1 - 2 - 3 - 4

SPECIAL TOOLS:
Eric Siegel: Dual Colorizer
George Brown: Programmer, Multikeyer and H.D. Variable Clock

Exercise for four cameras and digitally controlled six input keyer with images of the numbers 1, 2, 3, 4, joined later by oscillator textures and the colour blue. The images are routed through the control matrix of a multikeyer which re-arranges the order of the image planes. An interfaced tone generating sequencer relates the tone changes to the switching of the video sequences. Variable frequency clocks control the horizontal drifting of the images.

A So Desu Ka

SPECIAL TOOLS:

CREDITS: Dancers: Saburo Teshigawara and his ensemble
Co-editor: Hope Atterbury
Funding: Hirofumi Mora of the Hitachi Corporation

Adagio

SPECIAL TOOLS:

CREDITS:

Art of Memory

SPECIAL TOOLS:
Rutt/Etra Scan Processor
Jeffrey Schier: Digital Image Articulator

CREDITS: Protagonists: Daniel Nagrin, Klein.
Voices: Doris Cross
Collaborators: Bradford Smith, Steina, Penelope Place, David Aubrey.

Artifacts

SPECIAL TOOLS:
Jeffery Schier: Digital Image Articulator

CREDITS:

Bad

SPECIAL TOOLS:

BAD is the mnemonic command for the B-Address register of our Buffer Oriented Digital Device. There are several functions in this register, namely: Up/Down, Left/Right, X and Y maps, and 9 variations on resolution, here manifested as stretching or squeezing of the image. The tape starts with the register at Zero and adds One at a pre-programmed speed. For sound, the most active bits are selected, translated through digital/analog converter to voltage controlled oscillators. Then blue is added on the darkest gray (black) and red on a middle gray, leaving the reaming image Black/White.

Bad is a play on a computer performance. By a simple command: "add one", the machine scrambles for its pictorical and tonal expressions, succeeding at random.

Digitized abstractions of colour fields and grids are electronically manipulated by sound.
**Black Sunrise**

**SPECIAL TOOLS:**
- George Brown: H.D. Variable Clock

Energies organized into colourful abstractions of electronic images, mostly a round shape, and sounds that result by interfacing the video signal with a sound synthesizer.

Created with an audio synthesizer and video keyer.

**C-Trend**

**SPECIAL TOOLS:**
- Rutt/Etra Scan Processor
- Eric Siegel: Dual Colorizer
- George Brown: Multikeyer and H.D. Variable Clock

An object-like waveform is slowly turning and drifting before the backdrop of video noise. The object is actually a camera view from a window onto a street, retimed by an external clock, scanned by a scan processor and accompanied by the street noise.

A camera view from a window is displayed on a scan processor. The identical image signal is connected to the vertical deflection system of the scan processor, translating the energy of the image into a vertical position of scan lines. The displayed raster is shaped with locked waveform generators and retimed by an external clock causing a slow drift.

**Calligrams**

**SPECIAL TOOLS:**

**CREDITS:**

Cantaloup is an informal documentary on the Vasulkas' Digital Image Articulator, a sophisticated imaging device they designed with Jeffrey Schier. Using a cantaloup and the three artist/designers as image material, Steina explains the capabilities of the machine, including its real-time imaging ability and the articulation of images in a digital code. She describes the varying sizes of pixels (picture elements), the layers (or slices) of color and tone that can be derived from one image, and techniques such as "grabbing" the image and multiplying it. This document offers a highly informative, spontaneous demonstration of a complex imaging device.

**Chaco**

**SPECIAL TOOLS:**

"Chaco" is a sequence of landscapes, ancient earthworks and changing skies, interacted through electronic keying. It is an excerpt from yet untitled work in progress. Due to climatic and geographic conditions in this region, any action of man stays recorded for a long period of time. The reating works of art and developing scientific instruments of landscape proportions. Santa Fe, N.M. Apr-83

Video recording equipment here is in interaction with electro-optical devices developed and programmed to capture and express Chaco Canyon in New Mexico.

