RADIO FREQUENCY PERFORMANCE

by

Kenneth L. Kantor

Massachusetts Institute of Technology
S.B.E.E., 1979

Submitted in Partial Fulfillment
of the requirements for the
Degree of
Master of Science in Visual Studies
at the
Massachusetts Institute of Technology
February 1982

© Kenneth L. Kantor 1982

The Author hereby grants to M.I.T. permission to reproduce
and to distribute publicly copies of this thesis document
in whole or in part.

Signature of Author.

Department of Architecture
Center for Advanced Visual Studies
January 14, 1982

Certified by.

Otto Piene, Professor
of Visual Design
Thesis Supervisor

Accepted by.

Nicholas Negroponte, Chairman
Departmental Committee for Graduate Students
Telecommunications technology and its children, the electronic mass media, exert a strong influence on our lives. RADIO FREQUENCY PERFORMANCE is a 25 minute theatrical work deriving from my concern with this influence, and from my work as a graduate student at the Center for Advanced Visual Studies, M.I.T.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title Page</td>
<td>1</td>
</tr>
<tr>
<td>Abstract</td>
<td>2</td>
</tr>
<tr>
<td>Introduction</td>
<td>4</td>
</tr>
<tr>
<td>The Development of Electronic Telecommunication</td>
<td>6</td>
</tr>
<tr>
<td>The Electronic Mass Media</td>
<td>12</td>
</tr>
<tr>
<td>Personal and Societal Effects</td>
<td>15</td>
</tr>
<tr>
<td>Telecommunications Art</td>
<td>19</td>
</tr>
<tr>
<td>The Evolution of RADIO FREQUENCY PERFORMANCE</td>
<td>24</td>
</tr>
<tr>
<td>The Design of RADIO FREQUENCY PERFORMANCE</td>
<td>28</td>
</tr>
<tr>
<td>Diagram of the Performance Set-up</td>
<td>37</td>
</tr>
<tr>
<td>The Script of RADIO FREQUENCY PERFORMANCE</td>
<td>38</td>
</tr>
<tr>
<td>Conclusion</td>
<td>42</td>
</tr>
<tr>
<td>Bibliography</td>
<td>44</td>
</tr>
<tr>
<td>Photograph from &quot;Tying&quot; Segment of Videotape</td>
<td>45</td>
</tr>
<tr>
<td>Photograph from &quot;Cutting&quot; Segment of Videotape</td>
<td>46</td>
</tr>
<tr>
<td>Photograph from &quot;Ping Pong&quot; Segment of Videotape</td>
<td>47</td>
</tr>
<tr>
<td>Photograph from &quot;Fire&quot; Segment of Videotape</td>
<td>48</td>
</tr>
</tbody>
</table>
INTRODUCTION

Telecommunications technology has changed our awareness. Notions of time and distance, of reality and substance, of culture and ethics have been redefined by our electronic view of the world. Information is a commodity, and we search continuously for faster and safer means of collecting and trading it. Telecommunication is big business.

With telecommunication comes mass media. They homogenize our collective experience. Local moralities become unable to effectively propogate. They cannot compete with mass media promises. But the promises go unfulfilled and we become frustrated. We constantly experience media we can't slow down, can't turn off and can't reread. We become caught in the moment.

It is not surprising that artists of all persuasions have taken to the mass and telecommunications media. The art is manifest in many forms, all reflecting basic or not-so-basic responses to a fundamental aspect of our culture. Some artists choose to work within the existing framework of the commercial electronic media. Some use media images and artifacts as raw material. Some artists use media concepts and dogma to define the present and
I relate elements of my own work to each of the above mentioned domains of Telecommunications Art. I am most interested in the role of the mass media in shaping my personal vision of the world, and the visions of my generation. This leads me naturally to the use of both mass media images and mass media concepts in my work. Temporal ambiguity, the television ambience and spacial dislocation are among the media phenomena that I have attempted to isolate and amplify in my recent work.
THE DEVELOPMENT OF ELECTRONIC TELECOMMUNICATION

We are witnessing the emergence of a Post-Industrial economy, an economy where matter and energy are no longer considered inexhaustible. Now it is information that seems infinite. Information is the lever, the amplifier acting on energy and matter to render them efficient once again. Accurate, reliable and instantaneous communication is vital to the development of an information-based society. As matter needs highways and energy needs pipelines and high-tension towers, we find our environment now etched by myriad telecommunications channels.

Examining the commercial sector of our economy, the multinational corporations are a case in point. They have evolved from successful domestic corporations in order to make more effective use of global markets and resources. It is clear that the entire structure of multinational operation is predicated on dependable telecommunication. Likewise, the structure of military and "defense" institutions has changed radically over the last sixty years, partly in response to communications technology. As with business, command can be centralized while resources are distributed. More and more, military advantage is seen to be a function of information and information management, as well as hardware. A vast array
of attack, warning, defense, espionage and navigation systems are meshed with each other and with government via what is unquestionably the most sophisticated and extensive telecommunications network existent.

