DIRECT TO VIDEO: STEPHEN BECK'S CAMERALESS TELEVISION

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This paper examines Stephen Beck's cameraless video synthesizers of the 1970s. Rather than using video as a camera-based mimetic medium, Beck directly manipulated the basic component of video – the electron. Video Synthesizers, I argue, propose an alternative understanding of video and its essential qualities. Synthetic video grounds itself in the materiality of the screen rather than the transparency of the image.

Fig 1. Stephen Beck at the Beck Direct Video Synthesizer, 1971, Stephen Beck, Digital image scan from original monochrome photograph, Copyright Stephen Beck.

Fig 2. Photograph of Two Video Weavings Still Frames, 1973, Stephen Beck, Video stills, Copyright Stephen Beck.

A live video camera pointed at its own monitor creates a vertiginous hall of mirrors in its feedback loop. The distance between the lens and the screen is simultaneously flattened and extended toward an ever-receding and ever-repeating horizon. The apparently automatic, realist codes of the video camera turn suddenly surreal by exploiting an inherent effect of the live medium. If one then tilts the camera, this loosened hold on representation slips completely away into dazzling abstraction. The monitor displays a dutched image of itself, but this image still contains in its echo the previous one – that of the upright monitor – and a temporal record of the movement. The image of a monitor turned perpendicularly in its own frame will swirl under the pulsating pressure of feedback. By slightly tampering with the aperture of the camera, the contrast, brightness, or focal distance one can completely divorce the image from any sign of reality. It pulls from the corners of the screen, and reconfigures into a tumbling pinwheel that grows more and more complex over time, creating morphing "mandalas" of electrons on the surface of the screen. These shapes, though free from the compulsive representation of the camera, are the "archetypical" [1] images of the video medium.

This live feed "mandala" effect is a simple means of divorcing the video camera and screen from the iconic and representational codes that usually govern it. Nam June Paik and Shua Abe exploited this and other effects to create their first video synthesizer at WGBH-Boston in 1969. Like Paik's earliest television works, the Paik-Abe Synthesizer worked upon other images rather than literally synthesizing its own. For his first solo exhibition, 1963's *Exposition of Music and Electronic Television* in Wuppertal, Germany, Paik altered the circuits in thirteen television sets, thereby determining the conditions under which the broadcast image could appear: images were reduced to thin lines, warbling waves, trembling circles, blurred tonal fields, and single points of pulsating light. Paik and Abe's synthesizer similarly modified the video signal, but did so without altering the circuits of the television sets; their device manipulated the image in the studio then sent it out over the air. For the duration of the broadcast, the individual home receivers appeared to have been subject to a similar manhandling as Paik's first sets. In 1970, hundreds of TVs in the Boston area appeared to be "broken" – or at least deranged – during Paik's four-hour broadcast of *Video Commune: Beatles from Beginning to End*, the first on-air demonstration of the Paik-Abe Synthesizer. The Paik-Abe Synthesizer subjected live and recorded video images to a set of distorting processes that turned the visible world psychedelic and strange. Despite this abstract effect, the video image was still closely tied to the camera and its mimetic properties; the synthesizer needed the camera's images to "seed" its manipulations and distortions.

Stephen Beck, like Paik, moved away from the representational effects of the video camera toward the abstract possibilities of a purely electronic medium. He, too, created his first synthesizer in the late 1960s, and later worked at a PBS research lab. Beck's synthesizers, however, did away with the camera completely. They were, in his own words, "constructivist in nature, not distortionist." Beck's synthesizers were free from the camera's mimetic representations.

Beck's experimentation with electrical images began long before he had access to television set or a broadcast signal. While still an undergraduate at the University of Illinois at Champaign-Urbana, Beck invented a device he called "The Phosphotron." It consisted of 10 pairs of goggles wired in parallel to a single oscillator. Beck would connect a group of his friends to the device for a "video séance," during which the machine directed weak electrical current into the super-cutaneous surface around the eyes, causing a wild display of phosphenes to appear before the participants. They saw undulating colors, bright flashes of light, and floating shapes. The images hovered in space, but were not grounded in it. When Beck turned the machine up to about 20 hertz, the flows of light "broke into micro-textures very reminiscent of geometric, quasi-crystal patterns found in Islamic, Byzantine, and Ottoman art." [2] The

device brought to collective vision a set of non-objective, archetypical images using neither camera nor screen.

The young artist and engineer's desire to capture and communicate the fleeting, intangible, immaterial shapes of phosphenes and hypnagogic imagery led him develop a series of direct, that is, cameraless, video synthesizers in the late 1960s and early 1970s. The National Center for Experiments in Television (NCET) invited Beck to California to become a resident artist in their studio after hearing about his first analog synthesizer, the Video Synthesis Instrument Number Zero (VSI#0) (1969). The center was an experimental video division of KQED public television in San Francisco that specifically encouraged the production and broadcast of non-traditional forms of television. There he created two other synthesizers, The Beck Direct Video Synthesizer (1970-1971) and his first digital synthesizer, the Video Weaver (1973).

