her body to explore the boundaries of electronic

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space. Working with layering horizontal drift, so that two sets of images move horizontally past each other, reorchestrating space with positive and negative video images, keying images into each other and setting several cameras in motion, Steina systematically examines video in a real-time mode as a medium of both movement and depth. In Urban Episodes, Steina sets up a Machine Vision device outdoors in a public plaza in downtown Minneapolis. Consisting of a rotating camera that "sees" through mirrors and prisms and an exaggerated fish-eye lens, this device was preprogrammed to scan the city plaza with pan, zoom, tilt, and rotation movements. The images it "creates" effectively restructure the surrounding cityscape so that gravity is subverted and urban structures are abstracted and fragmented in electronic space.

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Digital Language

Vocabulary, 1973, by Steina and Woody Vasulka, 6 min., color

Cantaloup, 1980, by Steina, 28 min., color

Artifacts, 1980, by Woody Vasulka, 22 min., color

Total: 56 min.

Throughout the late 1970s, the Vasulkas were occupied with designing and building the Digital Image Articulator, or Imager, with Jeffrey Schier; the didactic nature of many of their videotapes from the 1970s reveals the immensity of their undertaking to comprehend the elements of the electronic image and digital imaging technology. This step from analog (in which the image is manipulated through the regulation of voltage changes) to digital (in which an image is divided into picture elements, or pixels, which are mathematically coded) was a crucial development in their work. These tapes exemplify the project undertaken by the Vasulkas to define the phenomenology of the digital image as a kind of vocabulary. Working with basic forms, such as a sphere (or cantaloup) and a hand (symbolizing gesture and expression), the Vasulkas examine the basic elements of digital language. Vocabulary, a work that is a hybrid of analog and digital, precedes the Vasulkas' construction of the Imager. Here, they examine the "basic energy laws in electronic imaging" with a digital delay (which produces a deliberate timing error to give the image a kind of visual echo), a scan processor (which reduces the analog image to its scan lines), a keyer (which allows one image to be inserted within another), and a colorizer, to explore the malleability of basic forms. Both Cantaloup and Artifacts are documentary works in which Steina and

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Woody offer informal explanations of the Digital Image Articulator and the process of digital imaging in real time. In Cantaloup, Steina casually documents the designing and building of the Digital Image Articulator and explains the size of pixels, the layers (or slices) of color and tone used to create form, and techniques such as grabbing (freezing) the image and multiplying it. Artifacts is Woody's explanatory tape of the Imager and his system of binary syntax--an examination of digital image transformation based on mathematical principles. Artifacts demonstrates Woody's symbiotic relationship with imaging machines and tools: he says in the tape, "I have to share the creative process with the machine; it is responsible for too many elements in this work. These images come to you as they came to me--in a spirit of exploration."

Space/Landscape

Flux, 1977, by Steina, 9 min., b&w

Stasto, 1979, by Steina, 6 min., b&w

Selected Treecuts, 1980, by Steina, 8 min., color

Summer Salt, 1982, by Steina, 18 min., color

Lilith, 1987, by Steina in collaboration with Doris Cross, 9 min., color

Total: 50 min.

Landscape has become an increasingly central subject matter in Steina's reorchestrations of space. Employing a variety of devices--digital effects such as switching (flip-flopping) between sets of images, freezing the image, and analog effects such as keying (electronically inserting one image into another) or using a mirrored sphere--Steina uses the landscape as material through which to redefine space and the viewer's relationship to it. In Flux, Steina manipulates imagery of flowing water to heighten the viewer's sensory experience of the sound textures and dynamic visuals of a rushing stream. With an extreme wide-angle lens, she turns the stream into a radiating globe of undulating water that evokes a revolving earth as a sphere of liquid, and by alternating between images of water flowing in opposite directions, she magnifies the pounding force of the water. The relentless movement of Steina's camera through space, as it travels through a foreboding analog landscape, begins Stasto (start/stop). Stasto is both a portrait of the relationship of static and moving images and a highly textured composition of movement manifested as sound. Steina alternately freezes images of rushing water digitally in the computer memory, so that the water appears to rush forward into a static, digital

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state. As she switches between alternating images of rushing water, the sound creates a dense aural texture of movement and flow. Selected Treecuts extends these movement compositions with the addition of a zoom lens and other digital techniques. The tape begins with its characteristic image of a stand of trees bisected by a revolving digital square--an abstract image contrasting the soft lines of the trees with the square frame of digital pixels. As the camera slowly zooms in and out on the trees, Steina freezes the image and switches between digitized and camera-generated images. The effect is a layered juxtaposition of the photographic and the digital, one that calls into question standard notions of the "real."