What military and commercial information management needs have done to promote the development of electronic telecommunication has been done for the electronic mass media by industry and its desire to develop mass marketing. All these factors have combined to make the childhood of modern communication both brief and interesting.

In 1873, an American dentist by the name of Mahlon Loomis formed the Loomis Aerial Telegraph Company. By erecting vertical wire "aerials", Loomis believed he was tapping into a great "electrical sea" in the upper atmosphere. He believed he could communicate by causing "waves in the sea" at one location and detecting them at another location. His company soon folded. At the time a great number of notable scientists were fascinated with the idea of wireless communication. Michael Faraday, James Clerk Maxwell, Heinrich Hertz, Sir William Crookes, Thomas Edison and others contributed to its initial research. In 1896 a Russian, Alexander Stepanovitch Popov, succeeded in transmitting the words "Heinrich Hertz" in Morse Code over a distance of 250 meters.
The Wireless Telegraph was patented in 1900. It was crude and unreliable, but it was important. It marked the first time in history that communication was possible over long distances, a few thousand miles, between locations that had no physical connection. The Wireless was the brain-child of Guglielmo Marconi and was essentially a very primitive radio, capable only of transmitting the brief pulses required for Morse Code. Marconi claimed a trans-atlantic transmission in December of 1901, but his claim was disputed by numerous commercial competitors and is doubted today on the basis of a more recent analysis of the equipment he used. At any rate, by mid-1902 Marconi had staged a successful and well documented demonstration of trans-atlantic communication. The Wireless Telegraph was improved rapidly over the next few years owing both to trial-and-error experimentation and an ever-increasing theoretical understanding of the processes involved.

Methods were developed to increase the strength of the transmissions and to avoid interference between nearby systems. This introduced the concept of "tuned" transmission, the basis for channeled communications. Here, the transmitter and receiver are "tuned" to one another in order to exclude all other signals. At the same time, the race began to develop a system suitable
for direct voice communication.

The first successful voice transmission was actually not a voice. In it Reginald Fessenden played music to ships at sea expecting Morse Code. First came a recording of Handel's "Largo", followed by an unspecified violin solo by Fessenden himself. He played through a transmitter of his own design; the year was 1906. Fessenden had come to the U.S. to work for Edison, and had eventually founded his own National Electric Signalling Company in Massachusetts. By now the big electric companies had started their own research programs and voice transmission became practical fast. Telefunken in Germany and General Electric in the U.S. are notable for their contributions to transmitter design. By late in 1912 messages were being sent routinely between Navy stations in Honolulu and Arlington, Virginia; 4500 miles. Around this time, Lee de Forest was perfecting his "Audion", the first electronic vacuum tube. The vacuum tube permitted the amplification of electrical signals and hence their manipulation in much more complex ways than previously possible.

The concept of electronic image transmission dates back to the early days of Telegraph. Many cumbersome and inadequate schemes had been tried to represent pictures in a manner suitable to Morse Code type communi-
cations systems. The advent of voice transmission and the vacuum tube renewed much interest in this area. At the end of World War I considerable effort arose in the U.S. and Europe to perfect an electronic means of image presentation. It was realized that mechanical systems, as had been tried to date, were simply inadequate in their image quality. Although the invention of television is hotly contested and hard to pin-down, the person who seems most responsible for the development of television as we know it was a researcher for Westinghouse named Vladimir Zworykin. In 1923 he filed his first patent on the electronic television tube, the picture tube. It was also in 1923 that David Sarnoff, vice-president of RCA wrote to its board of directors, "I believe that television, which is the technical name for seeing as well as hearing by radio, will come to pass in due course.....It may be that every broadcast receiver for home use in the future will also be equipped with a television adjunct by which the instrument will make it possible to see as well as hear what is going on at the broadcast station."

In 1930, RCA took over the radio and electronics research of both General Electric and Westinghouse, thus obtaining the services of Zworykin. Sarnoff supported him liberally and by 1936 RCA had a marketable system capable of transmitting 30 images per second over a distance of
45 miles. Then commercial research ground to a halt as the world geared up for war once again.

World War II may have stagnated consumer oriented communications research but it saw, through massive scientific and technological effort, the development of RADAR. RADAR, for RAdio Detection And Ranging, is not in itself a communications device. It utilizes the property of solid objects of reflecting radio signals to provide a kind of accurate electronic telescope. Regardless, the technology that went into the perfecting of RADAR is the basis of much of today's high-speed, high-bandwidth communication. The war effort also caused the establishment of many excellent laboratories dedicated to RADAR and communications research. It is the output of these facilities that really enabled the world to enter the communications age.

