

THE TIMELY SELF-PORTRAIT MACHINE

by

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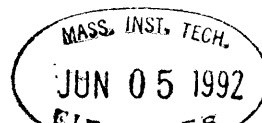
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ABSTRACT

This thesis explores the philosophy which underlies the Timely Self-Portrait Machine. The cultural history of the machine, the phenomenon of Television, and the personal history of this project are discussed. Technical information and a functional explanation of The Timely Self-Portrait Machine are provided.

A central theme is echoed throughout; essentially, a request is made that the machine be treated by artists and designers as an agent of expression in itself, regardless of superfluous decoration.

Thesis Advisor: Otto Piene

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The Timely Self-Portrait Machine

Introduction

Consider Television. In the United States five national broadcast networks together produce at least 20 hours of new television every day. Each second of this television time is comprised of 60 discrete images which are displayed in sequence on a television screen to construct *a* reality. So at least four million images are created daily to make functional America's sixty million or so turned-on TV sets. As a result of this short-lived reproduction more than a trillion images are displayed every day.

Two thinkers of the early twentieth century, Lewis Mumford and Walter Benjamin wrote with eloquence and concern about the cultural transformations that would occur with the coming of mass-media. Since their time the televised media has become ubiquitous; there are now two

generations of Westerners who don't know life without TV. Politicking has been reduced to the production of video bites. The voter support for an electoral measure or referendum is predicted according the amount spent for its television ads. War is a video game.

But the effect of television is more than the selling of the consumer to the advertiser, more than the nightmare of the corporate psychologist measuring 'ERPs'¹ in the brains of TV viewing subjects, more than the electro-mechanical institution of political and cultural control.

It is a new algorithm for the process of personal definition. The endless sequence of ostensibly causally connected event depictions

¹ERPs, Event-Related-Potentials. A subject is given a stimulus, (e.g. a fragment of a beer commercial) and electrodes measure the subsequent electrical activity of the brain. Imagery may be fine-tuned in this way to maximize effect.

promotes an analogous world-view where life is always seen from the provided point of view.

Enough media hysteria. There is plenty of current literature, even a discipline, 'media studies'. But not much of it is particularly revealing. Likewise, few visual artists have spoken on the subject with depth. One exception is Cindy Sherman, who has spent her career photographing herself in poses reminiscent of film stills (each is like one of those four million television images). Another is Sarah Charlesworth, whose work with printed news media directly inspired my own.

These two artists create 2-dimensional works which rely a little on the history of the 2-D artwork to frame the way in which the works are expected to be observed. My work is 3-dimensional and I have studied as a sculptor. I choose to work with the vocabulary of so-called 'Modern Sculpture'; a dialogue that began with artists like Constantin

Brancusi and Marcel Duchamp. Many of the artists in this field who interest me have created what I see as machines; sometimes subtle and visual, like those of Duchamp, sometimes imposing and physical, like Richard Serra's. I believe the Machine is the most useful construct for metaphorizing the socially and politically important technological systems of today. A machine can be felt in a deeply anthropomorphic way- I understand plumbing in the same way I understand the flow of blood in my veins. It can represent the personal body as well the body politic.

On Understanding

Unlike 'interpretation', which brings with it the polemics and institutions of a thousand different critics, many dead, 'understanding' is hopefully more immediate, less vulnerable to the virus that is language.² To express this act of cognition, this taking in and processing of a work of art, I like the verb 'to grok' used by the Martian in Robert Heinlein's *Stranger in a Strange Land*. When used with people as subject 'to grok' means not just to

²It is Laurie Anderson who claims that *Language is a Virus*. Language is like a virus in that as a word becomes attached to a concept or object the word changes the meaning that the object held but, like infected DNA, this new meaning is endlessly replicated by the mass literary production of the age of the printing press. In another chapter I explain how Art History infected Duchamp's *Bicycle Wheel*, physically changing it into something it was not.

know them through everyday contact but also the act of eating them when they die. It is difficult to deny that when you eat someone you do in fact know something more about them than before. In addition to being incompatible with Judeo-Christian ethics, this practice conflicts with the Enlightenment notion that all real knowledge is transmitted through, or at least reducible to, language. Recent philosophical writing examines the importance of the body as a locus of understanding independent of language³. I offer two tangible examples of the inadequacy of language alone: the universal difficulty of maintaining a serious relationship under the strain of a long distance, and the multi-billion dollar business travel industry, flourishing even in

³Foucault's *Discipline and Punish* examines the shift toward discorporeality in terms of the treatment of criminals and children.

the age of video conferencing and facsimile machines. Simply put, most inter-personal communication does not occur through spoken or written language.

Communication by telephone is certainly lacking but living with someone on a speech fast can be extremely difficult. An attempt for genuine understanding must involve more than just one field of reception. The same is true of works of art. No single metaphor, socio-political explanation, or Freudian interpretation can do very much for a work of art.

I have attempted to build this theses document with multiple points of view: technical explication, biography, historical revision, a short story, and lots of pictures. None alone would suffice.

The Most Beautiful Sculpture I Ever Saw

I had slept in my studio that night. I don't remember why but there was a good reason. I don't normally sleep at school and when I do it affects my dreams. So does

whatever caused me sleep there. It was kind of awkward but exciting and strange to be leaning around with the die-hard art students in the morning sun waiting for our old white school bus. It was even stranger to be driving out of Portland with our painting instructor at the wheel and we not even taken showers yet. I offered my Cheerios but only Igor and Glenna, the sculptpeople, and Ru, the architect, would take any.

We slept, mostly, until we passed Tacoma. Driving around confused for a little while we ended up astride Robert Morris' King County reclamation. We ran down the side and back up thinking how much it was like driving in an undulating empty drive-in movie theater. We admired the chain-link fence and the strange plaque. We watched other visitors come and run up and down. Then we drove till we were enticed by the new Aerospace museum. We walked around the glass building and were satisfied that although we didn't have money to get in, the steel exo-skeleton offered many good perches for peering at the strange planes hanging from the ceiling and at a better vantage point than the paying tourists who were inside and looking at us in alarm.

We drove on and gaped at the village of Boeing and relayed rumors of a fantastic junkyard where you could buy any airplane at the market cost of the scrap metal.

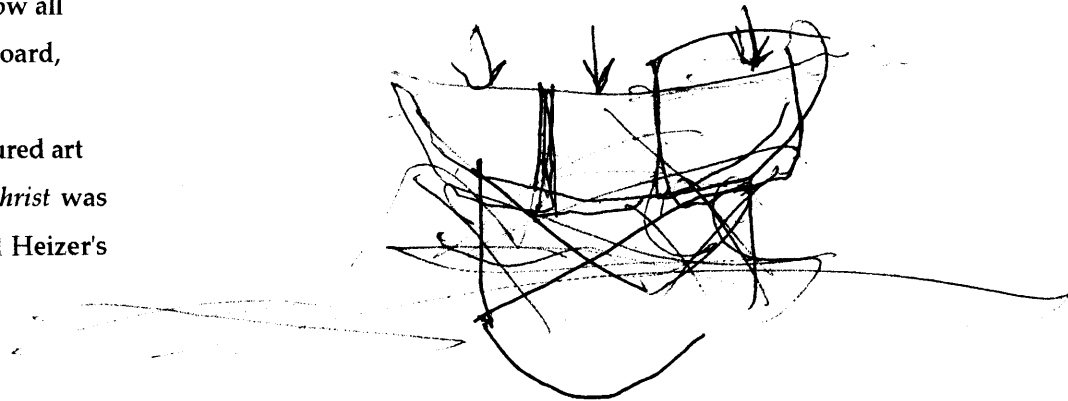
Our destination came to view- a techno-gleaming-nightmare-paradise, like a futurist Winnebego but much bigger- the Western Regional Center of the National Oceanic and Atmospheric Administration. The 1 percent for art program buys a lot of art for a complex of this magnitude. So art we saw. "Environmental sculpture" abounded. A little Pyramid...some really fairly ugly wind chimes...some decking...a bridge (guaranteed to be *art* by the fact that it had little bits of *literature* stuck all over it). The bridge was too boring to read and the bay didn't seem particularly worthy of contemplation, at least not at that moment so I looked back at the aluminum castle and its appendages and I noticed that there was some part of it (perhaps an electrical transformer) stuck out in the middle of a field *without* a chain-link fence surrounding it.