Summer Salt is a playful exploration into the phenomenology of the electronic image, one that does not so much examine the contrast of digital and analog, like these tapes, but the basic positions and movements of the video camera. Here, Steina uses Machine Vision to view the landscape from angles unavailable to the human eye: in Sky High, she holds the camera with a mirrored lens attachment on the roof of her car for a sky-saturated view; in Low Ride she straps it to the front bumper to give a tactile, low angle view in which the desert floor seems to invade the television screen; in Somersault, she performs gymnastics with the camera (with a mirrored lens attachment that gives it a fish-eye lens effect) in a humorous, almost slapstick exercise on the mobility of the video camera. Finally, in Lilith, Steina adds an elusive narrative element to her landscapes, modifying and manipulating the face of painter Doris Cross in an eerie

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reference to female icons (Lilith is a biblical figure--in some texts she was the first wife of Adam--who represents a witch, or a woman with mystical powers). Cross' face is submerged within the landscape, and with her haunting, slowed speech she appears to reach out from the earth in a primordial gesture.

Memory/Narrative

- Reminiscence, 1974, by Woody Vasulka, 5 min., color
- The Commission, 1983, by Woody Vasulka; camera by Steina; with Robert Ashley and Ernest Gusella; 45 min., color
- Art of Memory, 1987, by Woody Vasulka; with Daniel Nagrin, 36 min., color

Total: 86 min.

Issues of memory, history, and narrative, and their relationship to electronic imaging have been central concerns of Woody's work. In Reminiscence Woody used the effects of the Rutt/Etra scan processor to make portapak video images appear as visual impressions, like distant memories. This tape of a walk through a farm in Moravia, a place of Woody's childhood, is processed through the scan processor so that certain elements are raised and others lowered, like memories in which some elements remain vivid and others fade. The Commission represents Woody's initial foray into narrative structure, and his first experiment with anti-narrative strategies. Here, he chose the story of two romantic and legendary artists--composers Hector Berlioz and Niccolo Paganini--to experiment with the concept of producing imaging effects with specific narrative meaning. The story of this "electronic opera" centers on a commission a patron wanted the violinist Paganini to present to his rival Berlioz. Paganini (played by video artist Ernest Gusella) represents the flamboyant yet eventually destitute artistic genius, rejected by the church and unknown, whereas Berlioz (played by performer/composer Robert Ashley) is the pompous, egocentric artist. Woody's central purpose in this tape is to subvert the narrative and produce narrative elements through video effects; in each of the tape's

eleven segments a different effect is employed for specific narrative meaning: Paganini's frenzied violin playing is echoed in shadows of image movement; the exchange of the commission is made tense by a constant flip/flop technique between the two men; and Paganini's embalming is given an ethereal and deathlike quality by the characteristic skeletal effect of the scan processor.

Both The Commission and Art of Memory are pivotal works in Woody's project to use electronic effects to construct a visual language and represent a new visual code. Art of Memory is concerned with the violent events that have shaped the 20th century and the textures and nuances of memory. Structured into seven acts that touch on particular themes--among them, the Spanish Civil War, the Russian Revolution, the war in the Pacific, and the nuclear bomb--the tape is visually composed of three-dimensional image forms into which Woody inserted moving archival film clips and photographs of the war. Set against the landscape of the American Southwest, these image forms symbolize the passage of time and the nature of film as history subsumed within electronic space. Art of Memory reflects on the cultural loss of memory in the 20th century, and the role of the camera in both creating and effacing memory.