By the end of the war television was ready to join radio in a secure position as an integral part of American life. The explosive emergence of digital computers in the 1950's spurred the quest for ever-faster telecommunications systems that is in full force today. Laser, microwave and satellite systems are largely the result of the desire to transmit thousands of discrete streams of information at once, at the almost incomprehensible rate at which modern computers generate and utilize them.
THE ELECTRONIC MASS MEDIA

If we examine telecommunications from an applications viewpoint, two general categories become apparent. The first is point-to-point interactive communication. Here, each station in a given communications system exchanges information with a finite number of pre-designated stations. The exchange is analogous to human conversational interaction. The flow of information changes direction throughout the conversation, and all parties have at least some control over that flow. I do not mean to imply that interactive communication is necessarily human conversation. Computers, missiles and satellites can, and do, communicate interactively. So do generals, bus drivers and people using their telephones.

The second general class of telecommunications application is so-called "broadcast" transmission. In a broadcast transmission, or simply a "broadcast", a signal is transmitted from the broadcasting station to an indefinately large number of receivers within a certain radius of reception. A contemporary television broadcast might have a 50 mile radius of reception within which tens-of-thousands of receivers might be active. The use of multiple broadcast points, a "network", can increase a television audience well into the millions. Due to the
cost effectiveness and advertising power of broadcast style telecommunication, it has been the basis for commercial television and radio since their inceptions.

It is easy to see that broadcast telecommunications media are mass media. In fact, the scale that they have achieved over the last 30 years has forced a reconsideration of the non-electronic mass media. There seem to be several important differences between the two types of mass media. Printed media, books, newspapers and magazines, do not provide the globally synchronous experience of the broadcast media. Additionally, they are more elective to the individual. They are individually paced; they demand an active role on the part of their audience. In a broadcast situation a person has very little choice beyond receiving or not receiving. Once tuned-in, the broadcast is entirely determined. Finally, very few publications reach the size audience that is typical of network broadcasting. The scope of this shared experience and its uniformity from individual to individual is a phenomenon unmatched except, perhaps, by cosmological events.

By virtue of its animation and use of representational, rather than symbolic, imagery, the broadcast conveys a sense of reality and immediacy that surpasses even the most skillfully used inanimate media. These
factors combine to warrant the consideration of the electronic telecommunications media as a separate and potentially more potent class of mass media.
PERSONAL AND SOCIETAL EFFECTS

The development of telecommunications technology is perhaps most readily organized from an economic and military perspective. The effects of this technology, however, are quite visible in contemporary social structure and in the psychology of the contemporary individual. With the vast body of material available concerning these issues in mind, I would like to point out certain factors that I see as most relevant to Telecommunications Art as it has evolved.

When President Kennedy was shot, in 1963, 44 percent of all Americans learned the news within 15 minutes; 90 percent within the hour. The information spread at the rate of 50,000 persons per second, considering the U.S. alone. The Kennedy assassination remains an archetypal example of a "media event". The idea that an individual event could have such a widespread and immediate impact using mass media as cost-free vehicles is compelling. It is equally compelling to the politician relying on image not record, and to the political terrorist who can reach middle America in a whole new way. It is also very compelling to the artist who, for the first time in history, might be able to compete fleetingly with the power of the politician or entertainer by applying
cleverness and artistry to the media event. The audience is there, the medium is there, and the artist has a chance to be a benevolent hero at last.

On the other side of the coin, communications technology has strongly conditioned people to accept sensory information at specific rates, in specific formats. The artist desiring to reach a mass audience, or for that matter any non-selected audience, is increasingly being measured against commercial standards of timing, entertainment, illusionism and graphic technique. This is especially true in an artistic medium such as video, where the television-based conditioning of the audience presents a formidable challenge. Just as the maturation of Hollywood filmmaking radicalized both film artists and their audiences, resulting in the film "underground", electronic media artists are constantly tempted to disavow competition with commercial media at the expense of the power that such competition might afford them. To date only a handful of artists have been allowed access to the resources and audience of commercial television in the U.S. These largely through the efforts of the public television stations. Of these artists fewer still have attempted to meet the television audience on its own terms, partly for the obvious reasons of budget and time. As satellite and cable technologies make access and production less expensive and more available, it
remains to be seen how artists using these media will deal with the issue of audience expectation.

It is important to note that the expectations that the commercial media have created are not confined to video art and the like. We are learning to and expecting to receive information and stimulation in new and dynamic ways. We take these expectations with us into all facets of our lives.

Our constant exposure to electronic telecommunications phenomena has some interesting effects on our concepts of reality. I will again use commercial television as a convenient example, but telephones, AM radios, CB radios, walkie-talkies and Telex messages all play a part in the situation. A principle aim of the majority of television programming is illusion. The viewer is made to believe, at least on some level, that he or she is witnessing an actual occurrence, as it happens, as if through some invisible window. Space is arbitrarily juxtaposed; time is arbitrarily manipulated. Unlike the cinema experience, in which the viewer has made considerable conscious effort to participate in a fantasy in the presence of others, the television viewer can be mentally transported by the reflexive push of a button.