**Decay I**

**SPECIAL TOOLS:**
- Eric Siegel: Dual Colorizer

A face, pre-recorded on a videotape, is manually forwarded on the playback to produce image decay. Colourful abstractions of a form to electronic sound.
Decay I

SPECIAL TOOLS: Eric Siegel: Dual Colorizer

A face, pre-recorded on a videotape, is manually forwarded on the playback to produce image decay. Colourful abstractions of a form to electronic sound.

Digital Images: The TV Program

SPECIAL TOOLS: CREDITS:

Distant Activities

SPECIAL TOOLS: CREDITS:

Eric Siegel: Dual Colorizer
Rutt/Etra Scan Processor

Video feedback processed and controlled through a keyer. Sound is from video signals interfaced with an audio synthesizer.

Don Cherry

SPECIAL TOOLS: CREDITS: Collaboration: Milosh, Elaine

Doris Cross

SPECIAL TOOLS: CREDITS: Interviewer: Woody Vasulka
Camera: Steina

East Europe 1

SPECIAL TOOLS: CREDITS: Camera: Woody Vasulka

East Europe 2

SPECIAL TOOLS: CREDITS: Camera: Woody Vasulka

ECCE A

SPECIAL TOOLS: CREDITS:

Jeffery Shier: Digital Image Articulator
Rutt/Etra Scan Processor
Protagonists: Jim Pomeroy, David Alfaya, Leonard Hoffman, Daniel Nagrin

Commissioned for Archimbaldo Effect Exhibition, Palazzo Grassi Venice

ECCE B

SPECIAL TOOLS: CREDITS:

Jeffery Shier: Digital Image Articulator
Rutt/Etra Scan Processor
Protagonists: Jim Pomeroy, David Alfaya, Leonard Hoffman, Daniel Nagrin

Commissioned for Archimbaldo Effect Exhibition, Palazzo Grassi Venice
Events in the Elsewhere

SPECIAL TOOLS: Rutt/Etra Scan Processor

CREDITS: A report on interfacing Joan LaBarbara’s voice to electronic image-making instruments.

Evolution

SPECIAL TOOLS: CREDITS:

A three segment tape containing fundamentals of the early works. Image originated from sounds (Buchla-Feedback), sound activated by feedback of spot-like lights and flashes, then horizontal drift with negative images of evolution from ape to man, text ads, sperm under the microscope, a street scene, monitor and abstract feedback patterns, images rescanned. Audio synthesizer and special effects generator.

Exor

SPECIAL TOOLS: CREDITS: Exor was made possible with funds from Jeffery Schier: Digital Image Articulator
New York State Council on the Arts.

This 4 minute segment was later incorporated into the opening scene of Cantaloup.

Explanation

SPECIAL TOOLS: CREDITS: Eric Siegel: Dual Colorizer
George Brown: Multikeyer
Rutt/Etra Scan Processor

A generated crosshatch pattern, displayed on a scan processor and tilted by a locked waveform, is keyed over a synthetic landscape. A pair of slow ramp generators, connected to the height and width controls of the displayed system, provide gradual changes in size and position of the image. The ramp generators are the simultaneous source for sound and image.

Flux

SPECIAL TOOLS: CREDITS: George Brown: Field Flip/Flop Switcher:
Rutt/Etra Scan Processor:

Two image sources are put through the same input of a synchronizer and switched constantly multi-directionally: the flow of water and the video noise, slowly scanned.

A two character material, water flow and video noise are the basic sources of multi-directional movement within switched frames or slow scanned noise fields.
From Cheektowaga to Tonawanda

SPECIAL TOOLS:
Rutt/Etra Scan Processor
William Hearn: Four Zone Colorizer
George Brown: Flip/Flop Switcher

A travelogue in three chapters, From Cheektowaga to Tonawanda is a first tape in a collection of works, I call Machine Vision. The "Machine" in this tape is my car.

In the first chapter a tape material is processed through a "Four Zone Colorizer" (designed by William Hearn).

In the second, two tapes of opposite views are played back simultaneously through a "Flip/Flop Switcher" (designed by George Brown).

In the third chapter, the same image material is processed through a "Scan Processor" (designed by Rutt/Etra).

From Cheektowaga to Tonawanda is a first tape in a collection of works, I call Machine Vision. The "Machine" in this tape is my car.

Golden Voyage

SPECIAL TOOLS:
Eric Siegel: Dual Colorizer
George Brown: Multikeyer and Programmer.