Vasulka Catalogue, bios, 1

WOODY VASULKA

Woody Vasulka was born Bohuslav Vasulka in Brno, Czechoslovakia, in 1937. He studied metal technology and hydraulic mechanics at the School of Industrial Engineering, Brno, where he received a baccalaureate degree in 1956. In 1964, he graduated from the Academy of Performing Arts, Faculty of Film and Television, Prague, where he was awarded a Diploma in Production and Direction of Documentary Films. Woody and Steina met in Prague in 1962 and were married there in 1964. In 1965, they emigrated to the United States and settled in New York City. For the next few years, Woody worked as a film editor with Francis Thompson and as a designer and editor of multi-screen exhibits, as well as a technical advisor to the Alternate Media Center and Electronic Arts Intermix. The Vasulkas began working with video in 1969 and in 1971, with Andres Mannik, they founded The Kitchen as an electronic media theater for video, film, music, and performance. With Steina, Woody has been an artist-in-residence at the National Center for Experiments in Television (NCET) at KQED in San Francisco and at WNET/Thirteen in New York. From 1973 to 1979, he was an Associate Professor at the Center for Media Study, State University of New York, Buffalo. In 1974, Woody acquired a Rutt/Etra scan processor, and, in 1976, with Jeffrey Schier began to build the Digital Image Articulator, a digital computer imaging system that has been central to his work. Throughout the late 1970s, Woody's efforts were concentrated on completing the Imager and on designing an imaging model for

Vasulka Catalogue, bios, 2

computers, known as the Syntax of Binary Images. In 1980, the Vasulkas moved to Santa Fe, New Mexico, where Woody has produced two major works using the Rutt/Etra scan processor and the Digital Image Articulator--The Commission (1983) and Art of Memory (1987-88).

Woody has received funding from the New York State Council on the Arts (NYSCA), Creative Artists Public Service (CAPS), the National Endowment for the Arts (NEA), the Corporation for Public Broadcasting, the Guggenheim Foundation, and the Western State Arts Division.

STEINA

Steina was born Steinunn Briem Bjarnadottir in Reykavik, Iceland, in 1940. Throughout her youth, she studied violin and music theory and in 1959 received a scholarship from the Czechoslovakian Ministry of Culture to attend the music conservatory in Prague. There, in 1962, she met Woody Vasulka, and two years later they were married. Shortly thereafter, Steina joined the Icelandic Symphony Orchestra. In 1965, the Vasulkas moved to New York City, where Steina worked as a free-lance musician. By 1969, both Steina and Woody had begun working in video. In 1971, the Vasulkas and Andres Mannik founded The Kitchen, an electronic media theater for video, film, music, and performance. Together, the Vasulkas held artist residences at the National Center for Experiments in Television (NCET) at KQED in San Francisco and at WNET/Thirteen in New York. The Vasulkas moved to Buffalo, New York, in 1973, to assume teaching

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Vasulka Catalogue, bios, 3

positions at the Center for Media Study, State University of New York, Buffalo. In 1975, Steina began working with Machine Vision, a continuing investigation of space via mechanical systems and electronic images. Following the Vasulkas' move in 1980 to Santa Fe, New Mexico, Steina began to focus on landscape in her work and produced her best-known work to date, The West (1983). In her current series Geomania, she applies the strategies of Machine Vision to diverse landscapes in Scapes (1986), Ptolemy (1986) and Geomania (1989).

Steina has received funding from the New York State Council on the Arts (NYSCA), the National Endowment for the Arts (NEA), the Corporation for Public Broadcasting, the Guggenheim Foundation, the Rockefeller Foundation, and the Western State Arts Division. From 1987 to 1988, she was an artist-in-residence in Tokyo on a U.S./Japan Friendship Committee grant.

Vasulka Catalogue, Selected Works, 2

Steina

- Let It Be, 1970, 4 min., b&w
- Violin Power, 1970-78, 10 min., b&w and color
- From Cheektowaga to Tonawanda, 1975, 36 min., color
- Signifying Nothing, 1975, 15 min., b&w
- Sound and Fury, 1975, 15 min., b&w
- Switch! Monitor! Drift!, 1976, 50 min., b&w [reedited, 30 min.]
- Allvision, 1976, two-channel installation, many versions, b&w
- Snowed Tapes, 1977, 15 min., b&w, silent
- Land of Timoteus, 1977, 15 min., color
- Flux, 1977, 9 min., b&w
- Stasto, 1979, 6 min., b&w
- Bad, 1979, 2 min., color
- Selected Treecuts, 1980, 8 min., color
- Cantaloup, 1980, 28 min., color
- Urban Episodes, 1980, 9 min., color
- Exor, 1980, 4 min., color
- Summer Salt (includes Sky High, Low Ride, Somersault, Rest, Photographic Memory) 1982, 18 min., color
- The West, 1983, two-channel installation, 30 min., color
- Scapes, 1986, two-channel installation, color
- Ptolemy, 1986, two-channel installation, color
- Voice Windows, 1986, 8 min., color In collaboration with Joan La Barbara
- Lilith, 1987, 9 min., color In collaboration with Doris Cross
- Vocalization One, 1988, 12 min., color In collaboration with Joan La Barbara
- Geomania, 1989, ~~two~~^{two}-channel installation, color