Igor and I decided to check it out. We **\bū-'üp** walked across the field and as we did we realized that this faint sound we had been hearing for about a paragraph and a **\bū-'üp** half was coming from this strange thing which looked less like a transformer and more like a giant fiberglass mechanical ear. The sound, **\bū-'üp** obviously and in fact a call to someone, got louder. We could now admire the crafted beauty of this thing manufactured by American Meteorologic; it was light-colored with **\bū-'üp** a metal skeleton and fiberglass outer surface and misc. power and signal wiring. It was about 14 feet **\bū-'üp** high, shaped like an ear and its speech was now overpowering. The machine was divided into three sections and **<bū-'üp->** each of them emitted sound in sequence. It had an unusual acoustic property that its sound did not seem to be coming from itself **\bū-'üp** but more reflecting off the clouds above. It was not until we touched the inside of it that we could see that the sky was **>bū-'üp\>** its lover. To do this we had to climb the frame and it was discomfoting because to look inside one had to hold the **<bū-'üp\>** fiberglass which was quite fragile and bent just from the pressure of trying to balance one's body against it. What I saw was the **\bū-'üp** blackest I have ever seen.

No light. Black hole.

I couldn't see it but I reached to touch it....soft, like flesh, or high-density polyurethane foam. SPEAKING ONLY TO THE SKY And by now all the artists, even the painters, climbing on board, revelry.

So we went on to see the show of censored art at the gallery in downtown Seattle. *Piss Christ* was kind of pretty. We saw a rat near Michael Heizer's water front rock installation.



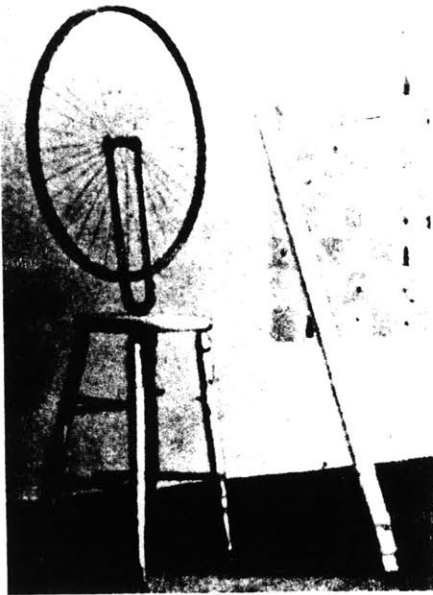
Mistaking Duchamp

Sometime in 1913 a young artist named Marcel Duchamp, an artist who would become a major influence in late twentieth century art, mounted the front wheel of a bicycle on a kitchen stool. This work became one of his emblems. Indeed it became an emblem of Modern Art- the direct predecessor of the 'ready-made'; the first 'object of assemblage aesthetics'; a pre-Dada "joke" challenging the notions of what a work of art could be.

This is what it became indeed, but it is not what it was. It is accepted that writing about art is from a particular point of view and must be biased and risk distorting the meaning of a historical work for future generations. But more has happened to Duchamp's *Bicycle Wheel* than merely being misinterpreted. In this case the *work of art itself* (the physical and visual documentary manifestations of it) has been modified to fit the

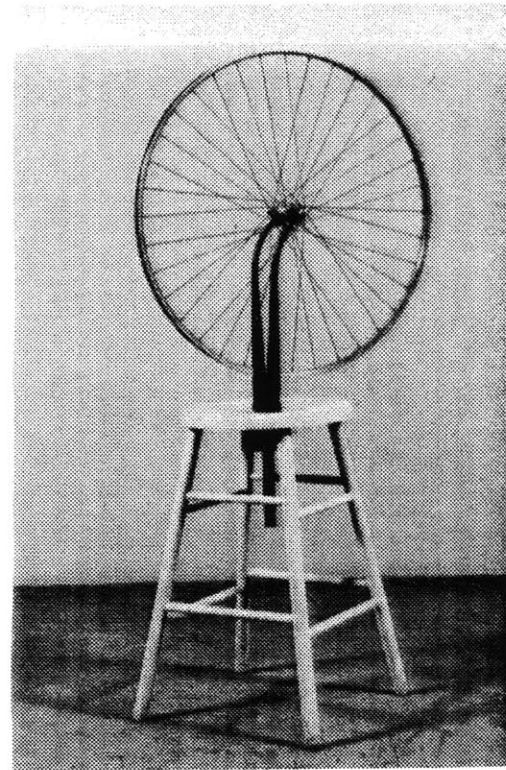
presiding art-historical view of it. Interpretations of the *Bicycle Wheel* may truly be the reasons the work is important to art history. But they do not justify the distortion of the reproductions/ recreations of the *Bicycle Wheel* which has occurred and which obscure Duchamp's intentions and method of working.

The evidence for my complaint is the photograph of Duchamp's original bicycle wheel of 1913 which is reproduced in Jack Burnham's *Beyond Modern Sculpture* and Robert Lebel's *Marcel Duchamp* .



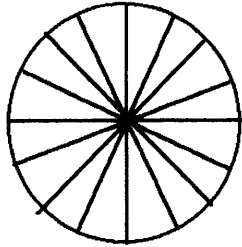
Marcel Duchamp, *Bicycle Wheel*, original, 1913.

The object pictured in this photograph is significantly different from the identically named object pictured in many other books and lectures on Modern Art, apparently derived from a reproduction at the Museum of Modern Art in New York. It is, precisely, as different as it could be



Marcel Duchamp, *Bicycle Wheel*, MoMA, 1951.

and still fulfill the text-based description: "A standard bicycle wheel, without a tire, inverted and mounted on a standard kitchen stool."



Radial Spokes.

The crucial differences between Duchamp's wheel and the MoMA reproduction are in the arrangement of the spokes and the form of the fork. Duchamp's wheel

featured a nearly radial alignment of spokes with no spoke crossing the path of any other. MoMA's wheel uses the up-to-date cross-four method where spokes visually intersect as far as halfway from the hub. This creates a visual form unique to modern spoked wheels whereas Duchamp's wheel is iconographically compatible with historic radially lined images such as of the sun. The bent fork in MoMA's reproduction is likewise a form unique to recent vehicles whereas Duchamp's straight fork is simply a generic line (two lines if viewed orthogonally). So in the MoMA version we have what can only be seen as an assemblage of

industrially created commodities but in Duchamp's original Bicycle Wheel we could see a very minimal collection of geometric elements—the radial line, the circle. In fact, the radial spoking method for bicycles had been supplanted in 1888 by the modern cross-spoked method of the Starley 'Rover' Bicycle.⁴ So it seems Duchamp's *Wheel* was not a contemporaneous mass produced item as in the work of Jeff Koons and Tony Cragg but rather an antique at least 25 years old and possibly with some personal meaning.

Now there is clearly a problem with the fact that the MoMA reproduction is so much more compatible with art-historical dogma even if it seems unlikely and unevidenced that Duchamp had any interest in minimal geometry and we

⁴Philip Summer, *Early Bicycles*, London: Hugh Evelyn Limited, 1966.

know nothing about where or why he obtained the bicycle wheel.

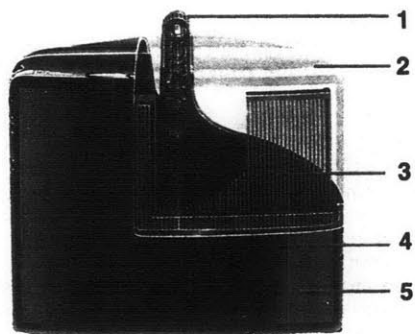
But, there is an even greater problem if we consider the difference not between the static visual images of the MoMA reproduction and the original but the differences in dynamic functioning of the two real devices. Duchamp's *Wheel* has the peculiar feature that as it rotates each spoke sequentially aligns itself with the fork thus creating a visual pulsation parallel and adjacent to the fork. This is a stroboscopic effect; an effect created by the repeated binary modulation of light over time, the same effect used to make the photographs imitated by Duchamp's *Nude Descending a Staircase* of the previous year. The MoMA Wheel creates no such effect, the spokes simply cross the fork, never aligning with the fork because it is not radial to the hub.

The significance of this effect is suggested by the fact that we know Duchamp was interested in

optical effects- particularly the optical effects of rotating objects as in the *Precision Optics* machines. It is possible that the bicycle wheel is the first optical machine.