It is simplistic to assume that children who watch
crime shows on television go out and become criminals, but media programs and advertisements do provide role models that are compelling. Further, television helps confuse issues of right and wrong in a subtle way. Activities depicted on television, be they factual, theatrical or frivolous, are depicted out of any rational context. The difficulty a viewer may have reconciling television reality with local reality can generate confusion, frustration and anger. What are real options to one social class are entirely fantasy to another. What is acceptable or even exemplary behavior in one part of town might be unacceptable in another. In short television, without attempting to deceive, assumes a uniformity of audience that simply does not exist. What Orson Welles demonstrated with his "War of the Worlds" scenario is worth remembering; that a mass audience can be profoundly affected by what it is shown, without ever questioning when it happened, where it happened or even if it happened at all.
"It is with a feeling of humbleness that I come to the moment of announcing the birth in this country of a new art so important in its implications that it is bound to affect all society. It is an art which shines like a torch of hope in a troubled world. It is a creative force which we must learn to utilize for the benefit of all mankind." Thus spoke David Sarnoff at the televised dedication of the RCA Exhibit Building at the 1939 World's Fair. Somewhat earlier, Laslo Moholy-Nagy had proclaimed that "the illiterate of the future is the man without a camera."

In 1922, Moholy directed the creation of several graphic works by telephone. His intention was to focus attention on the conceptual processes of art to the subjugation of the material processes. The use of the telephone was clever and convenient and certainly prophetic, but also somewhat irrelevant to both the technology and to Moholy's idea. The early 1930's saw the first intentional artistic use of electronic communications technology as a primary medium. The two earliest works using radio broadcasts defined the two major categories that persist today. They are, logically enough, work which concentrates on the transmission of a piece or performance
to a general audience, and work that uses received signals in some manner. There is a more recent third category, interactive Telecommunications Art that will be defined later.

In 1932, on May 5, Sud Deutsche Radiofund broadcast Kurt Schwitters' "Archetypal Sounds (Ursonate)". The "Ursonate" was a well known Schwitters' Merz poem, but he had specifically endeavored to have it broadcast, perhaps in recognition of radio's influence on the derivation of his uniquely characteristic vocal inflection. Upon hearing an original recording of Schwitters reading the work, I was immediately struck by the similarity to the exaggerated, staccato vocal inflection of the early radio announcers.

In 1933, Marinetti and Pino Masnata published the "Futurist Radiophonic Theatre" manifesto. They spoke of radio as a "new art that begins where theatre, cinematography and narration stop." Marinetti wrote five radio "Syntheses" that utilized "noise music", "interference between stations" and intervals of "pure silence." The use of received signals was prevalent in such Syntheses as "Silences Speak Among Themselves".

In 1939, John Cage, then a relative unknown, com-
pleted his "Imaginary Landscape No. 1". As the title might suggest, the work was designed for presentation only as a recording or broadcast. In 1942 he wrote an article for the journal "Modern Music" advocating "experimental radio music." Refering back to Marinetti, Cage, in 1952, performed live with a radio receiver in an untitled event at Black Mountain College.

The first documented work to deal specifically with television was Wolf Vostell's happening "Ereignisse für Millionen", of 1959. This happening was "dedicated to television." Later that year, Vostell exhibited a collection of broken, gun-shot, mis-tuned and painted television sets under the title "Partitur TV De-Collage". He would later incorporate television sets into his controversial FLUXUS performance event "YOU" in 1964.

Nam June Paik dealt specifically with the broadcast image in his 1963 piece "Electronic TV". Paik claims to be profoundly influenced by Cage and in this somewhat satirically titled work he presented electronically distorted broadcast images on thirteen television receivers. Paik has remained a major force in Telecommunications Art for almost 20 years now. His work frequently incorporates commercial broadcast imagery, both electronically processed and not. He has used such imagery, often advertising imagery, to comment on the inter-cultural
effects of television. Paik designs many of his videotapes for broadcast and has demonstrated sophistication in producing work that preserves artistic credibility while remaining competitive with commercial productions.

Starting in 1965 with WGBH-TV's "Jazz Images", public television began to produce sporadic "experimental programming". Many stations instituted Artist-in-Residence programs and workshops. This trend somewhat culminated toward the end of the decade with works such as WDR's "Black Gate Cologne", a one-hour program produced entirely by artists Otto Piene and Aldo Tambellini, and "Violence Sonata" by Stan VanDerBeek at WGBH; a program inviting audience participation via telephone.

The improvement of portable video equipment in the 1970's spawned an entire generation of "video artists". Most of this work owes more allegiance to filmmaking than to Telecommunications Art. Some video artists such as Douglas Davis, Paik, Vito Acconci and others have continued to explore telecommunications concepts with and without videotape. Acconci's work "Seedbed", of 1971, was an interesting distillation of certain telecommunications issues. Acconci performed in a gallery in very close physical proximity to his audience, yet the only informational link between them was a loudspeaker through which Acconci spoke. The work was not specifically designed
as Telecommunication Art, per se. Acconci’s comments on the piece are somewhat metaphysical and allusive, but the metaphor of a broadcast situation is undeniable.