Woody

- Explanation, 1974, 12 min., color
- Reminiscence, 1974, 5 min., color
- C-Trend, 1974, 10 min., color
- The Matter, 1974, 4 min., color
- Artifacts, 1980, 22 min., color
- The Commission, 1983, 45 min., color
- Art of Memory, 1987, 36 min., color
- Art of Memory, 1989, three-channel installation, color

Vasulka Catalogue, Selected Works, 1

Selected Works

Included are only those videotapes that are complete and extant. Running times for installations indicate the length of a tape shown on a continuous cycle.

Steina and Woody Vasulka

Participation, 1969-71, 60 min., b&w

Sketches, 1970, 27 min., b&w

Calligrams, 1970, 12 min., b&w

Sexmachine, 1970, 6 min., b&w

Tissues, 1970, 6 min., b&w

Interface, 1970, 3:30 min., b&w

Jackie Curtis' First Television Special, 1970, 45 min., b&w

Don Cherry, 1970, 12 min., b&w In collaboration with Elaine

Milosh

Decay #1, 1970, 7 min., color

Decay #2, 1970, 7 min., b&w

Evolution, 1970, 16 min., b&w

Adagio, 1970, 10 min., color

Matrix, 1970-72, multi-channel installation, many versions, b&w

Swan Lake, 1971, 7 min., b&w

Discs, 1971, 6 min., b&w

Shapes, 1971, 13 min., b&w

Contrapoint, 1971, 3 min., b&w

Black Sunrise, 1971, 21 min., color

Keysnow, 1971, 12 min., color

Elements, 1971, 9 min., color

Continuous Video Environment, 1971, multi-channel installation, b&w

Spaces 1, 1972, 15 min., b&w

Distant Activities, 1972, 6 min., color

Spaces 2, 1972, 15 min., b&w

Soundprints, 1972, endless loops, color

The West [early version], 1972, three-channel installation, b&w

Home, 1973, 16 min., color

Golden Voyage, 1973, 28 min., color

Vocabulary, 1973, 6 min., color

Noisefields, 1974, 13 min., color

1-2-3-4, 1974, 8 min., color

Solo For 3, 1974, 5 min., color

Heraldic View, 1974, 5 min., color

Telc, 1974, 5 min., color

Soundgated Images, 1974, 10 min., color

Soundsize, 1974, 5 min., color

Electronic Environment, 1974, multi-channel installation, b&w

Six Programs For Television: Matrix, Vocabulary,

Transformations, Objects, Steina, Digital Images, 1979, 174 min. total, 29 min. each, color

In Search of the Castle, 1981, 12 min., color

Progeny, 1981, 19 min., color In collaboration with Bradford Smith

Ecce, 1987, two-channel installation, 4 min., color

Vasulka Catalogue, Selected Exhibitions, 1

Selected Exhibitions*

All works are by Steina and Woody Vasulka unless noted
(S indicates Steina only; W indicates Woody only).

Selected Group Exhibitions

1971

"Video Festival," Merce Cunningham Studio, New York

"Avant-Garde Festival," 69th Regiment Armory, New York

"A Special Videotape Show," Whitney Museum of American Art, New York

1972

"National Video Tape Festival," Minneapolis College of Art and Design, Minneapolis, Minnesota

"Avant-Garde Festival," Alexander Hamilton Hudson River Boat, South Street Seaport, New York

1973

"Circuit: A Video Invitational," Everson Museum of Art, Syracuse, New York

1974

"2nd International Computer Art Festival," The Kitchen, New York

"L'Image electronique," Musee d'art contemporain, Montreal, Quebec, Canada

"Knokke Heist Film Festival: Exposition de Video Experimentale," La Cinematheque Royale de Belgique, Knokke Heist, Belgium

1975

"Video in America," Sonja Henie Onstad Center, Oslo, Norway

"Video: The New Art Medium," The American Center, Stockholm, Sweden

Vasulka Catalogue, Selected Exhibitions, 2

"Video Art," Institute of Contemporary Art, University of Pennsylvania, Philadelphia, Pennsylvania

"Video: A New Art Medium," The American Library, Brussels, Belgium

"Projected Video," Whitney Museum of American Art, New York

"Alphons Schilling/Woody Vasulka: Binocular Works," Collective for Living Cinema, New York (W)