I conclude that the Bicycle Wheel was not an assemblage of found objects, analogous to a work of Synthetic Cubism, but rather it was a machine created with the new miracles of modern industry, interchangeable parts; functioning in a dynamic field unique to modern sculpture, precursing the work of the Kineticists. I think something could be learned by studying Duchamp's early work with respect to their functioning as machines, as we know that the Machine was central to his art.

ma·chine \me-'shen\ n, *often attrib*
[MF, fr. L. *machina*, fr. Gk *mechane* (Dor
dial. *machana*), fr. *mechos* means, expedient]
1 : an instrument designed to transmit or
modify the application of power, force, or
motion

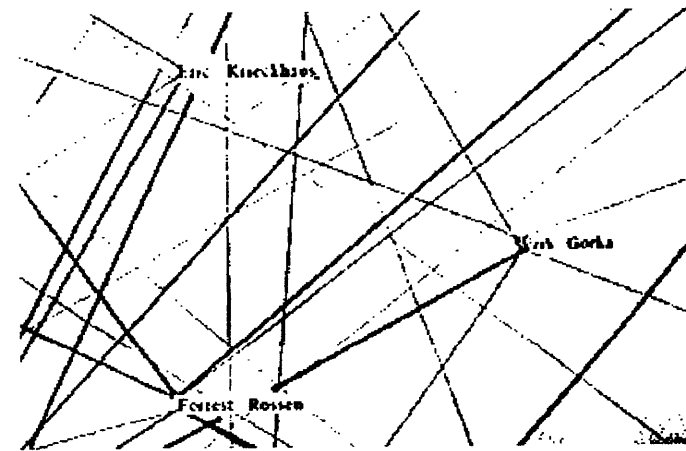


machine

Personal Precedence

My interest in art began with an affinity for the forms of Minimalism. Unlike what I had thought of as 'Art', these were constructed with industrial materials which were familiar to me and generally without an art world mystique. By constructed I mean assembled from discrete, mass produced, components. Hans Haacke's work was also constructed in this way and I was very interested in his early 'natural systems' work as well as his later 'social systems' and political work. He created work which allowed a natural or social system to illustrate itself. For instance, in a 1970 installation in New York called *Gallery-Goer's Birthplace and Residence Profile, Part 1*, Haacke had visitors mark on maps the places where they were born and where they currently live. The end result presumably told the gallery-goers something about themselves as a group.

I was intrigued by the idea of an artwork as an objective collection of data. I wrote a computer



Link - April 11 - May 4, 1988.

program to monitor instances of electronic communication among the faculty and students at Reed College. I used this data to create *Link - April 11-May 4, 1988*. The dates refer to the period of time over which the data was collected. The work

was a chart of social relationships with people's names connected by lines to the names of those they communicated with. Unlike Haacke's work, which was the data *as well as the means of acquiring it*, I was unconcerned at the time with how I obtained the data. As I look back on this work, I realize that my means of collecting the data, the fact of a simple computer program constantly taking small bits of legitimate data and combining them to yield information that would never have been allowed to be made public is much more interesting than anything the chart would have revealed about its subjects.

I have always found television to be an absolutely fascinating phenomenon, in both its technology and its social implications. My greatest concern with television was the lack of choice it afforded the viewer. I don't just mean that the programming is created thousands of miles and millions of dollars away from the viewers; I mean

that this medium acts in a unique way to restrict the vision and thought of the viewer. Until the popularization of the video cassette recorder, television was radically different from all other media in that a program was receivable only at a determined time, it could not be reread or examined⁵ yet it was not like any sort of performance- it was as private as a book. Television programming is designed for the purpose of seducing a viewer's attention so that desire for mass commodities may be

⁵Since videotape was not available even to TV stations until quite late in the history of television and archiving by film was costly, much television programming of the 50's disappeared into outer space as soon as it was broadcast. The only hope we have of ever examining it is to create faster-than-the-speed-of-light spacecraft to catch up with its ever-expanding wavefront or to wait for cooperative aliens or some space mirror to reflect it back to earth.

manufactured⁶. I took it upon myself to define an alternative to conventional television which would have qualities missing from TV as it existed but would take advantage of the same technology:

TV	ATV
Fast	Slow
Serial	Parallel
Prophylactic	Organic
Normal	Abnormal
Money	Art

I don't remember for what occasion I created this list; it looks like the prerequisites for creating something to fit the genre of "Video Art". At this point I was not aware of much of the experimentation that occurred in the 1970's with video installation and 'expanded cinema'. I did closed-circuit installations, feedback systems, computer graphics, I even mixed television and goldfish like Nam June Paik but less professionally

⁶More precisely, the viewer's sight is sold to advertisers who use it *mostly* to stimulate consumption. Noam Chomsky argues that television like all mass-media works to manufacture political consent. There is no doubt that it does but this is an effect subsidiary to the creation of desire; consent is manufactured in all quasi-democratic societies, communist as well as capitalist. The push for consumption is not necessary under a controlled economy. In a controlled economy the programming itself tends to manufacture consent. In the United States this happens mostly only with news programming. Other programming serves as a funnel to deliver sight to the only important part of the programming, the commercials.

and more provocatively.



Gregory Cosmo Haun: *Bubbling Treasure Chest*. 1988.

Luckily, I went through my private 1970's in little more than a year.

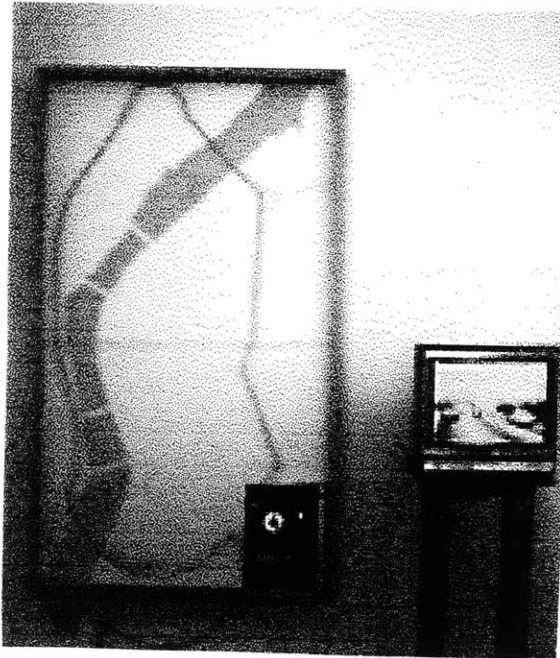
Like Gene Youngblood and theorists of that era I distinguished media as either serial or parallel, interactive or not. In fact, I set up an entire hierarchy of dimensionality:

Dimension	Medium
(Physical degrees of freedom)	
3	Sculpture
2	Painting
1	Literature
0	Television

This chart is of limited use and should not be taken too seriously, but the logic by which I came up with this arrangement is self-consistent and is explained in the Appendix. I tried to create works that brought television into an environment where it could be contemplated without its usual enforced point of view, that is, to break down its narrative but still retain some information it provided. I realized that this work could easily be hollow.

Work which tries to be too pure, to distance itself from the contingencies and accidents that provide a course through life, can be somehow

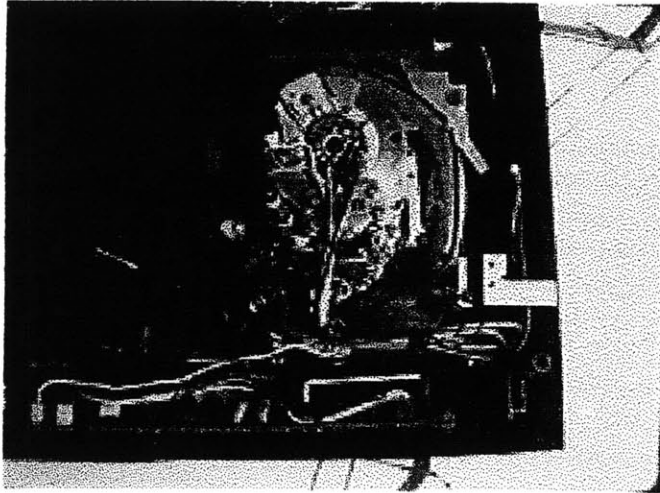
dishonest. Of the two pieces from my pre-MIT career I consider successful, important to my future work, one of them is personal but the other is more or less minimal.



Gregory Cosmo Haun: *Serialization*, 1989.

The personal one was called "*Serialization*" and uses a modified videocassette player to convert

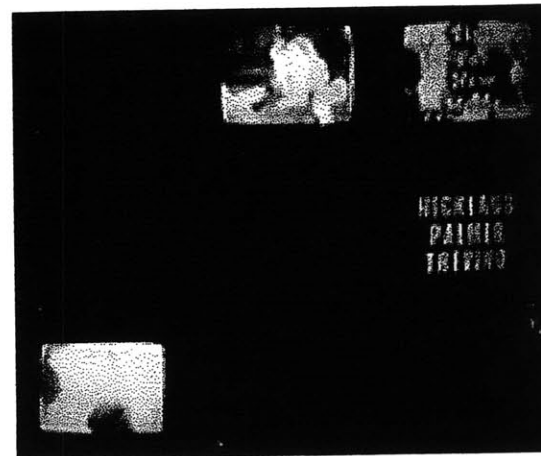
a map of downtown Portland, Oregon into a movie, comparing television to an interstate highway where you can't change direction and can only go to prescribed places. That concept itself is quite compelling but this sculpture excels because it is more than that. It may seem strange that I would call a videotape of an urban highway loop personal but in light of the fact that my love for that city is second only to my love for my closest family and friends it is clearly personal. In addition to the personal subject matter and the charge, if you will, to illustrate TV as a directed one-way ticket, the work has existence as a semi-metaphoric machine- As the VCR digests the map's disemboweled videotape and regurgitates the corresponding video image, it has a visceral effect, perhaps as if the VCR is a brain, or a tax clerk but maybe it is a colony of army ants.