In this homage to Magritte, loaves of bread travel through electronic landscapes, assembled from camera images and pre-taped materials, layered through a multikeyer. The horizontal image-drifts result from a retimed horizontal drive of the camera. Other movements are produced by panning, zooming and by a turntable.

By 1973, we had understood the basic principles of layering images through a process in video called keying. We conceptualized a multilayering instrument, brilliantly executed by George Brown, capable of prioritizing and layering six camera images in real time.

This free arrangement of images, had initiated a series of false perspective studies with logical, hierarchical relationships violated.

In comparison, the work of Rene Magritte had stricken us as being premonial to many electronic imaging concepts, to the process of keying in particular. It was his painting "Golden legend", which gave the theme to "Golden voyage".

The Vasulkas, Santa Fe, 1980

Heraldic View

SPECIAL TOOLS:
Eric Siegel: Dual Colorizer,
George Brown: Multikeyer and H.D. Variable Clock,

An oscillator generated pattern drifts over a camera view of a brick pattern. Sharp bursts of voltage generated on an audio synthesizer are interfaced with control levers of a keyer, determining the opening of the front image to the background image.
Still life transformed through the inner dynamic of electronic image processing and layering in three sequences:

2. Teapot, cup, onions, lamp: two images are switched by a video sequencer. The lamp scenes uses strobes locked to the video field rate.
3. Salt, bottle, bowl: image planes separated by keying, and the bowl image is keyed by itself.

In Search of the Castle

Originally a study of wide angle lens performance, the videotape became later suitable for variations of algorithmical processing through the "Vasulka Image Articulator".
Fisheye lens distorted imagery of urban landscapes seen from a car, creating a surround vision images and pre-taped material.

In the Land of the Elevator Girls

Digital Arts software
Keysnow

SPECIAL TOOLS:
George Brown: H.D. Variable Clock

CREDITS:

Land of Timoteus

SPECIAL TOOLS:
Rutt/Etra Scan Processor
George Brown: Flip/Flop Switcher

CREDITS:

Imagery of Iceland, rocks, water, landscape and Woody sitting at the sea, is presented by switching from one image to another. Time and space are in a continuous shift, variables of electronic mixing.

Video Keyer and audio synthesizer.

Lilith

SPECIAL TOOLS:
William Hearn: EAB video lab

CREDITS: Collaboration with Doris Cross.

The portrait of the artist Doris Cross is rendered multidimensional through the use of shifting natural backgrounds, zooming back and forth, slow motion effects, and layering of colourized images. The voice is electronically distorted.

Image of a vibrating circle or a moving hand, the viewer becomes aware of the process that only the moving image represent

Linz Master

SPECIAL TOOLS:

Documentary on the making of the catalogue and exhibition Eigenwelt Der Apparat-Welt / Pioneers of Electronic Art / Ars electronica 1992

CREDITS:

Machine Vision

SPECIAL TOOLS:
Turntable/Camera with Zoom lens/Mirror sphere
Turntable/Camera with Zoom lens/Rotating prism
Turntable/Camera with Rotating lens/Moving mirror
Turntable/Camera with Zoom lens/Moving mirror (vertical)
Turntable/Camera with Rotating lens/Mirror sphere

CREDITS: Joe Forth: tool inspirations
Josef Krames: optical engineering
Woody Vasulka: machine engineering

A special credit in this installation is to be extended to Joe Forth of Cheektowaga, my resource for electro-mechanical surplus goods, to Josef Krames for optical engineering and to Woody, the machine builder. Additionally, there is in this exhibit a continuous playback of two of my tapes; "From Cheektowaga to Tonawanda" and "Flux" (see list of tapes in distribution).

Hardware:
Mirror sphere, Turntable with Power supply, Programmed Zoom lens, Rotating lens, Mirror sphere, Moving mirror, Rotating prism.

A Video Tape Presentation: Machine Vision
Machine Vision accepts the concept of observing and defining a set of attitudes that challenge established human perceptual habits.
Half hour Schwartz Interview with Nam June Paik in Vasulkas' loft in Buffalo, NY for cable.

Noisefields

Colorized video noise is keyed through a circle. A switch selects between the normal and the inverted mode at various field rates. The energy content of the video modulates the sound.