1976

"6. Internationaler Forum des Jungen Films," Berliner Film Festival, Berlin, West Germany (S)

1977

"Whitney Biennial," Whitney Museum of American Art, New York

"Video Exhibition," Biddick Farm Arts Centre, Tyne & Wear, England

1978

"Digital Images," Video Free America, San Francisco, California

"19th Festival dei Popoli," Florence, Italy

1979

"Video '79," Museo del Folklore Romano, Trastevere, Italy

"Recent Video of Analog and Digital Expressions," Experimental Television Center, Binghamton, New York

"Information Arts: Color Graphics and Personal Computers," Anthology Film Archives, New York

"Videowochen Essen '79," Museum Folkwang, Essen, West Germany

"Image Proccesing," The Kitchen, New York

1980

"1980 Armory/Museum !Festival! Show," Santa Fe, New Mexico (S)

"Video '80 Festival," San Francisco, California

Vasulka Catalogue, Selected Exhibitions, 3

"New Mexico Film and Video Festival," Rising Sun Media Center,
Santa Fe, New Mexico

1981

"New York Video 1981," Stadtische Galerie im Lenbachhaus, Munich,
West Germany

"National Video Festival," American Film Institute, Washington,
D.C.

"Festival International de Musique Electronique," Brussels,
Belgium

1982

"World-Wide Video Festival," Kijkhuis, The Hague, Holland

"No Mountains, No Mesas," The Armory, Taos, New Mexico

"Video Roma Festival," Rome, Italy

1983

"Women & Movies Festival," Kennedy Center, Washington, D.C. (S)

"Art Video," La Biennale de Venezia, Venice, Italy

"San Sebastian Video Festival," San Sebastian, Spain

"Video as Attitude," University Art Museum, Albuquerque, New
Mexico

"Electronic Visions," Hudson River Museum, Yonkers, New York

1984

"5e Festival International d'Art Video," Locarno, Switzerland

"2e Manifestation Internationale de Video," Montbeliard, France

"10 Gestir" Art Festival '84, Art Museum of Reykjavik, Iceland (S)

"1e Festival Nacional de Video," Circulo de Bellas Artes de
Madrid, Madrid, Spain

"New American Video Art: A Historical Survey, 1967-1980," Whitney
Museum of American Art, New York

Vasulka Catalogue, Selected Exhibitions, 4

"National Video Festival," American Film Institute, Los Angeles, California

"Tucson Women's Video Festival," Tucson, Arizona (S)

1985

"Kunst mit Eigen-Sinn," Museum des 20. Jahrhunderts, Vienna, Austria (S)

"Fukui International Video Festival '85," Fukui, Japan

"Whitney Biennial," Whitney Museum of American Art, New York (W)

"Schragspur Videofestival," Graz, Austria

"SIGGRAPH '85," San Francisco, California (W)

"Sao Paulo Festival," Sao Paulo, Brazil

"Stockholm International Video Festival," Stockholm, Sweden

"Taidevideonayttely," Suomen Hologrammigalleria, Helsinki, Finland

1986

"Best of the West," The Brooklyn Museum, Brooklyn, New York

"Computerkultur Tage Linz," Ars Electronica Festival, Vienna, Austria (W)

"Women and Technology," Women's Studio Workshop, Binnewater Arts Center, New York State (S)

"Poetic License," Long Beach Museum of Art, Long Beach, California (W)

"1986 Invitational Exhibition" Roswell Museum and Art Center, Roswell, New Mexico (S)

"Transculture/Transmedia," Exit Art, New York (S)

"Video Installed," New Langton Arts, San Francisco, California (S)

"National Video Festival," American Film Institute, Los Angeles, California (W)

1987

"Video Discourse: Mediated Narratives," La Jolla Museum of Contemporary Art, La Jolla, California (W)

Vasulka Catalogue, Selected Exhibitions, 5

"Effetto Arcimboldo, Palazzo Grassi, Venice, Italy

"Techno Bop '87," The Kitchen, New York

"The Arts for Television," Stedelijk Museum, Amsterdam, and The Museum of Contemporary Art, Los Angeles, California (W)

"World Wide Video Festival," Kijkhuis, The Hague, Holland

"Television and Video Festival," Scan Gallery, Tokyo, Japan (W)

"Southwest Biennial," Phoenix Museum of Art, Phoenix, Arizona (S)