Serialization, detail of VCR.

The minimal one was called "*De-Serialization*" and was the model I had intended to expand when I came to MIT. As it happens, the *Timely Self-Portrait Machine* is a combination of approaches present in both of these sculptures. *De-Serialization* was an example of what I called broadcast sculpture- it was a one-hour period of time on one TV channel where the screen was

divided into nine segments, each corresponding to a local television station.



De-Serialization, view of broadcast image.

The work consisted simply of the live re-broadcast, organized into the appropriate segments of the screen, of the commercials being shown on the local TV station. By tuning to my channel a viewer could instantly see all the commercials being shown at that moment on the other stations. The screen was not static of course, it undulated and pulsed with the rhythms of the consumption

inducement machine. By disengaging these images from their temporal context and reorganizing them, I intended to recycle these images and other broadcast information (the sexual timing of the jump-cut edits, for example) into a visual rendition which could provide insight into television and any culture it may transmit, untethered by the narrative structure dictated by commercial expediency.

My expectations were satisfied in this work- it was almost impossible to watch any commercial through to its end; the eye was attracted to the next cut anywhere on the screen. There is an elegance to this work but it appears to lack some personal element, especially the way I described and imagined its ultimate incarnation where it would be run continuously with the help of a computer hidden somewhere. In actuality I couldn't figure out any method to automate this work so I had five friends in the television studio with me

attentively observing their assigned TV channels and hitting a button on the Macintosh when a commercial appeared.

Acquiring the nine color TV sets needed for this piece was something of a story. I resorted to buying them on credit from the distinguished appliance merchandiser, Tom Peterson, and then returning them, taking advantage of Tom Peterson's Happy Advantage Number 2: "We will make you happy up to and including your money back".



Tom Peterson.

I felt obligated to include a portrait of Mr. Peterson in the written portion of my undergraduate thesis and I am now troubled by rumors from the Pacific Northwest that his electronic Xanadu at the corner of SE 82nd and Foster may go bankrupt.

I came to MIT thinking that I could use the 'vast technological resources' here to create a work like *De-Serialization*, but improved by being computer-run and sterile. But I have come to realize that the resources which made my work possible were not technological: they were the friendships, the common interests within a community, and the energy of a less affluent but younger, stronger, and more optimistic society. No accomplishment or development, whether artistic or technical, occurs in a social or political vacuum. This is emphasized by the new social historians of technological systems⁷ and is something I am realizing and exploiting in my own work.

⁷For experimental writings on the sociology of technology see Bijker, Hughes, and Pinch; *The Social Construction of Technological Systems*; Cambridge: MIT Press, 1987.

If an artist is not going to produce for money (and work which has honest and novel political content cannot be) than there must be some other reward and I think this reward has to do with bringing oneself into a work of art, accepting the fateful occurrences that define both the self and the work. It is an investment in the work of art that people who see the work will respond to. It is a commitment. When someone partakes in the pleasure (and pain) of painting a picture there is no question that the artist will be visible in it. When someone creates a machine as a work of art it is a more difficult thing to find. Duchamp's machines still send historians reeling, trying to explain the content.

Remember that at one time the film was not considered a work of art; the director was some sort of technician perhaps a designer, but not an artist. Films, and later, television, were not seen as personal. Maybe if more attention had been paid

to film in its infancy we would have access to more than the bland and revolting excrement of Hollywood. We know that people will soon spend more time in front of a computer than in front of television- isn't it time to take seriously the design and art of machines which people interact with on an intimate level?

Artistic Precedence

Some species of animals, including *Homo sapiens* and *Pan troglodytes* (chimpanzee) have demonstrated the ability to consciously design solutions to environmental or other problems by arranging available objects in novel configurations which

⁸Köhler, Wolfgang, *The Mentality of Apes* (1925)

Köhler's famous research on primate tool use and problem solving began when he found that a chimp he had wished to deprive of food had managed to assemble bamboo shoots of differing diameters into a pseudo-telescopic rod which she used to retrieve banana snacks.

David Premack and Guy Woodruff in "**Does the chimpanzee have a theory of mind?**" show that their chimpanzee, Sarah, is able deduce mechanical solutions for such problems as an unlit heater and an unplugged phonograph

permit the transfer of matter or information.⁸

These creations are called machines.⁹

Weapons and agricultural implements are early machines sometimes viewed as works of art. Really though, they are more often viewed as vessels or media for works of art; the meaning of

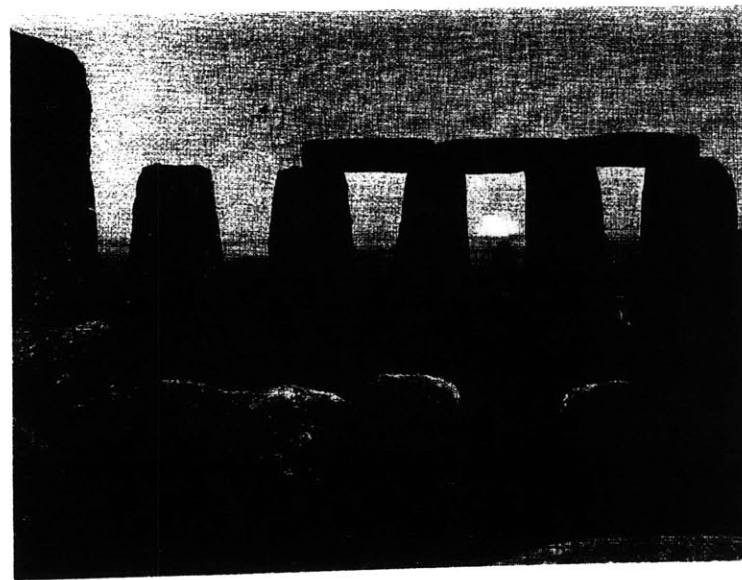
from merely seeing a videotape of a human suffering the consequences of the non-functioning machine. The researchers are more concerned with Sarah's ability to comprehend the intent of the human actor than her mechanical aptitude but they do raise the question of whether the chimpanzee "can be regarded as a lay physicist".

⁹They are sometimes called 'tools' especially when they are operated by hand (social scientists and merchandisers are guilty of this, physicists use the term 'simple machine'.) For my purposes 'Machine' is etymologically preferable: 'tool' comes from the verb 'to tool' meaning 'to prepare for use', 'machine' comes from the Greek 'mechos'; 'means, expedient'.

the surface decoration rather than the function of the device is what is considered important.

Ancient megalithic structures cannot be viewed this way. Although their specific uses (e.g. social uses) are open to speculation, the various mechanically functional aspects (e.g. astronomical measurement) of many of them have been established. We know, for instance, that the 'heel stone' at Stonehenge aligned with the rising sun on the day of the summer solstice during the era of the megalithic cultures. Computer analysis has suggested many additional stellar connections for Stonehenge, but the more complicated the relations, the more they simply add to the mystery of the place. The beauty of the megalithic sites resides *in their function* as astronomical machines. Lucy Lippard demonstrates this when she relates ancient structures to the work of contemporary

artists who build machines to trace astronomical time.¹⁰



Stonehenge, Wiltshire England. Summer solstice sun rising near 'Heel Stone'.

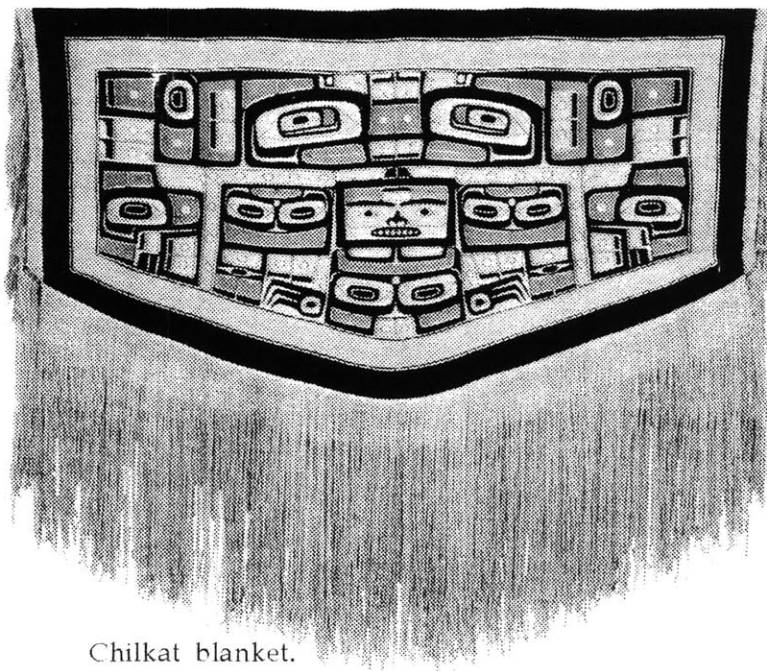
¹⁰Lucy Lippard, *Overlay*, pp 100-117. She cites for example: Charles Ross, Robert Morris, Nancy Holt.