The most recently prevalent form of Telecommunications Art departs from the treatment of broadcast and mass media in favor of performance structured around point-to-point interactive telecommunications systems. The performances often deal with the juxtaposition of distant geographical locations and distant cultures, and are very often explicitly concerned with the political and social implications of global telecommunications.

Satellite links, microwave links, telephone links and short-wave radio links have been used to exchange fast-scan images, slow-scan images, voice, type and data. Artists who have been actively involved in interactive telecommunications include Nam June Paik, Aldo Tambelinni, Douglas Davis, Antonio Muntadas and Stan VanDerBeek.
THE EVOLUTION OF RADIO FREQUENCY PERFORMANCE

My fascination with telecommunications dates back to childhood experiences with 1950's television, with short-wave radios and with walkie-talkies. My attempts at making artistic videotapes were personally disappointing, so I decided to concentrate my energies on installations, performances and events that dealt in various ways with mass media and telecommunications.

In the spring of 1980, I constructed an environmental installation entitled "Transform" at the Center for Advanced Visual Studies, M.I.T. The piece was an attempt to modify the character of an existing architectural space using television receivers as the sole source of sound and light. The receivers were tuned to various commercial channels, and a complex, rhythmic montage of the broadcast audio was electronically created. "Transform" took the typical livingroom/television ambience out of context to demonstrate the ability of television light to create a personal, intimate atmosphere.

Also in 1980, I became interested in interactive telecommunications and produced three works for different interactive media. The first was a short performance for slow-scan video transmission. The work, which
involved painting my face in stages while a text poem was gradually transmitted, was produced in conjunction with Aldo Tambellini's COMMUNICATIONSPHERE group for the "Artists Use Telecommunications" conference. The second interactive work was a telephone participation piece on the M.I.T. Cable Television System. People passing numerous monitors throughout the hallways of the Institute were invited to call a number to answer certain personal and political questions. The voice of all respondents was played live and uncensored over the various hallway monitors. The third work was a music piece supported by a grant from Boston First Night. I established audio links using cable and radio from various New Year's Eve musical events to Boston's Old South Church. Here, I created a constantly changing blend of the channels. The resulting mixture was played out to the street throughout the evening, using a large sound system in an upper window of the church. The piece was entitled "Sonic-Link, Boston".

Throughout 1981, I was involved in several slow-scan video projects with various artists, and continued to refine the ideas expressed in my work "Transform". Out of this latter work I developed a piece entitled "TV Time" for the "Collaborations One" show at Connecticut College in New London. I took a normal black-and-white
television receiver and electronically modified it such that the picture and sound blinked on and off exactly once per second, out of phase from one another. The effect of the blinking was to produce a continuous series of "snapshots" of the visual material being broadcast. I hoped to amplify the viewer's awareness of the television picture as a visual image abstracted from the program content, and to provide a frame of reference with which to observe the timing of the broadcast material. "TV Time" was installed on a small stand, with two chairs for viewers. The viewers were allowed to operate the controls of the receiver as they wished.

The voyeuristic implications of radio communication have always attracted me. No radio conversation is truly private, though users of radiotelephones, ship-to-shore radios and short-wave radios generally assume privacy. Even a commercial broadcast intended for a mass audience has implications of voyeurism; of seeing without being seen. For the Center for Advanced Visual Studies "SKY ART Conference '81", I collaborated with artist Peter Codella on an installation entitled "Voyeurism and the Invisible Sky". Viewers donned audio headphones and looked through a small peephole in a wall. Through the peephole was visible a video image behind lace curtains. The video depicted a couple in their livingroom, going about the activities of a typical evening at home. The
audio material was a montage of actual off-the-air radio-
telephone and short-wave conversations.

The piece that most directly led to the creation
of RADIO FREQUENCY PERFORMANCE was designed to be present-
ed as a lecture to the C.A.V.S. class "The Artists Speak". In order to make a point about the deceptive nature of electronic media, I delivered a lecture/poetry reading that appeared to be recited live, but was in reality pre-
recorded. During the reading, which concerned my childhood memories of television, the audience watched sound-
less broadcast TV. The TV provided the only light in the room. Several minutes into the recital, which lasted a total of 12 minutes, I got up from my chair and walked into the audience, causing them to realize the deception.

The extension of this idea from audio into video provided the conceptual basis for RADIO FREQUENCY PER-
FORMANCE. Although the spoken text of RADIO FREQUENCY PERFORMANCE was ultimately pared down considerably, much of it originally derived from the "Artists Speak" script.
THE DESIGN OF RADIO FREQUENCY PERFORMANCE

RADIO FREQUENCY PERFORMANCE is a 25 minute theatrical work for a solo performer. I performed in the first production of the work in early December, 1981, at the C.A.V.S.