Objects: The TV Program

colorized videonoise is keyed through a circle. A switch selects between the normal and the inverted mode at various field rates. The energy content of the video modulates the sound.

Orbital Obsessions

Studio settings are recorded: circling with the monitor held in front of the circling camera, a second camera viewpoint is inserted into the picture. The process of the making of the tape is both commented and documented. Other "obsession" involve zooming and modes of switching between two images including the use of mechanical camera devices like rotation, positive/negative, a.o. Besides the electronic sound there is a rare part with classical music mixed in. The tape incorporates the previous works by Steina "Sound and Fury", Signifying Nothing" and "Switch!, Monitor!, Drift!".

Orka

single channel from three channel installation of Orka.

Pariah

Rutt/Etra scan processor

36 minute monologue by Tim Thompson.

Participation
Pen
SPECIAL TOOLS: documentary of the work of 4 prisoners instructed by Jerry West at the penitentiary in Santa Fe, New Mexico.

Progeny I
SPECIAL TOOLS: Rutt/Etra Scan Processor
Jeffery Schier: Digital Image Articulator

Pyroglyphs
SPECIAL TOOLS: CREDITS: In close collaboration with Tom Joyce

Reminiscence
SPECIAL TOOLS: Rutt/Etra Scan Processor

A portapak recording of a walk through a farmhouse in Moravia, a place of Woody's youth, is displayed on a scan processor, including the original sound. The identical image signal is connected to the vertical deflection system of the scan processor translating the energy of the image into a vertical position of scan lines.

Selected Treecuts
SPECIAL TOOLS: Rotating Prism
Switching Zoom Lens
Jeffery Schier: Digital Image Articulator

In an investigation into the abstract qualities of digitized images, trees as natural material are manipulated and compared to analog representation. Electronic sound is triggering the process of switching back and forth.
Selected Works

SPECIAL TOOLS: 

CREDITS:

Steina: Selected Works

Bad 1979, 2:14 min.
Summer Salt 1982, 18:48 min. (Sky High 2:42 min; Low Ride 2:50 min; Somersault 5:14 min; Rest 2:16 min; Photographic Memory 5:10 min.

Total program: 1979-82, 29:52 min, color, sound.

Steina's works from the late 1970s and early 1980s are exercises in the phenomenology of vision and the redefinition of space and landscape, as articulated through mechanized, optical and electronic devices. Bad is a technical exploration of several commands in the Vasulkas' Buffer Oriented Digital Device, which controls digital imaging functions such as up/down and right/left movement, as well as the stretching and squeezing of the image. Steina uses her own face as visual material, rhythmically dismantling and reconstructing her self-image. Urban Episodes is a striking phenomenological study in an urban landscape, an exhilarating restructuring of physical space that defies expected modes of seeing and the laws of gravity and reflection. In a public plaza in Minneapolis, Steina set up a motorized, rotating Machine Vision device, which includes mirrors and two cameras that pan, tilt and zoom. Summer Salt is a dramatic exploration of the phenomenology of space and vision, as Steina uses mechanical and electronic devices to physically investigate the Southwestern landscape. This artificial vision allows the viewer altered perceptions and spatial perspectives. The five segments include dynamic exercises with Steina's mirrored globe, the physicality of unexpected camera placement, and electronic manipulation of the textures and colors of the landscape.

Sketches

SPECIAL TOOLS: 

CREDITS:

Rudolf quote

Solo for 3

SPECIAL TOOLS: 

CREDITS:

George Brown Multikeyer, Programmer, H.D.Variable Clock
Eric Siegel Dual Colorizer

Three cameras see different sizes of the number 3, while a fourth camera is set to a feedback. The images are routed through the control matrix of a multikeyer which re-arranges the order of the image planes. The image planes are sequenced by a digital music instrument. Variable frequency clocks control the horizontal drifting of the images.

Soundgated Images

SPECIAL TOOLS: 

CREDITS:

George Brown: Programmer, Multikeyer, H.D.Variable Clock
Rutt/Etra Scan Processor
Eric Siegel: Dual Colorizer.