Chinese incense clock, 14th century.

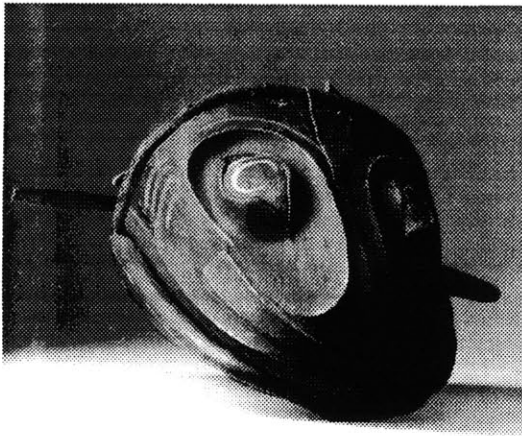
Consider the circular image above. As a simple design it is elegant, suggestive of Islamic design. But it is more. The dark lines are actually walls separating troughs of incense which occupy the white space. The flame burns slowly, winding its way through the strangely non-symmetrical catacomb, its scented breath reflecting the different types of incense encountered on its journey. This

machine is nowhere decorated; its personality is contained within its functional design. A radial pattern would have been much easier to calibrate as a time telling clock, but this machine is from an era when a machine was first to be beautiful, then functional.



Chilkat blanket.

The native peoples of the American Pacific Northwest Coast produced an abundance of rich and unique art. The 'paintings'- the applications of 2 dimensional designs to various surfaces- of the commonly depict a multitude of different animals within the same pattern. For instance, on a blanket you might find a bear within the claw of a raven (see figure; if you are not accustomed to viewing this art do not expect to recognize the animals) The work would seem to express some idea of change or multiplicity of being.



Kwakiutl mask; closed, partially open, fully open.

These ideas are expressed *mechanically* in the function of the Kwakiutl masks. (See figure)

These masks are machines which reveal multiple images, usually of two or three different animal faces, by a system of hinges and levers. The image on any one layer of the mask normally

corresponds to only one animal; the spatial integration that occurs in the 'paintings' is unnecessary here because integration over time occurs with the physical operation of the masks. That the masks were likely designed with performance in mind does not devalue their status as expressive machines; we know little about the rituals but the machine masks express ideas concurrent to those of the celebrated 'paintings' in an equally astounding way.

* * *

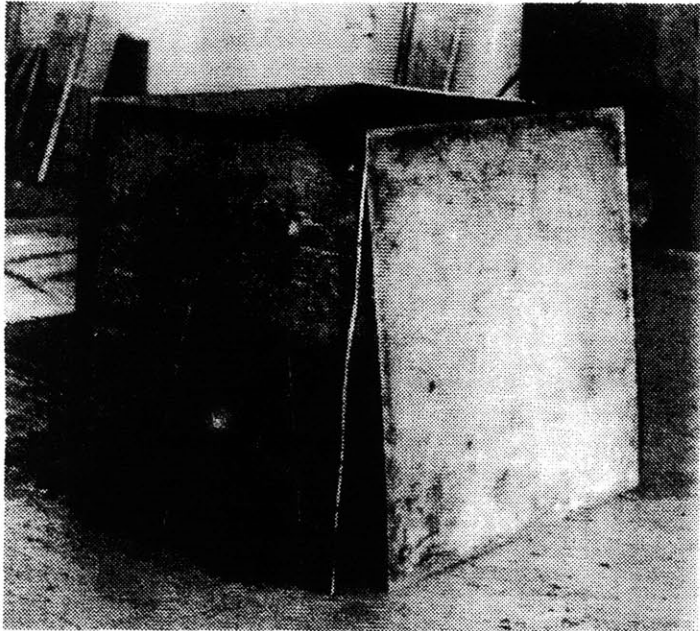
The industrial revolution opens a new chapter in the history of the expressive machine. As mechanization began to radically alter the structure of human life the machine became a very loaded metaphor. It becomes something to be discussed in itself. *Art which is machine becomes confused with art which depicts machines.*

Part of the problem is that most of the people building interesting machines were not artists, or

at least they have not been accepted into the canon of art history. Nevertheless some theorists do examine machines on a functional level: Jonathon Crary looks at early visual machines to discover changes in the 'rules' of human visual observation, Micheal Foucault discusses a prison design called the *Panopticon* as a machine for controlling vision.

For all the hoopla surrounding technology in art in the twentieth century, there is little artistic machine building relevant to my interest in the functional machine. Four artists who have stayed with the functional machine long enough to focus are Dennis Oppenheim, Chris Burden, Hans Haacke, Richard Serra, and Alberto Giacometti. Marcel Duchamp was off to a good start but was apparently led astray by critics and theorists and the call of a good chess game. (see *Mistaking Duchamp*) Of the others only Richard Serra really explores this vocabulary. His machines are

composed of giant sheets of cor-ten steel, often precariously stationed in an arrangement of friction-enforced equilibrium.



Richard Serra, *One Ton Prop (House of Cards)*.

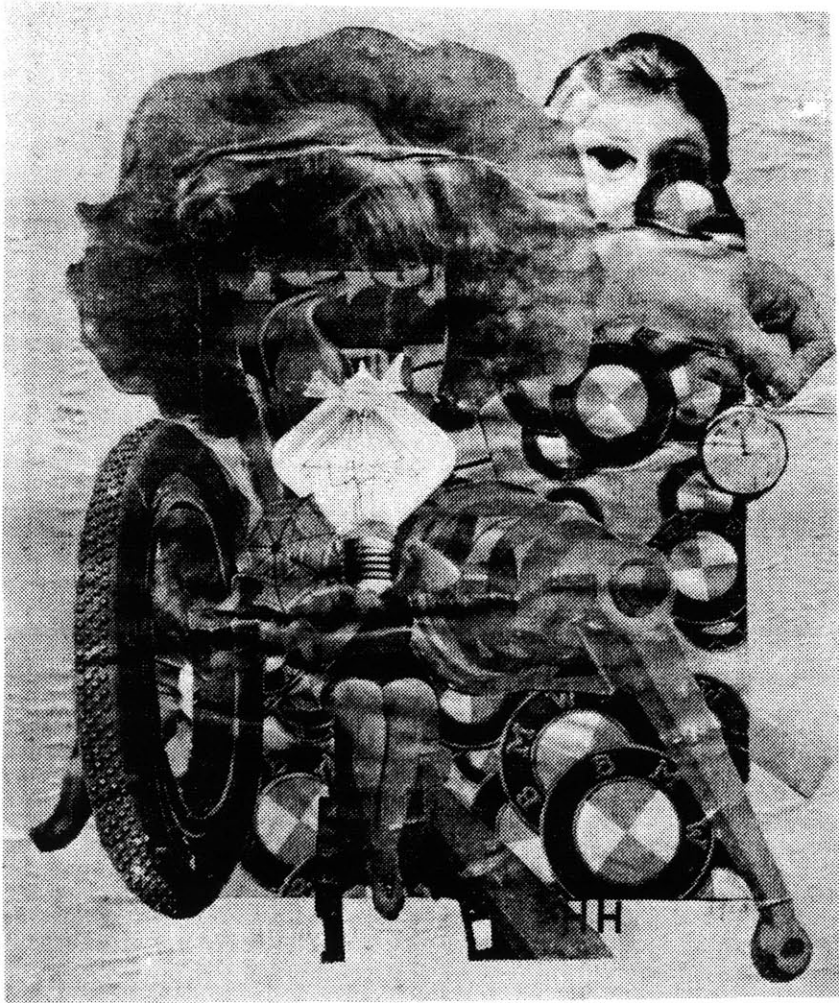
Some begin to enmesh with the gears of *institutional* machinery...and pay dearly for it.



Richard Serra, *St. Johns Rotary Arc*.

There are several artists who have explored the same subject matter as I but with different means. Hannah Höch, an early Berlin Dadaist, used images from mass culture to show the absurd new constructions of the self being created.

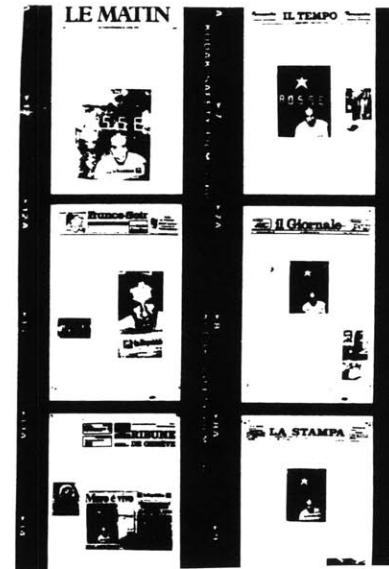
I am doing something like that.