At 7:30 pm on 19 May 1972, Stephen Beck performed the Beck Direct Video Synthesizer live on KQED-San Francisco. According to Beck, it was the first – and perhaps only – live broadcast from a direct video synthesizer. [3] Beck's historical performance took place as part of KQED's news program, *SCAN*. Reporter Joe Russin interviewed Beck at the controls to give the viewers some context for what would follow. The young, longhaired artist explained, roughly, how the synthesizer worked while Russin, chin in hand, pondered Beck's curious answers. The synthesizer, Beck explained, "generates electronic signals which excite the television set to create light to happen where I want it to." Video, he provocatively offered, does not need to be "pictures of things." While the two men talked, Beck manipulated the synthesizer's controls, producing a rapid series of random patterns, graphic figures, and iconic images. The machine was a beast: color monitors and hulking switchboards stitched together with bright loops of yellow cable. [Fig. 1] The physical complexity of the synthesizer, with its exposed wiring and tangled connections, stood in sharp contrast with Beck's easy, graceful manipulation of the image. Despite Russin's contextual framing of the synthesizer, KQED's viewers frantically called into the station during the performance to accuse and compliment the broadcasters for "breaking" their televisions. [4] Yusef Lateef's music accompanied Beck's fluid, undulating color forms. The music was significant: not only did it link Beck's visual compositions with the improvisational form of jazz, the synchronization of visual and musical elements indicated, beyond a doubt, that the television wasn't "broken;" it was merely behaving in a way that seemed incompatible with its typical behavior and the conventional forms of broadcast television.

NCET went to great lengths to publicize and popularize their prodigy's invention and the growing field of synthesized video. Brice Howard, the Center's director, produced a series of "Electronic Notebooks," aimed at both distributing work by the Center's artists, and educating the general public about how to actually see the television rather than imagine that they were seeing through it. The series featured Beck on its inaugural episode. "Electronic Notebook No. 1: Video Synthesis" (1973) paired Beck on the Beck Direct Video Synthesizer with musician Warner Jepson playing the Buchla Audio Synthesizer. The episode opens on the two artists, side by side, at their synthesizers as a narrator compares the more familiar audio synthesizer to the processes of Beck's machine: both machines conjure "forms, textures, and colors" from electronic signals. The description links synesthesia to synthesis, as do the titles of the pieces that followed: *Illuminated Music 2* and *Illuminated Music 3*.

Illuminated Music 2 begins with a cut from footage of the artists to a blank, black screen. Two bright rectangular dots appear in the center, along the CRT's horizontal axis. The two quickly split into four; each dot and its double slide vertically away from each other and then loop into the center of the screen, and then disappear. They glide across the surface of the television, tracing a clear path without ever forming a proper image or shape. The pattern repeats twice over, and then quickly grows more complex: rather

than disappearing into the screen's central fold, the dots double and circle each other in a juggling pattern. The left side mirrors the right, only slightly out of sync. The slowly dancing points of light then quickly replicate themselves, extending in long chains to the center point of the screen. For a moment, the discrete dots take the form of an octopus, each long leg moving in a manner that is, at once, both natural and magical. The component parts of each undulating tentacle become independent fill the screen with a kinetic yet orderly field of static. The buzzing dots then melt into smooth airbrushed forms. By beginning with discrete dots - units of light - Beck slowly reveals the screen as, simply, a set of potential coordinates in space and time. What one sees is not an object or a representation or an image, per se, but the excited, ever changing surface of the screen; this is video freed from the camera.

From single points of light, the Beck Direct Video Synthesizer made the television screen and its basic operations visible and intelligible. One can no longer look "through" it as if it were a window to the moving image on the other side. One sees the screen for what it is: a flat field of points, a surface. In *Illuminated Music 2* the most basic unit of the electronic image pulsed and morphed into a dazzling and eccentric series of "archetypical" images – mandalas, geometric tessellations, phosphene flares, and hovering afterimages.

Beck's next synthesizer, the Video Weaver, brought into view another formal property of the video image, the horizontal and vertical scroll of the monitor's electron gun. Again moving away from the camera and the representational forms that it produces, Beck shifted the viewer's attention to the movements that make up the video image, rather than its component parts. Through Beck's new machine, screen's horizontal and vertical lines become the warp and the weft of a weaver's loom. The graphic patterns are in constant motion as they scroll across the screen. In *Video Weavings* (1973) [Fig. 2], Beck cycles through a series of traditional textile patterns: diamonds, chevrons, and argyles slide seamlessly into complex Hopi, Navajo, and Shaker designs. Beck's digital synthesizer analogizes the ancient technology to the new one: each creates an image built of lines read one by one. The weaver's thread becomes Beck's electron beam. Through the metaphor of weaving, Beck further extends video's point-by-point, line-by-line electronic logic to that of the computer: the Video Weaver is the descendent of Jacquard's loom. Joseph Marie Jacquard's 1801 invention, with its punch cards and prefigured sequences, anticipated the development of computer hardware and programming. Beck's weaver picks up this historical thread, and connects early video to generative and computational art. [5]