Most of RADIO FREQUENCY PERFORMANCE takes place inside a 12'x5'x4' white box. The box is partially open in the back and is placed lengthwise along a white wall with about 2 feet of clearance. There are 2 large black-and-white video monitors on the floor in front of the box, one at each end. To the right of the box, from the front, sits a small loudspeaker with a candle on it. There are several small loudspeakers on the ceiling of the performance space. The audience sits in chairs facing the front of the box and the video monitors. The closest chairs are about 12 feet from the monitors.

All actions taking place within the box are visible to the audience only via the video monitors. Each monitor is fed from a camera looking through a small hole at each end of the box. The 2 cameras face one another, providing mirror symmetrical views down the length of the box. The view of each camera is masked to a circle fitting snugly within the rectangular visual field of
the video monitors. Thus, each camera has a clear view of the middle and opposite end of the inside of the box, and a "blind" area towards the end where it is located.

A video switching system was constructed to allow either or both of the live images to be switched to pre-recorded videotapes. An operator, out of the view of the audience, controls the video tapedecks, the switching system and an audio tapedeck, working from a script. In preparation for a performance, videotapes are recorded showing various activities inside the box. By switching these with the live cameras, the audience can be fooled or confused about what is actually occurring within the box. If both monitors show the same activity, either live or from tape, the audience will assume it is really happening. The audience has no way of knowing of the existence of the taped material until a conflict is created by showing different activities on the two monitors.

The interior of the box is unfinished wood and masonite. It is lit by a single dim, green lightbulb. The bulb is on the ceiling of the box, at the middle. It is out of the direct view of both cameras. It lights the inside of the box relatively evenly and casts a diffuse green glow up the wall behind the box, quite visible with the room lights off. The faces of the two monitors have transparent red lines drawn on them, tracing some of the strong-
er visual features of the inside views of the empty box. The lines serve as specific visual elements in the composition of the monitor images, and also aid in the alignment of the live and taped images during set-up.

To commence with the design and construction of the actual performance, the box was built and two videotapes were recorded. The tapes were recorded simultaneously, one from each camera. If the tapes are played back in sync it appears to the viewer that he or she is watching an event actually transpiring within the box. As a person walks the length of the box, they shrink in one monitor as they grow in the other.

The videotapes were made in four sections, referred to as:

1) Tying up string segment. (10 min.)
2) Cutting down string segment. (5 min.)
3) Ping Pong ball segment. (4 min.)
4) Fire segment. (1½ min.)

Each segment of the videotape is dealt with differently in terms of my actual, live activities during the performance and in terms of the use of video switching during the performance. There is spoken audio to accompany parts of the first and third segments, and ambient sound to accompany the third.
The first segment of video consists of pacing back and forth within the box, tying lengths of string and rope between various points of the structure. A web is slowly created. Use is made of the perspective views of the cameras by stretching strings down the entire length of the box. The web is most dense towards the center of the space, where the light is most direct and highest in contrast. As the web of string begins to obscure visual features of the box, there is an interplay between the white lines of the string in the video images and the red lines drawn on the monitor faces.

As the string becomes somewhat dense, I stop tying it up and begin to cut it down with a scissors. This comprises segment two of the videotapes. The cutting is done more quickly than the tying and the segment ends when the box is empty of string. I then walk over to the camera holes and cover them with tape, causing both monitors to show black.

Segment three begins with the removal of the tape covering the view holes. The box is now visible as it was last seen. I am carrying a box of Ping Pong balls. I sit directly against one wall and toss a ball against the far wall, catching it when it rebounds. The sound of the ball hitting the wall and bouncing on the floor is recorded on the videotape. During this segment the
monitor images are about a half-second out of synchro-
nization. When I miss catching a ball and it rolls too
too far for easy retrieval, a new ball is removed from the
box. The segment continues until all six balls are
scattered about the floor of the box.

At this point I proceed directly with the fourth and
final segment of the videotapes. I stand up from my seated
position, (all standing inside the box is really stooping),
I remove some matches from my pocket and I light the Ping
Pong balls lying on the floor of the box. It is not
entirely clear what I am igniting since the balls are
not all clearly visible, but Ping Pong balls are made
of nitrocellulose and burn rapidly and intensely. As the
balls flare up the video cameras overload, creating
interesting high-contrast visual effects. It becomes
very difficult to tell from watching the monitors how
much of the inside of the box is actually burning and
where I am among the flames. There is no sound to this
segment of the videotape. As the flames die down, but
before they are completely out, the videotapes switch
to black.

The videotapes described above form the backbone of
RADIO FREQUENCY PERFORMANCE. The spoken text, the ambient
sounds and the live actions both in and out of the box
relate to the structure of the videotapes. A spoken intro-
duction is given once live and once from audiotape before I actually enter the box during the performance. The videotape rolls as I begin to enter the box, so that my pre-recorded entrance is mistaken for my actual entrance. I will now narrate a production of RADIO FREQUENCY PERFORMANCE.