Abstract feedback and electronically manipulated images generated through sound. Horizontal image-drifts result from a retimed horizontal drive of the camera.
A generated dot pattern is displayed on a scan processor. Three basic waves, sine, triangle and square, generated by a locked waveform generator, are applied to shape the display. A slow ramp controls the image. The identical waves are the source of sound.

The Theater of Hybrid Automata: Demo

SPECIAL TOOLS:
Jeffrey Schier: Digital Image Articulator

CREDITS:
Protagonists: Daniel Nagrin, Klein
Crew: Steina, Bradford Smith, Penelope P. Place, Robert Althouse

The Legend

SPECIAL TOOLS:
Jeffrey Schier: Digital Image Articulator

CREDITS:
Protagonists: Robert Ashley, Ernest Gusella, Cosimo Corsano, Ben Harris, Andrea Harris, David Ossman.
Set Design: Bradford Smith.
Camera: Steina.
Editor: Peter Kirby.
Audio Mix: Baird Banner.

The Matter

SPECIAL TOOLS:
Rutt/Etra Scan Processor
George Brown: Multikeyer

CREDITS:
Protagonists: Robert Ashley, Ernest Gusella, Cosimo Corsano, Ben Harris, Andrea Harris, David Ossman.
Set Design: Bradford Smith.
Camera: Steina.
Editor: Peter Kirby.
Audio Mix: Baird Banner.

Techniques used:
Research and establishment of techniques for audio and video processing, selection of tools, software programming and various media through which to accomplish this work.

Intermaterials:
Digital and analog processing of images and sounds provide the elements necessary for production of the intermaterials, which are the actual building blocks of the final composition.

The West (single channel)

SPECIAL TOOLS:
George Brown: Soft keyer
Wave form generator
motorized turntable
spheric mirror

CREDITS:
Video: Steina
Audio: Woody
Three layers of textures and shapes are collaged through two cascaded video keyers. The independent control of the horizontal camera drives induces various horizontal movements of image planes. Sounds result from video signals interfaced with an audio synthesizer. Originally designed for a multi-monitor horizontal installation.

Summer Salt

Jeffery Schier: Digital Image Articulator

Birdeye Lens attached to the camera. The five segments are subtitled:
- Sky High
- Low Ride
- Somersault
- Rest
- Photographic Memory

Switch! Monitor! Drift

Rutt/Etra Scan Processor
Eric Siegel Dual Colorizer
multi-monitor horizontal installation.

A portapak camera recording of a renaissance town in Southern Bohemia, including original sound, is displayed on a scan processor. The identical image signal is connected to the vertical deflection system of the processor translating the energy of the image into a vertical position of scan lines.
VASULKA MASTERS
TOOLS & TECHNOLOGY

Tissues
SPECIAL TOOLS:

CREDITS:
Video: Steina
Audio: Woody

Various camera images are randomly inserted onto a pre-recorded tape. These forced edits, forced because no editing system was then available with the SONY 1/2 Inch Open Reel (CV), become the source of abrupt voltage changes in the audio when looped through a sound synthesizer.

Tokyo Four
SPECIAL TOOLS:

Transformations: Six Programs for Television
SPECIAL TOOLS:

CREDITS:

Although we work with the medium of television, we do not create, perform or compose our work for television broadcast. Our work has evolved through the channels of video, which has its own forms of presentation and exists in its own cultural environment. Only recently have we attempted to summarize our work in a broadcastable format. Through the local station here, with a grant from the National Endowment for the Arts and Corporation for Public Broadcast, we have transferred and edited six half hours of material, recorded from small format videotapes between 1969 and 1978. Each program lasts 29 min. and centers on a single theme as indicated in the titles.

Matrix 1969-72
Vocabulary 1973-74
Transformations 1974-75
Objects 1975-77
Steina 1975-77
Digital Images 1977-78

Buffalo, N.Y. 20-Mar-79

The Vasulkas

With a 1978 grant from the National Endowment for the Arts and Corporation for Public Broadcasting, we have edited six half hours of broadcast oriented programs consisting of our exploratory and experimental works with video from 1969-1978.

These 1/2 hour programs, were produced and broadcast (Nov 1979) at WNET Channel 17, Buffalo, N.Y. Each program lasts 29 min. and centers on a single theme as indicated in the titles.