Hannah Höch, *Pretty Girl*,

Likewise, Cindy Sherman seems to suggest that a self portrait in this age means to place oneself in the under the gaze of the Hollywood camera.

Sarah Charlesworth is responsible for a work of art which led me to the avenue I am currently exploring.



Sarah Charlesworth, *April 21, 1978*.

In her "Modern History" series she takes newspaper front pages and eliminates everything but one specific story. As in my *De-Serialization* and *Timely Self-Portrait Machine* a mass-media source is able to reveal something about itself normally hidden.

Nancy Burson's works like *Nuclear Powers Composite* provided me with a stylistic technique.

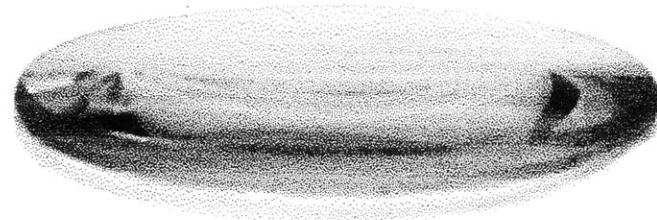


Nancy Burson, *Nuclear Powers Composite*.

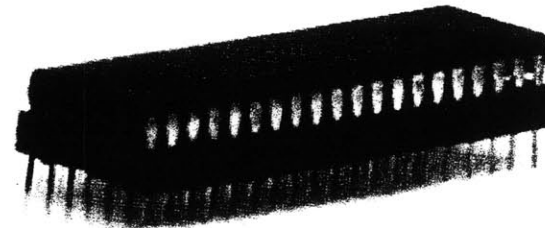
The Timely Self-Portrait Machine

The Machine runs constantly, monitoring broadcast television, waiting for a human face to appear. When it finds a face, the image of the face is converted to a computer format (this is called 'frame-grabbing' or 'capturing') and blended in with previously captured faces to form a composite, standard television face. This standard face is projected onto a large screen. As new faces are captured the standard face changes accordingly. The Machine uses a photograph of my own face as the criterion to determine if a televised image contains a face. That is, the Machine detects and captures images which are similar to the image of my face. Because of the imprecise technology used, this probably means anything with an obliquely round white space punctured by two eyes and a mouth.

The Timely Self-Portrait Machine is an involved device constructed from a variety of simple and complex machines I have amassed.



Optical CPU.



Digital CPU.

The portion of the Machine which performs the face recognition is not a digital computer; it is an optical computer. Pocket calculators, personal

computers and CD players are examples of modern digital computers. They use semiconductor integrated circuits to accomplish tasks by performing reiterative calculations that take some amount of time to finish. Each piece of data is processed separately, one after the next. An *optical* computer transfers signals via beams of light, not electronic circuits. In this case coherent laser light is used to perform a particular mathematical calculation, called the Joint Fourier Transform Correlation. This optical computer is an example of a parallel processor; it operates on multiple pieces of data simultaneously. Although it is has been difficult to implement, this parallel processing is more appropriate to my conceptual task of taking information from television and presenting it in a parallel fashion (Personal Precedence and Appendix).

This is the first of my machines where I have celebrated the subjective nature of constructing the

machine itself. This makes me a bit uneasy; there is some security in claiming pseudo-scientific disdain for issues of form in a work of art. I am finding, however, that after making an intuitive decision, carrying it through, and observing it via hindsight, I see some meaning to the choices made that I had no explanation for at the time. This seems to be the an effective and natural way to work but it requires developing a trust in my own intuition accomplished through rigorous self-analysis.

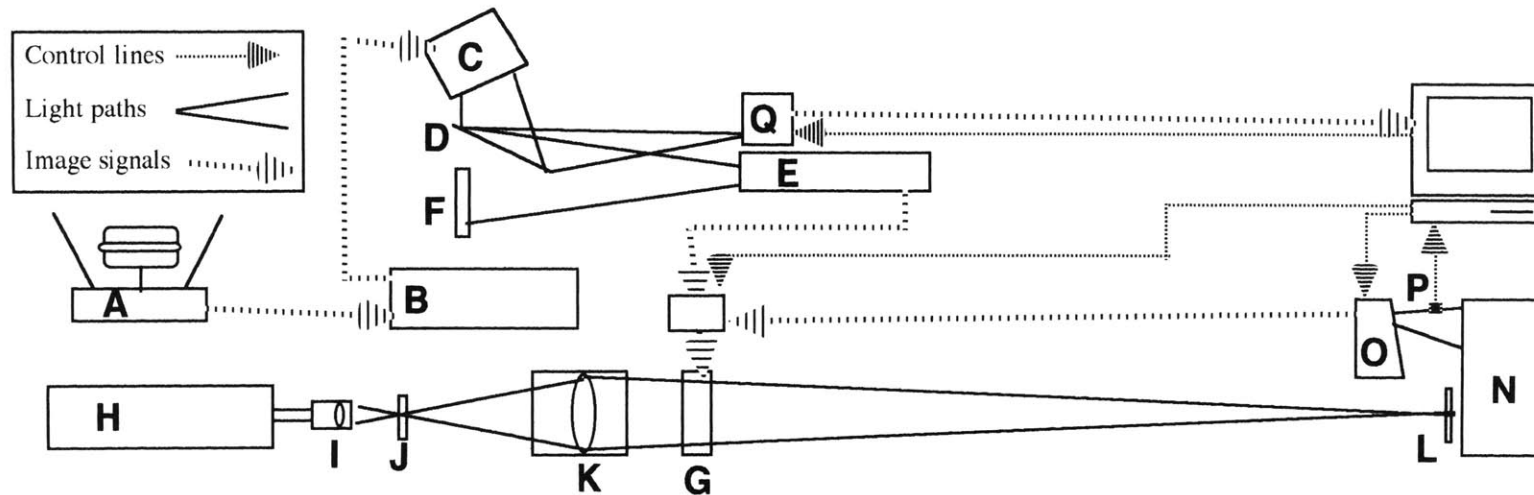
An example of an enriching but unjustifiable quirk is the frame-buffering system consisting of the Visualtel and the white Sony "Face to Face" picphone. The Visualtek was mailed to me by my friend and collaborator, Igor Vamos. He had discovered it at a school surplus sale and suspected that I could use it somehow. It has a non-interchangeable macro lens ideal for my purpose of capturing a Fourier transform. It has the peculiar

and normally undesirable trait of not outputting an electronic signal but only an image on its screen; an optical output.

The picphone I purchased at 3% of its intended price at surplus while visiting a person with whom I had great interest in maintaining contact. I left one of the pair with her, allowing the possibility of a visual phone conversation, an absurd gesture in light of what I have written about the uselessness of language and sterile images. I would have had to contrive an unusual power supply in order to use the picphones but as it happened that difficulty became moot; the picphone was returned to me and in the *Timely Self-Portrait Machine* I use Dan Spikol's 6v battery charger for his antique motorcycle to power the picphones.

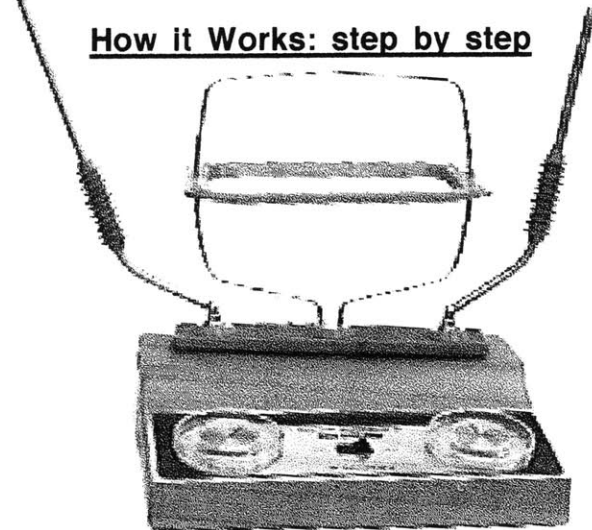
Now the picphone has the unusual quality that the only input to its framebuffer is through its built-in camera; an optical input. The camera lens

is non-interchangeable and the field of view is much too wide to record a transform. However the lens (the optical input) is almost ideal for recording the pattern displayed on the Visualtek monitor (the optical output). So these two strange devices, acquired through the most personal twists of fate, form an ideal, albeit very unconventional, transform frame-buffering system. This is important.