1988

"American Landscape: The Electronic Grove," Museum of Art, Carnegie Institute, Pittsburgh, Pennsylvania. Travels in 1989 to San Francisco Museum of Modern Art, San Francisco, California

"Tokyo Film & Video Festival," Tokyo, Japan

"Fukui International Festival," Fukui, Japan (W)

"Ed Emshwiller & Woody Vasulka: New Works," LACE, Los Angeles, California (W)

"Third Australian Video Festival," Paddington, Australia

1989

"Whitney Biennial," Whitney Museum of American Art, New York

Vasulka Catalogue, Selected Exhibitions, 6

Selected Solo Exhibitions

1971

"The Vasulkas," Max's Kansas City, New York

Jackie Curtis' First and Second Television Special, Global Village, New York

Screenings and live video performances, The Kitchen, New York

Continuous Video Environment, WBAI Free Music Store, New York

Transmitted Environment, Experimental Television Center, Binghamton, New York

Video Free America, San Francisco, California

Vancouver Art Gallery, Vancouver, British Columbia

1973

Golden Voyage, The Kitchen, New York

1974

Video Environment, Norton Hall, State University of New York, Buffalo, New York

"From Film to Video," Anthology Film Archives, New York

1975

Environment, Cathedral Park, Buffalo, New York (W)

Environment, Cathedral Park, Buffalo, New York (S)

"Video by the Vasulkas," The Kitchen, New York

1976

Allvision, HALLWALLS, Buffalo, New York (S)

"Time/Energy Objects," Center for Media Study, State University of New York, Buffalo, New York (W)

"Recent Binocular Works on Film," HALLWALLS, Buffalo, New York (W)

Vasulka Catalogue, Selected Exhibitions, 7

"Matrix 1, Electronic Materials," Everson Museum of Art,
Syracuse, New York

Collective for Living Cinema, New York (S)

Pittsburgh Filmmakers, Pittsburgh, Pennsylvania (S)

1977

"Two Video Programs," And/Or Gallery, Seattle, Washington (S)

"Electronic Image in Film," Anthology Film Archives, New York (W)

1978

"Vasulka: Steina--Machine Vision/Woody--Descriptions,"
Albright-Knox Art Gallery, Buffalo, New York (Catalogue)

Allvision No.2, The Kitchen, New York (S)

"Notations," Global Village, New York

1982

Allvision, Museum of Art, Carnegie Institute, Pittsburgh,
Pennsylvania (S)

1983

The Commission, Rising Sun Media Center, Santa Fe, New Mexico (W)

The West, C.B. Rein Gallery, Santa Fe, New Mexico

1984

The West, Centre Georges Pompidou, Paris, France

"Steina & Woody Vasulka: Videastes," MBXA/Cinedoc, Paris, France
(Catalogue)

1985

The West, Long Beach Museum of Art and Exhibit Hall, Long Beach
Convention Center, Long Beach, California

Vasulka Catalogue, Selected Exhibitions, 8

1986

"Focus: The Vasulkas," The Institute of Contemporary Art, Boston, Massachusetts

"Scapes of Paradoxy: The Southwest and Iceland," Jonson Gallery, University Art Museum, Albuquerque, New Mexico (S)

1988

"Steina & Woody Vasulka," Hitachi Showroom, Tokyo, Japan

Vasulka Catalogue, Selected Exhibitions, 9

Broadcast/Cablecast

1975

"The Electronic Image," Homemade TV, WXXI-TV, Rochester, New York

1976

"The Territory," Southwest Alternate Media Project and KUHT-TV, Houston, Texas (Several works broadcast 1976 to 1987)

1978

"Vasulka Video," Radio Television Belge (RTB), Liege, Belgium

"Group Portrait: Six Artists in Video," WNET-TV, New York

1979

Oesterreichischer Rundfunk (ORF), Austria

"Vasulka Video," WNED-TV, Buffalo, New York

1981

Cantaloup, WNET-TV, New York (S)

1982

"Introduction to The Commission," The Video Artist, Nightflight, USA Cable Network (W)

"Machine Vision," The Video Artist, Nightflight, USA Cable Network (S)

1984

"Dis/Patches," The Independents, The Learning Channel (S)

1986

"Videonale 86," Oesterreichischer Rundfunk (ORF), Austria

Vasulka Catalogue, Selected Exhibitions, 10

1987

"New Television," WNET (New York) and WGBH (Boston) (W)