Matrix 1969-72
Vocabulary 1973-74
Transformations 1974-75
Objects 1975-77
Steina 1975-77
Digital Images 1977-78

The character of the programs is informational as well as aesthetic and could be used in context of technological art series.
Urban Episodes

SPECIAL TOOLS:
Optical Instrumentation: Krames, Joseph
Turntable
Zoom lens/Mirror sphere
Rotating prism
Rotating lens/Moving mirror

In all six episodes, I always used this turntable, creating a perpetual movement from left to right, or camera pan as it is called.

Then on the turntable I placed this long platform to distance the camera, mounted on one end from various optical devices mounted at the other. In this instance, it is a moving mirror taken from some precision optical device that I picked up in a surplus place. The continuous rise and fall movement translates into image language as tilt, although strictly speaking tilt is created by a up or down movement of the camera itself.

And as you see, the mirror is 1/2 transparent and color coded. This is a rotating prism, which had to be aligned carefully, especially since in that episode (as well as some others), I was using a continuous zoom lens, meaning, that a deflection switch would engage at either end and reverse the direction.

This rotating lens, unlike the rotating prism is attached directly on the camera. To summarize: pan, tilt zoom and rotation covers the basic moving image possibilities, although mathematical graphics language translates the three dimensions of pan, tilt and zoom into the cartesian coordinates of x, y and z, with the rotation defined as a coordinated x-y movement.

Finally, there was the mirrored sphere, giving the viewer opportunity to see simultaneously a long shot and wide angel as well as front and rear view. As I just finished shooting, the mirror fell off the platform and broke into 1000 pieces.

Each episode has a specific visual concept and is available as 6 separate installations, each for the same rental cost.

<table>
<thead>
<tr>
<th>Episode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Turntable/Camera with Zoom lens/Mirror sphere</td>
</tr>
<tr>
<td>II</td>
<td>Turntable/Camera with Zoom lens/Rotating prism</td>
</tr>
<tr>
<td>III</td>
<td>Turntable/Camera with Rotating lens/Moving mirror</td>
</tr>
<tr>
<td>IV</td>
<td>Turntable/Camera with Zoom lens/Moving mirror (horizontal)</td>
</tr>
<tr>
<td>V</td>
<td>Turntable/Camera with Zoom lens/Moving mirror (vertical)</td>
</tr>
<tr>
<td>VI</td>
<td>Turntable/Camera with Rotating lens/Mirror sphere</td>
</tr>
</tbody>
</table>

Hardware:
Color Camera With C-mount lens
Turntable with Power supply
Mirror sphere
One 25" color monitor

Turntable with Power supply, Programmed Zoom lens, Rotating lens, Mirror sphere, Moving mirror, Rotating prism.

Video Ballet

SPECIAL TOOLS:  CREDITS: Charles Hayworth, dancer

The sound is generated by the dancer's movement.
**Violin Power**

**SPECIAL TOOLS:**
Various parts of violin performances by Steina that manipulate live the electronic images and also reincorporate parts of the Beatles "karaoke" (Let it be). or vice versa. The shape of the "windows" varies. op Switcher, Dual Colorizer, horizontal drive of the camera.

"Violin Power" is a demo tape on how to play video on the violin.

**Vocabulary**

**SPECIAL TOOLS:**
George Brown: Multikeyer
Rutt/Etra Scan Processor
Eric Siegel: Dual Colorizer

A program designed to convey in a didactic form the basic energy laws in electronic imaging. The process of keying, timing and system feedback is discussed visually.

Vocabulary is designed to convey in a didactic form the basic energy laws in electronic imaging. Here, a hand as a metaphor for expression and gesture and a sphere that symbolizes form are processed with a keyer, colorizer, and scan processor.

**Vocalization I**

**SPECIAL TOOLS:**
Rutt/Etra Scan Processor
Donald Buchla: sound module

Documentation of interactive sound/image installation and performance.

**Voice Windows**

**SPECIAL TOOLS:**
Steina's scat performance visually opens up another layer of an image, from urban Santa Fe to the underlying landscape of New Mexico or vice versa. The shape of the "windows" varies. Joan LaBarbara......

**Voyager / Computer Graphics**

**SPECIAL TOOLS:**
Digital Arts software
A sampler of computer-generated images.