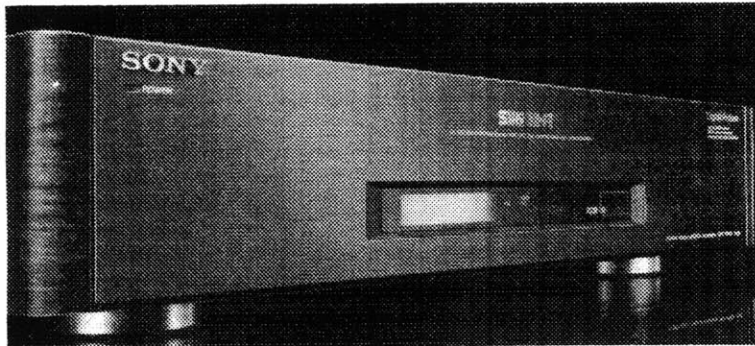
Schematic diagram of the Timely Self-Portrait Machine.

How it Works: step by step



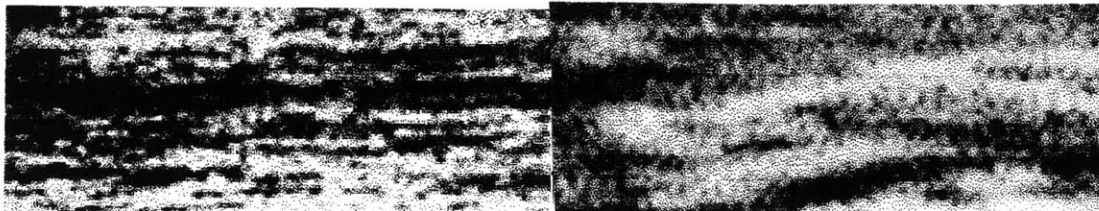
Color Supreme III

Everything begins with the Color Supreme III [A]. This is an antenna, little more than metal rods of appropriate length so that tiny currents may be induced by the electro-magnetic radiation broadcast by regional broadcast television stations. The Color Supreme III is attached to the Sony SLV-R5UC [B].



SLV-R5UC

This is simply a video cassette recorder, a VCR. Like the Color Supreme III it is an overpriced accessory for home television, only its aesthetic design is intended to seduce consumers of a different socio-economic class. A comparison of the simulated wood grain finish on the two devices should make all this clear.



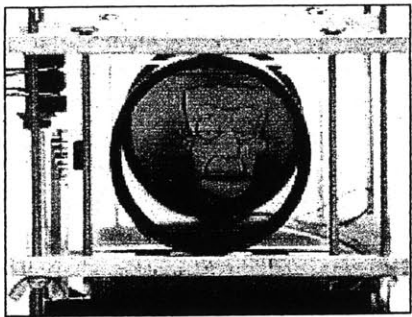
Simulated Wood finish; Left, Archer; Right, Sony

The VCR functions here as a tuner; it determines which television channel The Machine is analyzing at any given time. The VCR receives signals through a wire connected to a Macintosh computer which tell the VCR when to switch stations. The Macintosh performs some other control tasks which will be discussed later.

The VCR receives the television program on the channel to which it is tuned and sends it to the

television set [C] where it is displayed. A mirror [D] reflects the image of the television screen into half of the field of view of a video camera [E] which is trained on a photograph [F] of my face. The camera electrically sends what it sees- my face in the left half the screen; the currently tuned television

station of the other half.- to the Liquid Crystal Television (LCTV) [G]¹¹.

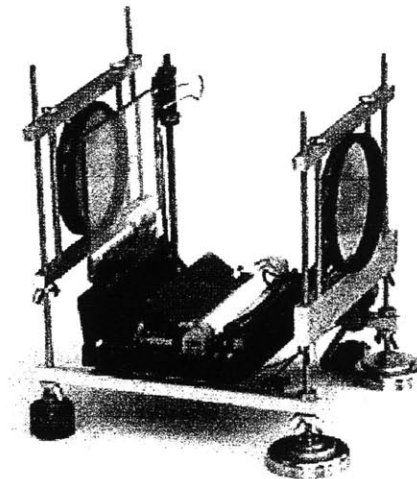


Modified LCTV with newscaster from "The Simpsons"¹².

¹¹Liquid crystal refers to the technology used in many pocket TVs and portable computers where the dark pixels of a TV image are created by causing an electrical voltage to align liquid crystals sandwiched between two polarizing filters in such a way that light cannot be transmitted through them. Light *can* be transmitted through the portions where the crystals are not aligned by a voltage.

In other words, an LC display is a transparency, like a photographic slide or a stained glass window, but most LC devices have some sort of light fixture or reflective surface behind one side of the glass so one can't see through them.

¹²This picture was taken before my face was added to the system. My face would normally occupy half the screen.



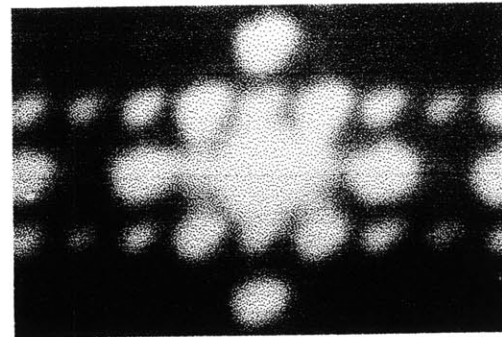
Modified LCTV.

I have modified my LCTV so that it is fully transparent. So the television imagery and my face are displayed transparently and side by side on the LCTV.

The LCTV is illuminated by a converging wavefront of coherent laser light. The source of this light is a Helium-Neon laser [H]. The beam of laser light is focused to a point by a 20x microscope objective [I]. A pinhole [J] is held at this exact point

so that any laser light deflected by dirt or imperfections is not allowed to continue. After coming to a focus the beam expands until it reaches the transform lens [K] which causes the beam to converge again only this time, slightly, not coming to a focus for several feet.

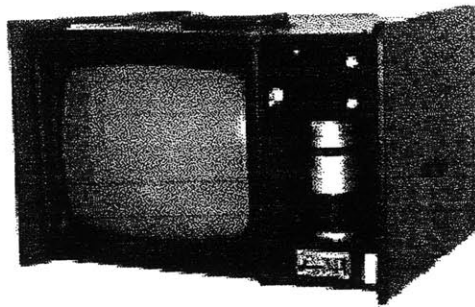
As the beam passes through the LCTV, the beam becomes encoded with the image being displayed, in other words, the image is projected, like a slide being projected, by the laser beam except that instead of expanding to occupy a wall, most of the light converges to a tiny point at what is called the 'transform plane'. This point of light is not of interest and is blocked by what is called a DC block [L]. The light that *is* of interest is the light that is *diffracted* by the boundaries between light and dark areas on the LCTV images.



Fourier transform of LCTV image.

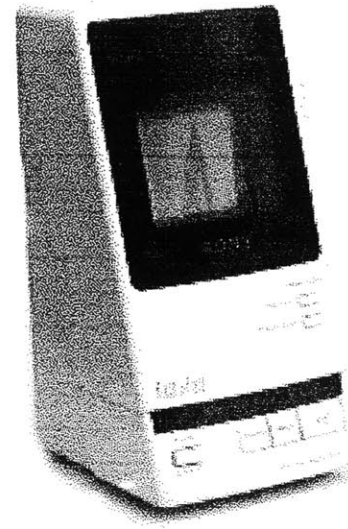
This light comes to a focus around the DC point and forms what is called the Fourier transform of the image displayed on the LCTV.¹³ When two similar images are present on the LCTV, e. g. the photograph of my face and a face from television, the transforms of the two images 'interfere' making a pattern in the same way two aluminum window screens make a moiré pattern when they are superimposed. In this case the patterns repeating lines and are called 'fringes'.

The image of the transform is reflected by the mirror [M] into the magnifying lens of the Visualtek [N].



The Visualtek.

The Visualtek displays the transform on its screen and this is seen by the picphone [O].



The Sony picphone.

The Macintosh sends a signal to the picphone and the picphone freezes the image of the transform in its memory.

Immediately afterward the Mac switches the input of the LCTV to the output of the picphone's memory so that now the transform

itself is displayed on the LCTV.

The process repeats itself, this time the transform of the transform is made. Now, if the original display on the LCTV had two similar images and fringes were produced, then these fringes are now transformed into a 'correlation point' (the Fourier transform of repeating lines is a point). This light is detected by the photocell [P]

which activates a solenoid which strikes a key on the Macintosh keyboard, telling it that a face has been found on TV.

The Macintosh begins the process of acquiring the face that has been found. The second picphone [Q] is signaled to freeze and send the image of the face which it sees on the TV [C]. The Macintosh begins recording digital sound through its microphone port which is connected to the audio output of the picphone (the raison d'être of the picphone is to convert images to sound so they may be sent over phone lines). When the picphone completes transmission, the Mac converts the digital sound information into an image. This image is blended with the previously captured images and is displayed in a small window on the Mac's screen. While the Mac returns to its data analysis operation, a video camera [R] trained on this window sends the

composite facial image to a projection TV for viewing.