The performance begins with the house lights on, the internal box light on and the video monitors off. I walk up to the front of the box, face the audience, and read a brief introduction to the piece. At the end of the monologue, the house lights go out and I walk over and light the candle atop the loudspeaker at the side of the box. As soon as the candle is burning I face the audience while staring at the floor in front of them. This is the cue for the operator to roll the audiotape. My voice is heard from the loudspeakers located on the ceiling of the performance space. The tape repeats exactly my introduction, then proceeds to more text. The moment the introduction ends and the new text begins several things happen quickly. The tape operator starts both videotapes rolling in sync. I blow out the candle and walk behind the box. Here I plug in both video monitors. The monitors require about 20 seconds to warm up, during which time the room is lit only by the green glow on the rear wall. As soon as the monitors are operating I enter the box. At the same time, the audience sees me enter the box
on the monitors. Unbeknownst to them what they are seeing, and what they will see for the next 15 minutes, is pre-recorded material. As mentioned, the tape depicts me creating a web of string inside the box. In reality I am creating a similar but more dense web as they are watching the videotape. The occasional sounds the audience hears emanating from the box lend further evidence to the deception. After several minutes, the second segment of the videotape begins and the audience sees me cutting down the web. Inside the box, however, the tying continues. By this time I am quite entangled, sitting in the direct center of the box. I am pursuing my occupation with greater diligence and the string is building up rapidly.

When the Ping Pong segment starts the audience is still watching tape. The monitors are slightly out of sync, so it becomes obvious to the audience that they have been watching recorded material. For the first time ambient sound is heard accompanying the video imagery. After three tosses of the Ping Pong ball the video switching begins. A random change of images occurs each time the ball is heard to strike the box wall. Now the deception is revealed. I am sitting tangled in string inside the box and playing with a Ping Pong ball at the same time. Each time the ball strikes, the images change. Simple changes at first; for example, one monitor switches from tape to live while the other remains tape. As
the segment progresses the changes become abrupt. All combinations of live and videotape images are juxtaposed. During this segment the audience is hearing the sound of the ball striking the wall and bouncing on the floor from the loudspeaker next to the box. They are also hearing slowly and rhythmically spoken text from the overhead speakers. After the final toss, both monitors are left showing tape imagery. The sound all goes off.

Now the final segment begins, and I am seen, on tape, getting up and igniting the balls on the floor of the box. After about a minute, the flare of the burning balls dies down and the videotape cuts to black. At this moment I ignite several sparklers at the rear of the box, just inside the back opening. This illuminates the rear wall bright white and sends a small mushroom cloud of smoke rising from the box. After the sparklers have burned themselves out, the video operator switches both monitors to show the inside of the box. I am seen completely entangled yet still struggling to continue. The operator gets up, walks past the audience and turns on the house lights. After a few minutes of audience uncertainty, the operator and perhaps a few "plants" from the audience come back behind the box to talk to me. We discuss the audience's response to the piece, any problems encountered, etc., just as if the piece had ended. Eventually either
people from the audience will get up to leave, or they will come talk to me inside the box. The monitors remain on, I remain working in the box, the piece is over; I leave whenever I get bored.
A DIAGRAM OF THE PERFORMANCE SET-UP AS SEEN BY THE AUDIENCE.

Shown: Box, Video Monitors, Cameras, Candle, Floor Loudspeaker.
Good evening, I would like to thank you all for coming to my thesis presentation. It is entitled Radio Frequency Performance.

Part One: Seeing both sides at once.

I was born with the space age. The television was the nighttime window into my childhood room. I was never very sure of what was real; of who my next-door neighbors were. In the dark the human eye sees only black and white.

My relatives were voices on the telephone, I could not picture their faces. I learned to trust signals. I learned to trust house current. I learned how to change channels and how to fine-tune. I was four years old. I grabbed the knob labelled "desire" and dialed one. Then the ring labelled "clarity of vision". Finally, I directed the antenna.
Good evening, I would like to thank you all for coming to my thesis presentation. It is entitled Radio Frequency Performance.

Part One: Seeing both sides at once.

I was born with the space age. The television was the nighttime window into my childhood room. I was never very sure of what was real; of who my next-door neighbors were. In the dark the human eye sees only black and white.

My relatives were voices on the telephone. I could not picture their faces. I learned to trust signals. I learned to trust house current. I learned how to change channels and how to fine-tune. I was four years old. I grabbed the knob labelled "desire" and dialed one. Then the ring labelled "clarity of vision". Finally, I directed the antenna.

TIME= 02:45

ROLL VIDEO. MONITORS BOTH SWITCHED TO TAPE. BLOW OUT CANDLE. WALK BEHIND BOX, PLUG IN MONITORS, WAIT THEN ENTER BOX. TYING SEGMENT OF TAPE IS SEEN. TEXT CONTINUES:

Admission, Alignment, Amplification, Altruism, Action-at-a-distance, Advertising, Attenuator, Alternating current, Bandwidth, Bandpass, Bypass, Balanced line, Bias, Bidirectional, Black box, Belief, Breakdown, Because of things we take for granted.