"Likely Stories," The Learning Channel (W)

Vasulka Catalogue, Selected Exhibitions, 11

Selected Lectures/Conferences

Woody Vasulka

1974

Three Lectures by Woody Vasulka: "Electrons: The Art Material," "Time Structure of Electronic Images," "The Television Myth," State University of New York, Buffalo, New York

1976

"Five Lectures by Woody Vasulka," Media Study/Buffalo, Buffalo, New York

1977

Conference: Le Cinema et les theories qui le concernant, Maison des Beaux-Arts Cinema Independent, Paris, France

Film-Theater-Video Conference, University of Wisconsin, Milwaukee, Wisconsin

The Future of Television Conference, University of Southern California, Los Angeles, California

Design/Electronic Arts Conference, Center for Media Study, State University of New York, Buffalo, and Media Study/Buffalo, Buffalo, New York

The Under-represented in American Television Seminar, International Film Seminars, Arden House, Harriman, New York

Conference on Computing in the Arts and Humanities, New York University, New York (W)

1978

"Recoded Images: A Lecture/Demonstration," Millenium Film Workshop, New York

"The Function of Narrativity in Electronic Imaging," Albright-Knox Art Gallery, Buffalo, New York

1979

"Moving Image in Digital State," Millenium Film Workshop, New York

Vasulka Catalogue, Selected Exhibitions, 12

1981

Video Viewpoints, Museum of Modern Art, New York

1986

"Esposizione Personale di Opere, Video e Computer di Woody e Steina Vasulka," Universita "La Sapienza," Rome, Italy

1988

"Project Yokushima, "Museum of Animation, Tokyo, Japan
Nippon Electronic College, Tokyo, Japan

Vasulka Catalogue, bibliography, 1

Selected Bibliography

"Woody Vasulka: Eine Syntax binarer Bilder." Ars Electronica. Linz, Austria: Ars Electronica, 1986, pp. 63-68.

Ausubel, Ken. "Woody Vasulka: Experimenting with Visual Narrative." News & Review (Santa Fe, New Mexico), May 11, 1983, pp. 8-10.

Bellour, Raymond and Anne-Marie Duguet, eds. Communications (Paris), no.48, 1988, pp. 261-63.

Bongiovanni, Pierre; Jean Marie Duhard; Jean-Paul Fargier; eds. "Hommage a Steina et Woody Vasulka." 2e Manifestation Internationale de Video. Montbeliard, France: Manifestation Internationale de Video, 1984, pp. 244-251.

Boyle, Deirdre. Video Classics: A Guide to Video Art and Documentary Tapes. Phoenix, Arizona: Oryx Press, 1986, pp. 10-11, 113-14.

Cathcart, Linda, ed. Vasulka. Steina: Machine Vision/Woody: Descriptions. Buffalo, New York: Albright-Knox Gallery, 1978. [Exhibition catalogue, 63 pages.]

Clancy, Patrick, ed. Video as Attitude. Albuquerque, New Mexico: University Art Museum and Museum of Fine Arts, Santa Fe, 1983, n.p.

Conomos, John. "The Art of Memory." Photofile (Paddington, Australia), vol.6, no.4, Summer 1988/89, pp. 3-5.

Degroote, Bernard. "Vasulka: The Commission, Pour un Formalism Expressioniste." Videodoc' (Brussels), no.69, April 1984, pp.14-19.

Dercon, Chris. "La Passion de la Recherche." Videodoc' (Brussels), no.69, April 1984, pp. 16-19.

Dietrich, Frank. "The Computer: A Tool for Thought-Experiments." Leonardo (Berkeley, California), vol.20, no.4, 1987.

Dietrich, Frank and Zsuzsa Molnar. "Steina's Visual Artifacts." Scan (Chicago), April 1982.

Durfee, Roy. "Vid.e.o (vid'eo'), n." Route Sixty Six, (Albuquerque, New Mexico), July/August 1987, pp. 33.

"A Conversation with Woody and John Reilly." The East Village Other (New York), vol.5, no.48, October 27, 1970, p. 10.

Vasulka Catalogue, bibliography, 2

Fargier, Jean-Paul. "Buffalo ou la Video a l'Heure des Vasulkas." Cahiers du Cinema (Paris), March 1980, p. 15.