The non-representational, computational character of synthesizer video sits in an uneasy relationship to the history of video art. In the mid 1970s, video was just beginning to be theorized and historicized. In 1976 Rosalind Krauss famously condemned video art as narcissistic and unconcerned with the formal, "reflexive" investigations of serious artists and critics. Video, rather, is "reflective," that is, it acts as a mirror transmitting live, representational images, usually of the artist or viewer. According to Krauss, the self-obsession evident in early video art, however, is indicative to the medium and narcissistic video artists accidentally model the formal structure of video by obsessively using the device to record and respond to their own images. If video is a "medium," Krauss ventures, it is in the psychological rather than formal sense of the word – "telepathy, extra-sensory perception, and communication with an afterlife." [6]

Krauss's critique of early video does not take up the non-objective, non-mirroring work by Paik, Beck, and the other synthesizer artists. Instead it centers on a set of artists who had come to video after making their names in other media. The history of video art has largely followed Krauss's lead and bracketed synthesized video (with the exception of Paik's work) as a footnote to the larger history of artists' video, [7] despite its important role in the development of the genre and its enormous impact on future of the

media and technology. As early as 1974, Artforum editor, Robert Pincus-Witten cast them out of the discussion of video art precisely for being formalists and for being unconcerned with the representational image. At the Museum of Modern Art's conference on the state of video art, "Open Circuits: An International Conference on the Future of Television" (1974), an early academic assessment of video art, Pincus-Witten argued that the work of synthesizer artists "was deficient precisely because it was linked to and perpetuated the outmoded clichés of Modernist Pictorialism." Video, for the critic, was an inherently "reproductive recording medium" that "must always engage narrative content." The only achievement of the synthesizer artists, he claims, was the invention of the various devices. [8]

Non-representational, ephemeral, often unrecorded and cameraless, synthetic video found itself in a difficult position in relationship to criticism in the 1970s. In Krauss's and Pincus-Witten's accounts, video is a camera-driven, "reproductive" medium. Synthesizer video, then, simultaneously exposed a nature that seemed too inherently close to the waning principles of modernism, and in its experimental agenda it exposed most of what appeared to be the essential trappings of video – the camera, representation, tape – as not necessarily or inherently part of the medium. In doing so, synthesizer video surprisingly brings together the reflective and reflexive poles of Krauss's argument. Feedback, according to Beck, is "the imagery that results from the television set in a self-meditative state. Input is focused on output, its eye focuses on its vision, and in this meditative state it creates a specific graphic imagery." [9] When the camera looks at itself, it doesn't see as Krauss's "narcissistic" video artists do. What it sees is an ever-changing series of non-reflective images, variations on its own essential forms. In video, mandalas – those images that aim for unity and completeness through meditation – expose the screen as complete within itself. Beck's work extends this path of essential yet non-representational video forms to the screen without aid of the camera. Here, in the realm of pure video, Beck separates the image from the screen, just as phosphenes are visions separate from the eye. The video medium is at once, formal and reflexive, and at the same time "extra-sensory" and "psychological."

Clearly, Beck's synthesizer works call attention to the reflexive qualities of the video screen. The formalism that Pincus-Witten condemns seemed to destabilize the what appeared to be the very nature of television and video and in doing so, severed it from a clear lineage with representational media and mass media, such as photography and film – and even conventional TV – and established a new trajectory that linked it more closely to computer graphics and to future forms, such as video games and generative arts. Beginning with the feedback mandala, artists like Beck discovered how the camera's ability to transmit live, indexical, images could be used to free it and video screen to make imagery that was, at once, both abstract and deeply familiar. When divorced from its compulsion to mirror and capture the physical, visible world, video laid bare a parallel world of archetypical, geometric, non-objective images. Mimesis was just one function of video, not its essential, medium-specific quality. Rather than looking at the kinds of images a camera could capture, they sought out those that the screen seemed specifically able to produce. This meant seeing past the narcissistic seductions of the representational image, and looking at the device for what it was at base – a single electronic dot skating across the rasterized surface of a magnetic screen.

References and Notes:

1. Stephen Beck, interview by author, Berkeley, CA., December 7, 2010. I would like to thank the Berkeley Museum of Art and the Pacific Film Archive for allowing me access to the NCET collection. This article would not have been possible without their help and support.
2. Ibid.
3. Ibid.
4. Ibid. According to Beck, the station received more than 100 calls. The callers that charged the station with "breaking" their televisions were largely positive about the effect.
5. The Video Weaver was the "first use of digital video techniques even before the rise of the PC and digital video imaging on VAX and DEC minicomputers." Stephen Beck, e-mail message to author, September 5, 2011. See www.stevebeck.tv for clips of the works and information on Stephen Beck.
6. Rosalind Krauss, "Video: The Aesthetics of Narcissism," in October 1, no. 1 (1976): 52.
7. Lucinda Furlong, "Tracking Video Art: 'Image Processing' as a Genre," Art Journal 45, no. 3 (1985): 234.
8. Robert Pincus-Witten, "Panel Remarks," in The New Television: A Public/ Private Art: Based on Open Circuits: An international Conference on the Future of Television, eds. Douglas Davis and Allison Simmons (Cambridge, MA: The MIT Press, 1977), 70.