Part Two: The umbilical cord becomes the network of communications which becomes the web of possibilities.

The room is painted khaki, World War II. The needles wink eyes on meter faces, lights glowing slightly low voltage, incandescent style. It's claustrophobic hollow sounding like a memory of something lost. In your stomach you feel it now. And now the existentialists and photorealists, the psychiatrists and mothers and fathers just do not mean a thing.

The low low ceilings and that ringing sound and that
vomit green and the yellow warm glow of the pilot lights and you want to be there. Be there forever because it makes some kind of sense a whole lot more than here and now.

TIME= 11:30

STRING TYING SEGMENT OF VIDEOTAPE IS COMPLETE AND I BEGIN TO CUT DOWN WEB ON THE TAPE. INSIDE THE BOX, MY ACTUAL STRING TYING IS WELL UNDERWAY, I AM TANGLED.

TIME= 17:00

PING PONG BALL SEGMENT OF TAPE BEGINS. SOUND OF BALL IS HEARD FROM LOUDSPEAKER NEXT TO BOX. MONITORS BOTH SHOW PING PONG TAPE, BUT ARE SLIGHTLY OUT OF SYNC.

AFTER THREE THROWS, SWITCHER OPERATOR BEGINS RANDOMLY SWITCHING MONITORS BETWEEN TAPE AND LIVE, REVEALING ME INSIDE OF BOX COMPLETELY ENTANGLED, YET STILL TYING. SWITCHES ARE GRADUAL AT FIRST, GETTING MORE ACTIVE AS THE SEGMENT PROCEEDS. ALL VIDEO SWITCHES ARE MADE AT THE EXACT MOMENT THE BALL IS HEARD HITTING THE WALL.

ALONG WITH THE BALL SOUNDS, THE FOLLOWING TEXT IS HEARD FROM THE CEILING SPEAKERS, ONE LINE EVERY 10 SECONDS:

Eat a nice meal.
Put on dark glasses.
Make a phone call.
Physical gestures.
Don't hang up on me.
Masturbate.
Change clothes.
Sleep.
Answer the telephone. Hello?
Put new batteries in a toy.
Play with friends.
Take a shower.
Smoke a cigarette.
Be depressed.
Lie down, fetal position.
Shave.
Talk.
Talk about something else.
Take a picture.
Go to sleep.

TIME= 21:00

PING PONG BALL SEGMENT OF TAPE ENDS. MONITORS ARE BOTH LEFT ON TAPE. BURNING SEGMENT OF TAPE BEGINS.

TIME= 22:00

AS FLAME ON TAPE SUBSIDES, SPARKLERS ARE LIT INSIDE BOX TOWARDS REAR OPENING, ILLUMINATING BACK WALL. MONITORS ARE BOTH ON TAPE, WHICH IS BLACK. WHEN THE SPARKLERS BURN OUT, BOTH MONITORS ARE SWITCHED TO INSIDE OF BOX, REVEALING ME COMPLETELY TANGLED AND STRUGGLING TO CONTINUE TYING MYSELF. AT THIS POINT THE VIDEO OPERATOR GETS UP AND WALKS PAST THE AUDIENCE TO TURN ON THE HOUSE LIGHTS, SIGNIFYING THE END OF THE PIECE. THE MONITORS REMAIN ON AND THE AUDIENCE IS FREE TO LEAVE OR TO COME UP TO LOOK IN THE BACK OF THE BOX. I EVENTUALLY BEGIN TO TALK TO THE AUDIENCE; ASK THEM IF THEY ENJOYED THE PIECE, ETC. I CONTINUE TYING.

I LEAVE WHENEVER I DECIDE I'M BORED.
CONCLUSION

RADIO FREQUENCY PERFORMANCE embodies several ideas previously expressed in my work with telecommunications. The use of electronic media as agents of deception, the isolation and alienation inherent in transmitted communication, the voyeuristic implications of the television "window" and the environmental ambience of television viewing are primary issues in the piece. These ideas are easily traceable to specific works I have completed over the last few years. However, the approach I chose in implementing RADIO FREQUENCY PERFORMANCE is, for me, a new one.

My experience with performance before an audience goes back many years. This performance urge had been dormant for quite a while prior to this production. RADIO FREQUENCY PERFORMANCE is, in a certain way, a marriage of old and new approaches to my work: an old predilection toward live performance and a new subject matter and more visual treatment. As such, it has helped me resolve a personal conflict between my artistic and political concerns with technology and my more basic expressionistic desires.

The decision to forgo broadcast imagery in favor of
a more personal visual statement did not come easily.
Likewise, my departure from a tradition of sound-structured
works was, at first, tentative. I feel that these are
positive transitions in my work and are well worth
developing and refining.
BIBLIOGRAPHY