Technical Notes

The architecture of the pattern recognition system is fundamentally similar to the "1-f Binary Joint Transform Correlator" presented by K. H. Fielding and J. L. Horner in *Optical Engineering*, September 1990 but with an LCTV as SLM.¹⁴

Binarization was accomplished by adjusting two contrast calibration potentiometers on the LCTV. LCTV specs:

Citizen UB-353 LC Video Module. Screen size: 7 x 5.5 cm; with vertically staggered pixels .25mm x .6mm.

Transform lens specs:

486mm FL telescope lens, Rank achromatic cemented doublet with MgF coatings, 1.9 arc second resolution, Edmund Scientific.

¹⁴Several researchers have discussed the advantages and problems of LCTVs; see technical bibliography. All articles cited were useful to this project.

Removal of built-in polarizers from LCTV was essential for minimizing DC point. 1-f architecture allowed a small, relatively inexpensive lens to be used even though the LCTV had unfortunately large pixels. Other architectures failed to yield correlations.

* * *

A Macintosh LC, 10MB RAM, controlled system timing and also performed image compositing. Hypercard 2.1™ controlled solenoids by triggering photoresistors placed facing screen buttons. Quickeys2™ XCMD was used to control sound acquisition via Hypercard sound palette and image reconstruction and compositing in Photoshop™. Photoshop's Open As...RAW command along with a six pixel spread to the Minimum filter allowed effective demodulation of the video still transceiver audio signal.

VCR control was accomplished with Abbate Video Consultant's "On Track Mac" which

provides XCMD access to Sony's Control S protocol via the Mac serial port.

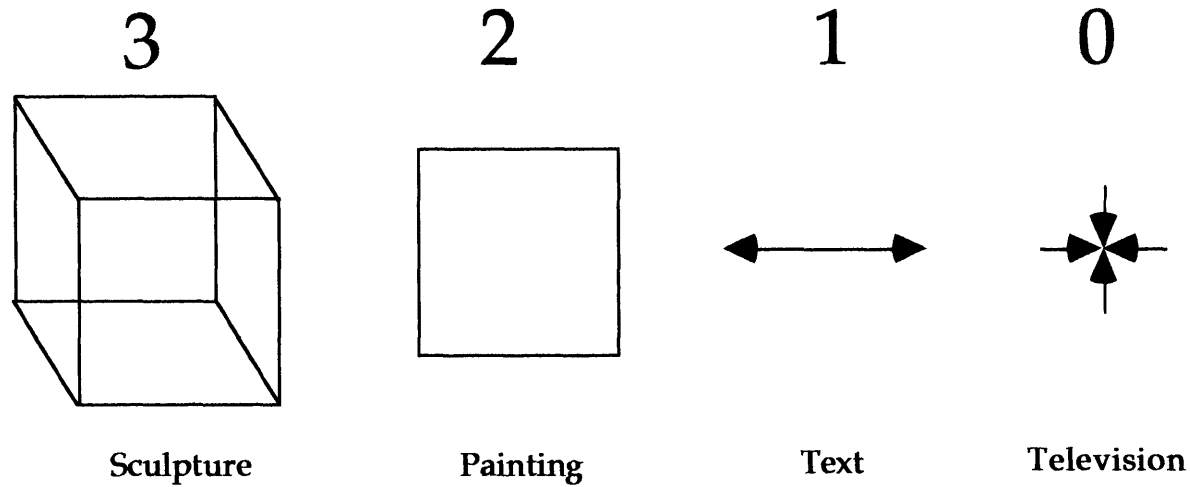
* * *

This thesis is set in 12 point Palatino and output on a StyleWriter inkjet printer. Halftoned images were screened on a digital photocopier. Diffusion dither images were screened in Photoshop and printed at half-resolution (180dpi) to allow for crummy copy machines. Images of thesis components were shot with a Hi-8 camera recording to an S-VHS deck and digitized on a Rasterops board.

Appendix: Dimensions and Freedoms

In this section I explain a conceptual construct which informs my understanding of certain fundamental differences among the natures of the various expressive endeavors (the arts, literature, video, etc.) in terms of the physical dimensions they engage. When I use the words 'Painting' or 'Sculpture' in this appendix I am referring not to the developments in these fields which have occurred over the period of Modernity, but to the historical definitions of the sort of objects to which these words refer; the criteria, for instance, by which Helen Gardner delineated the chapter subsections in *Art Through the Ages*. Likewise 'Television' refers not to the contemporary situation with hundreds of channels and time-shifting VCRs but to the early (pre-post-modern??) incarnation of television where what was on was what was watched.

In most of the world, of course, television is television, unmediated by VCRs. Correspondingly, I know from experience that the word 'sculpture' has a fairly fundamental connotation for most of the U.S. public, rather different from what I have studied.



The most simple explanation of the difference between painting and sculpture is that one has only two dimensions of concern while the other has three. In order to experience a painting one's eyes must move across a 2-D field in a free manner. The viewer is granted two degrees of freedom and may view any section of the painting at will in a self-determined order. Paintings are designed for the eyes. Without regard to the

negligible factors of stereoscopy and selectable focal length, the eyes are fundamentally sensors for two-dimensional information. An assumption of Renaissance and early-modern painting was that it was to represent space (three dimensions) through a surface construct (two dimensions).

Sculpture means the use of three-dimensions. Eyes alone are not sufficient to experience sculpture. Here the viewer is granted three degrees

of freedom. The body must be used to move the eyes around or through the sculpture. Sculpture is sensed through and in the body. Concerns in sculpture often relate to the desire to represent space and time (four dimensions) through a static plastic construct (three dimensions).

The text is a one-dimensional medium. With only one degree of freedom the reader may simply follow the provided narrative. A 'painterly' reading (a term from literary analysis) implies the reader's exercise of freedom; multiple or unordered readings within one text. The ears are the organs for one-dimensional information sensation. That the eyes are used for reading is only an accident of the technology of written language.¹⁵

Roland Barthes speaks of a different sort of multiple dimensions when he writes: "a text is not

¹⁵Chomsky, speech at MIT April 1992

a line of words releasing a single 'theological' meaning (the 'message' of the Author-God) but a multi-dimensional space in which a variety of writings, none of them original, blend and clash."¹⁶ A corollary to this pronouncement is that a writing generates different meanings in different situations, historical or personal. All readers use their degree of freedom to some extent when they choose the moment in time during which they will read. The fact that a book may transverse a variety of situations (it is permanent, it is not fixed in time) means a huge library of material is potentially available to every reader. In my scheme I posit the text as being only one dimensional but remember there are an infinite number of points along a one dimensional line.

¹⁶Roland Barthes, "The Death of the Author," in *Image-Music-Text*, trans. Stephen Heath (New York: Hill and Wang, 1977), p. 146

Television is a zero-dimensional medium. It grants no degrees of freedom. Time is not spanned. Everything may be forgotten.

No part of the anatomy is a characteristic sensor for television. The body does not move, the eyes do not move, and no decisions are made except for “yes, watch this program” or “no, don’t watch this program”. The only characteristic of a zero-dimensional object is that it exists or it doesn’t exist.

Theatre and expositive dance are multi-dimensional because they grant freedom to at least the eyes. The experience of viewing a dialogue in theatre involves the freedom to choose between the speaker or the listener as subjects of the viewers vision. Television almost inevitably uses crosscut editing for dialogue; no choice is left for the viewer. Hollywood cinema is an approximation of television.

So we now have a continuum defined from sculpture to television; sculpture engaging the body, with the most degree of freedom, television engaging only the mind, with no freedom. This construct serves to define for me the quality which separates sculpture from other arts; the quality of interactivity which is lacking in all of today’s dominate media even while it can now be distilled to new levels via technology such as video and computers.

It should be clear that the ‘power’ of a medium, as defined by the degree to which it controls the viewer, is inversely related to the degree of freedom it affords. Text is a powerful medium, second only to television.

The dimensional analysis basis given above supersedes a previous model of viewing the arts which I had used. I had conceived of the critical difference between sculpture and television as an issue of non-sequential, random-access or parallel

information exchange as opposed to sequential, time-based, or serial information exchange. Parallel forms would include painting and sculpture where multiple bits of information are available, while serial forms, like television, are those in which units of information are exchanged one after the other with no choice on the part of the recipient. The parallel mode is associated with recreational or child-like activities such as unstructured play, wandering, free association, daydreaming, contemplation, exploration, intuitive creation while the serial mode is associated with serious and modern activities such as reading, listening, freeway driving, watching TV.

Both models described are useful, I emphasize the dimensional one because it explains the importance, appropriateness of *sculpture* in fighting the flatness, the seriality of mass media and most artificial experience.

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