Fargier, Jean-Paul. "Steina et Woody Vasulka: Zero un," in Ou va la video?. Jean-Paul Fargier, ed. Paris: Cahiers du Cinema/Editions de l'Etoile, 1986, p. 76-82.

Furlong, Lucinda. "Notes Toward a History of Image-Processed Video: Steina and Woody Vasulka." Afterimage (Rochester, New York), vol.11, no.5, December 1983, pp. 12-17.

Furlong, Lucinda. "Tracking Video Art: 'Image Processing' as a Genre." Art Journal (New York), fall 1985, pp. 233-37.

Gill, Johanna. Video: State of the Art. New York: The Rockefeller Foundation, 1976, pp. 46-50.

Greenfield, Amy. "Steina's Somersault." Field of Vision (Pittsburgh), no.13, spring 1985, pp. 15-16.

Gruber, Bettina and Maria Vedder. Kunst und Video. Cologne: Dumont Buchverlag, 1983, pp. 202-203.

Hagen, Charles. "A Syntax of Binary Images: An Interview with Woody Vasulka." Afterimage (Rochester, New York), vol.6, nos.1&2, summer 1978, pp. 20-31.

Hagen, Charles. "Breaking the Box: The Electronic Operas of Robert Ashley and Woody Vasulka." Artforum (New York), vol.23, no.7, March 1985, pp. 55-59.

Haller, Robert. "Camera Eye: The Vasulkas." American Film (Washington, D.C.), December 1981, pp. 27-30.

Haller, Robert. "Interview with Steina." Program notes for the series Video Art Review, presented by Anthology Film Archives and Electronic Arts Intermix, 1981, 4 pages. Republished in Video Texts: 1983 (New York), pp. 14-15.

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Huffman, Kathy Rae, ed. Video: A Retrospective. Long Beach, California: Long Beach Museum of Art, 1984.

Image Forum Festival. "Special Discussion: Woody & Steina Vasulka plus Nobuhiro Kawanaka," in Experimental Film/Video: Tokyo. Tokyo: Image Forum Festival, 1988, p. 16.

Judson, William D. "Electronic Sculpture: Video Installations in the Museum of Art." Carnegie Magazine (Pittsburgh), vol.57, no.8 March/April 1985, pp. 24-32.

Vasulka Catalogue, bibliography, 3

Judson, William D., ed. American Landscape Video: The Electronic Grove. Pittsburgh: Carnegie Museum of Art, 1988.

Kranz, Stewart. "Interview: Woody Vasulka," in Science and Technology in the Arts. New York: Van Nostrand Reinhold, 1974, pp. 281-82.

Lalanne, Dorothee. "Promenade Electronique," Vogue (Paris), June/July 1984, pp. 178-83.

Lord, Catherine. "It's the Thought that Counts: Video as Attitude." Afterimage (Rochester, New York), vol.11, no.3, October 1983, pp. 9-11.

Mekas, Jonas. "Movie Journal," The Village Voice (New York), December 2, 1971, p. 73.

Melton, Hollis. "Who's Who is Film Making Video: The Vasulkas." Sight Line (New York), January/February 1973, pp. 16-18.

Minkowsky, John. "The Videotape Collection at Media Study/Buffalo: A Report." Afterimage (Rochester, New York), vol.5, no.8, February 1978, pp. 4-5.

Ott, Wendell. 1986 Invitational Exhibition. Roswell, New Mexico: The Roswell Museum and Art Center, 1986.

Pritikin, Renny. Video Installed. San Francisco: New Langton Arts, 1986.

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Settele, Stephan. "Die Computerkultur Tage Linz: Prothesen Fur das Pluriversum." Falter (Vienna), no.14, 1986.

Steina. "Steina: Notes on Switch! Monitor! Drift!." Field of Vision (Pittsburgh), no.13, spring 1985, pp. 12-14.

Tamblyn, Christine. "Whose Life is it Anyway?" Afterimage (Rochester, New York), vol.15, no.1, summer 1987, pp. 22-24.

10 Gestir (Ten Guests). Reykjavik, Iceland: Listatidar '84, 1984.

Vasulka, Woody and Scott Nygren. "Didactic Video: Organizational Models of the Electronic Image." Afterimage (Rochester, New York), vol.3, no.4, October 1975, pp. 9-13.

Weibel, Peter. Zur Geschichte und Asthetik der digitalen Kunst. Linz, Austria: Ars Electronica, 1984, p. 33. [Supplement to Ars Electronica '84 catalogue]



